

# ELEMENTS OF CHILD DEVELOPMENT

*(A basic text for students in Psychology, Education, Home Science, Student Teachers in Special education, Social Work at +2 and University levels)*

**Prof. K.C. PANDA**

M.A. (Patna), Ph.D. (Indiana, USA)  
Retd. Principal, R.I.E., Bhubaneswar and  
Former Dean of Education, Utkal University  
ORISSA



**KALYANI PUBLISHERS**

LUDHIANA • NEW DELHI • NOIDA (U.P.)  
HYDERABAD • CHENNAI • CALCUTTA • CUTTACK

5830  
2-1-2003  
Date : .....

557/2001-2002

# KALYANI PUBLISHERS

## Head Office

B-I/1292, Rajinder Nagar, Ludhiana-141 008

## Administration Office

4863/2B, Bharat Ram Road,  
24, Daryaganj, New Delhi-110 002

## Works

B-16, Sector 8, NOIDA (U.P.)

## Branches

No. 1, Mahalakshmi Street  
T. Nagar, Chennai-600 017

110/111, Bharatia Towers, Badambadi,  
Cuttack-9 (Orissa)

3-5-1108, Narayanaguda,  
Hyderabad-500 009 (A.P.)

10/2B, Ramanath Majumdar Street,  
Calcutta-700 009

COPYRIGHT © 1981, PANDA, K.C.

First Edition, 1981

Third Enlarged and Revised Edition, 1997

Reprinted : 2000

Reprinted : 2001

Laser Typesetting by :

ELITE-ART, 21-Ansari Road, Daryaganj, New Delhi-2

ISBN 81-7663-467-0

## PRINTED IN INDIA

At Gayatri Offset Press, A-66, Sector 2, NOIDA  
and published by Mrs. Usha Raj Kumar for  
Kalyani Publishers, New Delhi-110 002

159-922-72  
P 2152

**DEDICATED  
TO MY PARENTS**

*who never made me any more anxious than they had to*



*Children are my life.*

*— Mahatma Gandhi*

# Foreword

**Child Development** has emerged as an important area of scientific work. Several disciplines are involved in understanding the growth and development of the child. By its very nature, therefore, child development is an interdisciplinary area of knowledge and work. Social workers and educationists have been, for a long time, concerned more with child development and have contributed a great deal in focusing the attention of the people to the importance of several factors which should be taken care of in helping the children to develop fully. Although it has been a truism that "The Child is the Father of the Man", it is only in recent times that scientific works in the field of Psychology, Medicine, Sociology and Education have really developed an insight into the real meaning of the proverb. As a result of this development, considerable public opinion and the pressure of interested groups have led towards greater investment of public funds as well as private funds for the cause of child development. It is, however, necessary to understand the scientific basis of child development so that public opinion can be more informed and teachers, social workers and specialists can really contribute in a large measure towards adequate care and nurturing of the children in our country.

Although research in this field has been in the more advanced countries of the world, some work has been done in our country. It is, however, very necessary to develop much greater research efforts and mobilise resources for research, both human and otherwise, in order to develop more specific knowledge and understanding of the problems of child development under Indian conditions. A book like this, therefore, is a welcome venture towards giving an elementary knowledge for students of Psychology, Education and Home Science. As a result of this exposure some of them might become more interested in developing their research competence in the area of child development and contribute later to scientific knowledge about the development of Indian children under Indian conditions. There are specificities of the physical, geographical, social, economic and cultural aspects of the environment of the child in India, which need to be analytically studied in order to increase our understanding of the problems and processes of child development in India.

This book, which is intended to be, a textbook, describes the general historical trends in Child Psychology stressing the practical

applications of Child Psychology. It describes the methods of observing child behaviour and covers stages of child development including the development of brain. The author has discussed the factors which help or retard growth and development and has pointed out the kinds of research evidence which indicate suitable intervention strategies. I am glad to see particularly the importance given to play in this book. Usually exceptional children such as those who are socially disadvantaged, mentally retarded, emotionally disturbed, as well as the gifted children, do not feature in such books. It is good that in this book author has included a discussion of such children also.

This book should be of use not only to the students as a textbook, but also to teachers and parents interested in understanding children.

Sd/-

(Shib K. Mitra)

Ex-Director

National Council of Educational

Research and Training

Aurbindo Marg, New Delhi

Ranga Red  
Secretary

## Preface

(3rd Edition)

### Why this revised edition ?

A question might be raised by those who have read the previous editions of the text. There are very simple answers to the very well provoked question.

Objectives of teaching, learning and evaluation have undergone dramatic changes over the recent past. The student can self learn, self evaluate and teaching is only facilitatory medium. To learn by one's ownself requires an understanding of the vocabulary used in the text. The student will find at the end of the text a glossary of terms with operational definitions. These will have salutary effect on processing the text. In the earlier volume this was a conspicuous omission.

There are several self questions embedded in the text at crucial points to enable the student stop and think and then proceed. These are advanced organisers introduced in the form of adjunct aids to learning, formative evaluation and anchor points to get the most out of text.

Objective type of questions, short answer questions, and long answer questions drawn at different levels *e.g.*, verbatim, paraphrase, conceptual, and higher order questions measuring knowledge, comprehension, application, analysis, synthesis and evaluation are given at the end of each chapter fairly in large numbers. This aspect in the earlier edition was more traditional. Answers to all questions are found in the text and many more. These are but illustrative cases.

### What Next ?

Thematically or contentwise there are a few changes. A Hindu theory of human development has been added in chapter 1. Chapter 6 and 7 dealing with baby care and ailments in childhood have been updated. Socialisation process finds a place in chapter 10. Measurement of intelligence and measurement of personality have been included in chapter 13 and 17 to make the contents comprehensive and relevant for the students.

The chapter on play in children and emotional development have been thoroughly revised. Chapter 19 through 26 have been made more exact, relevant, and polished by eliminating redundancy and emphasizing the role of teachers, in reshaping developmental process. A chapter on National Policy on Children, Early Childhood Care and Education as per NPE 1986 (R) Programme of Action (1992) and various nutritional programmes have been added for the benefit of larger audience including students in Psychology, Education, Home Science, Special Education and Social Work.

Child development and care is an important area of study. Infact, the quality of life of any nation depends upon the care and upbringing of children, an understanding of the nature of growth and development in all its facets. Of crucial importance is the care and attention of teachers and parents towards the growing child to develop their physical and mental dispositions.

There are various ways of observing the child, guiding him, controlling his movements and behaviour, providing cognitive stimulation, enriched environment, taking care of baby, dealing with problem behaviour and common ailments regulating his emotions and personality, accelerating creative potential and pattern of intellectual growth even during play. The National Policy document has recognised the crucial importance of child development and care of children from the beginning of life, not only after-birth.

The purpose of writing this book is to acquaint students, parents, teachers, and social workers who are either working or are interested in knowing about children. Since child psychology is being taught at Universities in the Faculties of Psychology, Education, Social Work, Special Education and Home Science students would derive benefit from this book to a great length. Attempt has been made to make the coverage fairly comprehensive and practically meaningful to one who is interested in this area.

At last, I am grateful to M/s Kalyani Publishers and the production department for bringing out this edition in a nice get-up and well in time.



# Contents

Foreword  
Preface

(ix)

(xi)

1. **CONCEPT, NATURE AND IMPORTANCE OF CHILD PSYCHOLOGY** 1—17  
National policy on children, What is Child Psychology? Nature, Subject matter, Prescientific period in child psychology, Modern period in child psychology, Theoretical perspectives of child study, Learning theory, Cognitive Developmental Theory, Hindu theory of child development, Practical importance of child study, Review exercises.
2. **METHODS FOR STUDYING CHILD BEHAVIOUR AND DEVELOPMENT** 18—29  
Biographical method, Controlled observation, Case history, Behaviour ratings, Questionnaire and check-list, Experimental method, Clinical method, Differential method, Cross section *versus* longitudinal approaches, Review exercises.
3. **PRINCIPLES OF DEVELOPMENT** 30—55  
Types of changes, Principles of development, Major developmental periods, Early experience and critical period, compensatory education, Factors affecting development, Maturation and Learning, Heredity and environment, Role of heredity, Role of environment, Heredity and environment interaction, Behaviour and physiological variables, Cultural influence on human development, Review exercises.
4. **PRENATAL DEVELOPMENT** 56—69  
Signs of Pregnancy, Complications of pregnancy, Mendel's law of heredity, Sex determination, Prenatal growth, Period of ovum. Period of embryo, Period of fetus, Environmental factors influencing prenatal development, Age of the mother, Nutrition, Drugs, Smoking, X-ray, Infections and chronic diseases of mother, Rh incompatibility, Maternal emotional states, Birth hazards, Teratogenic agents affecting the embryo, Vitamins, Review exercises.

- 5. THE NEONATE : EFFECTS OF BIRTH ON DEVELOPMENT** 70—77  
 Physiological and Psychological changes, Pre-maturity, Types of birth, Birth injury, The new born baby, Crying, Feeding, Sleep, Pain, Sensory response development, Vision, Hearing, Taste and smell, General behaviour, Review exercises.
- 6. BABY CARE AND CHILDHOOD PROBLEMS** 78—88  
 Feeding the baby, Burping and carrying the baby, Bathing the baby, Bed for the baby, Clothing for the baby, Sleep of the baby, Teething in the baby, Weaning in the baby, Bed wetting, Toilet training, The baby talk, Lead poisoning in baby, Thumb sucking, Nail biting, Review exercises.
- 7. COMMON AILMENTS OF CHILDHOOD** 89—101  
 Children at risk : The immunization process, Allergy, Asthma, Common cold, Constipation, Diarrhea, Earache, Fever, Measles, Poliomyelitis, Thrush, Whooping Cough, Wind, Infant and meternal mortality, Implications, Review exercises.
- 8./ PHYSICAL AND MOTOR DEVELOPMENT** 102—113  
 Principles of physical growth and motor development, Physical growth, Change in body proportions, Change in height, Baby weight, Nervous system, Motor development, Pocrtal locomotor development, Development of prehension, Pre-school period, Elementary school years, Factors associated with physical and motor development, Implications, Review exercises.
- 9./ EMOTIONAL DEVELOPMENT** 114—136  
 Development of emotion, Maturation and hearing, Characteristics of childhood emotion, Common emotional patterns—Fear, Anxiety, Anger, Jealousy, Joy, Pleasure and delight, Factors associated with emotion, Behaviour problems, Implications, Review exercises.
- 10./ SOCIAL DEVELOPMENT** 137—149  
 Socialisation process, Early childhood, Late childhood, Adolescence, Factors influencing social development, Peers and adults, Family influences on human development, Family role in human development, Review exercises.
- 11./ PLAY IN CHILDHOOD** 150—160  
 Theories of play, Factors of play, Value of play, Characteristics

of child play, Social participation among pre-school children, Thinking in child's play, Review exercises.

- 12. CHILDREN'S INTERESTS** **161—167**  
 Method of observing children's interest, Development of children's interest, Types of interest, Human body, Appearance, clothes, names, religion, sex, status, symbols, school, vocational interest, implications, Review exercises.
- 13. DEVELOPMENT OF INTELLIGENCE** **168—176**  
 Concept, Nature of intelligence, Development of intelligence, Factors affecting intelligence—age, culture, rural/urban, socio-economic status, measurement of intelligence, Uses of intelligence tests, Review exercises.
- 14. INTELLECTUAL DEVELOPMENT** **177—193**  
 Sensori motor development, Reflex, Primary reaction, Secondary circular reaction, Coordination of secondary circular reaction, Tertiary reaction, Mental combination, Reoperational period, Concrete operations, Classification, seriation, reversibility, conservation, Mental representation grouping, Formal operations, Combinational thought, Implications, Review exercises.
- 15. DEVELOPMENT OF CREATIVITY** **194—203**  
 Characteristics of creative child, Growth of creativity, Measurement of creativity, Development of creativity, Creativity and human development, Review exercises.
- 16. ✓ LANGUAGE DEVELOPMENT** **204—217**  
 During school years, Development of language habits, Speech defects, Factors associated with language development, Techniques of accelerating language development, Implications, Principle of language teaching, Review exercises.
- 17. ✓ PERSONALITY DEVELOPMENT** **218—252**  
 First three years of life, Attachment, anxiety, Inadequate care in early childhood, critical period, pre-school years, sex motive, Aggression, Regression, Displacement, Achievement, Motivation, Anxiety, Identification sex typing, Development of conscience, Family, School, Infantile autism, What parents should do ? Do not for parents, Middle childhood, Parental influence of IQ and achievement, Review exercises.

- 18. MORAL DEVELOPMENT** **253—261**  
 Stages of moral development, Development of moral concepts, Factors influencing moral development, Punishment, Rewards, Review exercises.
- 19. MENTALLY RETARDED CHILDREN** **262—294**  
 Identification, Components of the AAMD behaviours scale, Clinical classifications of Mental Retardation, Causes of Mental Retardation, Preventive measures, Characteristics of the mildly mentally retarded, Learning and memory, Instructional Techniques, Personality, Physical fitness, Creative thinking, Social and emotional characteristics, Language characteristics, Attention and perception, Educational provisions, Interventions, School interventions, Integrated education, Post school adjustment, The Moderately Retarded, The profound and severely retarded, Review exercises.
- 20. EMOTIONALLY DISTURBED CHILDREN** **295—306**  
 Characteristics of emotionally disturbed, Identification of emotionally disturbed children, Types of emotional disturbance, Causes, Educational Programme and Treatment, Review exercises.
- 21. GIFTED CHILDREN** **307—316**  
 Characteristics of gifted children, Identification of the gifted, Educational Provisions, Non-graded classroom, Special schools for the gifted, Special class in a regular school, Grade skipping, Early admission, Advanced Placement and Credit System, Mainstreaming, Enrichment programme, Special teaching methods, Review exercises.
- 22. NEUROLOGICALLY IMPAIRED CHILDREN** **317—324**  
 Neuromuscular impairment, Poliomyelitis, Spina Bifida, Cerebral Palsy-behavioural characteristics, Epilepsy, Educational Placement and integrated education, Review exercises.
- 23. HEARING IMPAIRED CHILDREN** **325—332**  
 Identification, Testing techniques, Assessment of hearing loss using audio meter, Causes of hearing loss, Characteristics of hearing impaired children, Educational provisions, Role of Teachers and instructional programme.

<b>24. VISUALLY IMPAIRED CHILDREN</b>	<b>333—342</b>
Behavioural signs for identification, Assessment of visually impaired, Causes of impairment, What can be done to prevent and cure visual impairment, Characteristics of visually impaired children, Integrated education of visually impaired children, Development of visual efficiency in partially sighted, Review exercises.	
<b>25. UNDER PRIVILEGED CHILDREN</b>	<b>343—364</b>
Characteristics of under privileged children, Nutrition, Deprivation and Achievement, Deprivation, Discrimination and Achievement, Integration, Intervention and achievement, Remedial measures, Education strategies for the under-privileged, Guidance in the service of the disadvantaged. Review exercises.	
<b>26. LEARNING DISABLED CHILDREN</b>	<b>365—375</b>
Identification of learning disabled children, Behavioural tests used to identify learning disability, Causes, Characteristics of learning disabled children, Education of learning disabled : The role of teachers, Integrated education setup. Review exercises.	
<b>27. POLICY, ACTION PROGRAMMES AND PLANS FOR THE WELFARE OF CHILDREN</b>	<b>376—400</b>
Early childhood care and education — Policy, ECCE-P&A 1992, Health and Nutrition Programmes	
<b>GLOSSARY</b>	<b>401—406</b>
<b>REFERENCES</b>	<b>407—420</b>

# Concept, Nature and Importance of Child Psychology

A study of the psychology of childhood if conscientiously and intelligently pursued, provides a rich background of information about children's behaviour and psychological growth under a variety of environmental conditions. It provides information and norms of behaviour and growth for comparative purposes as well as understanding of basic psychological process and socialisation. What then is child psychology or child development.

## **WHAT IS CHILD PSYCHOLOGY ?**

Child development or child psychology as a field is defined as a branch of knowledge concerned with both the nature of development and regulation of significant structural, functional and behavioural changes occurring in children as they advance in age and maturity. It deals with understanding the development of characteristics of children and the process through which development occurs. In most cases, emphasis is on collection of data and the methods to deal with such cases. More specifically, child psychology or child development deals with understanding of growth and development patterns and the development of various characteristics in children.

Very often two questions arise : Are development psychology and child psychology equivalent ? Can child development be regarded as an independent area of study ? Very often developmental psychology and child psychology are used synonymously. But there is a difference. Developmental psychology is that branch of knowledge which studies the behaviour and behaviour changes that occur during the entire life span *i.e.* from conception to death. Child development on the other hand, deals with growth and development of characteristics upto the age of 14 years. The second question, is it an independent science ? It is an independent science. It is concerned with the discovery of general laws in its area of special concerns as an end in itself. It is concerned with interpreting and predicting individual development. It

is also concerned with child guidance and counselling of children. This will be clearly known from the subject matter with which it deals.

### **NATURE — IS DEVELOPMENT CONTINUOUS ?**

The concept of development presupposes that there is a continuity in development. This continuity is lawful and is observed between successive stages of an ongoing growth process and that properties of earlier phase contributes to the properties of subsequent phase. These changes are progressive.

Both the hereditary predisposition and environmental facilities contribute to the process of change. There is also reciprocal change between organism and the environment.

Child development is a natural science. The child psychologists observe, describe, measure and relate phenomena as they occur naturally in uncontrived situations. For example, parent-child relationships, assimilation of cultural values, relationship with peers over extended period of time and under variety of situations cannot be studied experimentally. It has to be based on naturalistic observations.

Ethically and practically it is undesirable to manipulate emotions, attitudes, and values among children. One cannot ask mothers to deliberately reject her children or reward and like her children according to instructions in order to study parent child relationships. Children cannot be subjected to physical frustration, deprivation with a view to studying their effects on children behaviour.

### **SUBJECT-MATTER OF CHILD PSYCHOLOGY**

The subject matter of child psychology includes an understanding of the child from the time of conception, the principles by which hereditary traits are transmitted to children, the prenatal care of the fetus and the mother, the factors which need much attention such as maternal nutrition, disease, X-ray, drugs, etc. Knowledge of preventive care constitutes a significant dimension of study including the understanding of development of ovum, embryo and fetus.

The next area with which child psychologists are concerned is the behaviour of the Neonate, his sensitiveness and adjustment processes immediately after birth upto the end of two weeks. Sensory reception and stimulation are studied. Much attention is paid to understand the baby during early childhood and late childhood days with emphasis on childhood growth and development, factors associated with development, the contribution of early experience and critical period, role of maturation and learning, heredity and environment on development.

At the same time, how does the child acquire motor proficiency, or language proficiency? What are the speech defects? How language training can be given to children? An understanding of the speech defects is also another dimension and their remediation.

Childhood emotion is another area of concentration. Development of fear, anger, anxiety, love, jealousy, and laughter, their causes and coping strategies are also studied in the field of child psychology. Socialisation and social development and the extent to which family, school, peer group contribute to socialisation. The nature of traits which later on constitutes his personality. In order to shape the personality what parents should do and should not do is the basic thrust in this area of study.

Intelligence, and creativity constitute major area of study including cognitive development of children. How and to what rate cognitive growth takes place. How does the child develop logical reasoning and thinking? Both traditional intelligence and cognitive growth are studied by the child psychologists. While studying these characteristics, they emphasize the interventions and role of early childhood experience.

Play in children constitutes another area of study for the child psychologist. The extent to which play contributes to the social intellectual development of children are the subject matter of study including theories and values of play. In this area, childhood interests are studied from a developmental point of view.

In recent years, child psychologists are also studying birth hazards, care of the baby, childhood ailments and problems and the factors which are associated with infant and maternal mortality and deviant behaviours from the point of view of value and moral development in children. Child psychology thus encompasses the prenatal, perinatal and postnatal growth and development of all the characteristics of children, the antecedents and consequences which there by provides effective guidelines for controlling and predicting behaviour among children.

### **PRESCIENTIFIC PERIOD IN CHILD PSYCHOLOGY**

Child psychology has now become a more important and vigorous discipline in the Western world. But until 17th century there was no special emphasis on childhood as a separate phase of the life cycle. Plato became interested in the growth of the child and recognised the importance of early childhood training in the determination of the individual's aptitudes, adjustments. He emphasized child-centered education. Within a short span, child psychology has progressed much. It is worthwhile, therefore, to trace the history of such developments.

In early days, the child was not considered as a child. He was regarded



just as some living organism in transition. In the late 15th and 16th century they were considered as miniature adults. Philip Aries, a French historian has mentioned this in his writing "Centuries of Childhood".

The seventeenth century marked a great change in attitude toward children and their morals. Parents and teachers considered children as more lively and delicate organisms. In the Greek period the child was seen as future citizen and as a member of family. A conception that 'Spare the rod, spoil the child' was in practice then. An opposite view was gradually practised by British and other contemporary philosophers. John Locke, the British philosopher viewed the child's experience and education as determinants to his development. Rousseau, the French philosopher believed that child is endowed with an innate moral sense. The child according to him is active. He can adjust to the environment according to the abilities.

As a result of these two new ideas and attitudes, children became proper subject of study. Pestalozzi, like Rousseau emphasized the innate goodness of the child and the role of his own activity in his development. In 1774 Johann Pestalozzi published observations, he had written on the development of his three and a half year old son. For the first time, an account of sensory, motor, language, and intellectual development of the infant upto 2.5 years of age was published by Tiedman in 1787. He was his son. But nearly a century passed before any appreciable volume of work on the subject of the child appeared. For centuries, concern had been expressed for the education and proper upbringing of children starting with infancy. Some influential works in eighteenth and nineteenth centuries were : John Locke's some thoughts concerning Education (1693), Jean Jacques Rousseau's Emile (1762), Johann Pestalozzi's How Gertrude Teaches Her Children (1801) and Froebel's Education of Man (1826).

In the 19th century, the works of Charles Darwin on 'origin of species' stimulated greater interest in the study of child. Quite in line with evolutionary process series ontogenetic stages were also conceived in the development of the child. Child psychology then appeared. With Darwin the child became a part of the scientific endeavour. Darwin suggested that by observing the development of infant, one could catch a glimpse of the development of the species itself. His own notes on his infant son also drew attention to a newly emerging method of child study. In 1840, Charles Darwin started a journal on the development of his son in 1877, almost a hundred years after Pestalozzi's 1774 publication. Baby biography became an important method of child study since then.

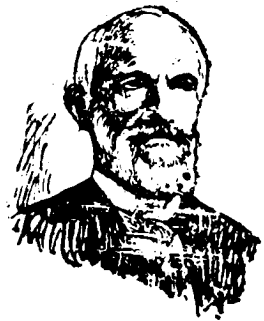
Wilhelm Preyer, who was a physiologist originally, contributed most to baby biographies. Basing the observations on his son's mental development during the first year, Preyer wrote about development of reflexes, and

244003/232452  
 ASU  
 Prasad

influence of learning and experience on development of behaviour. His book "The mind of the Child" is the greatest classic in the field of child development. These baby biographies inspite of their weaknesses of being subjective, prepared the groundwork for a scientific child psychology to be developed later.

Systematic study of children began towards the end of the 19th century by G. Stanley Hall (1846-1924) in United States of America. He was influenced by the idea that child is a developing organism in accordance with certain sequential stages. He devised the questionnaire method to collect data about children. He collected written responses to questionnaires from both parent and children and the papers were published in 1882 and 1883. His method of obtaining responses and analysing them was definitely superior to his predecessors. Hall observed the relationships between the child's personality characteristics and background experience. In this sense, Hall marks the beginning of scientific and systematic study of child in the United States. In fact, Hall was the fore-runner of modern psychological tests. In 1883, Dr. Hall wrote a book entitled "The Content of Children's Minds" an early scientific study of the child. Hall became the President of Clark University in 1889 and made it a famous centre for child study. One of his student John Dewey, advocated educational reforms within a movement known as Progressive education. Arnold Gessel was another student, who became pediatrician and established the norms of development of children from early childhood. A third student, Lewis Terman, became a leader in the area of mental testing who later on developed the intelligence quotient as a standard index of intellectual ability. He also introduced European leaders to the American educators and hosted Sigmund Freud's only visit to the United States in 1909.

The French Scholar, Binet also devised intelligence test to measure IQ in Children although it remained until 1908 and 1911 for the revised versions to appear. This is a great contribution to mental testing especially with children. Concurrently a major effort was initiated by Watson, who experimented on the conditioning technique and its use for developing emotional response in infants. In rejecting introspection, Watson made infants and children legitimate subjects for psychological experiments.



G. Stanley Hall

During the 1920's and 1930's many psychologists got interested in child psychology. Intelligence, learning, language and thinking processes, etc. were studied with sophisticated methods. Many of the studies during this

period were normative, Studying the child was relegated to the back-ground, instead, study of individual differences became prominent. Normative data gathering was more in focus.

Lawrence Frank (1890-1968) who was a young economist gave a vigorous push to the scientific study of the child. In 1920's he became in charge of the Spelman Rockefeller Memorial Child Development Grants. Under this grant a child study institute was established in 1924 at the University of Columbia followed by Minnesota and California at Berkeley in addition to the Gessel Clinic of Child Development at Yale and Iowa Child Welfare Station.

With Rockefeller Grants the focus of child study moved from the home to the University Centre where pre-school children were observed. Infants and Pre-schoolers became the focus of search studies in the 1920's. His idea was to "Bring the best from all the human sciences-biology, sociology, anthropology, psychiatry, medicine and physiology and effect joint effort to understand the normal development of an individual". This step contributed to interdisciplinary research in the next decades.

From other field of psychology and allied sciences, came greater influences for the development of child psychology. Psychologists for example, had the greater influence in the area of motivation, understanding the dynamics of behaviour, etc. But no less important sources of influences were the areas of child guidance, clinical psychology, pediatrics, education, and educational psychology without exception to cultural anthropology. These fields virtually contributed to the development of child psychology during modern times.

### MODERN PERIOD IN CHILD PSYCHOLOGY

In the modern period, the child is seen as an individual in a total situation. The child functions as a result of innate disposition and environmental forces. This has resulted in multidisciplinary child development research. The physiologists, nutrition specialists, child guidance experts, psychiatrists, all contribute to our understanding of the child, his behaviour and growth. Long term research projects have become the order of the day.

In recent years there has been emphasis on the process of development rather than merely observing the pattern of development as a function of age, sex, socio-economic status, etc. The developmental emphasis also stresses the personality development of the child, in which the child psychologists have an important role to play.

Basically advancement child psychology in the modern period can be understood in terms of :

- (a) Methodology of studying children behaviour

(b) Contents of child study.

Looking from the points of view of objective standards in methodology, it seems that child psychology of today has become stubbornly empirical. The greatest virtues are objective observation, description, measurement and use of experimental designs in child study.

Since 1900 remarkable progress have occurred in various fields of child development. Norms for social, intellectual, physical, and emotional developments have also been available. It is possible now to predict intelligence. Analysis of the major developments can also be statistically analysed and then interpreted.

There is also in increasing recognition on the part of psychologists to unify the various developments occurring in the field of child psychology and develop a comprehensive theory of personality, social learning, motivation, and the like.

Various theoretical stances have also contributed quite amazingly to the above unification of ideas. Piaget's description of cognitive development, Sear's social learning theory, Freud's psychoanalytic orientations have enriched the field beyond expectations. However, during the last twenty five years certain trends in child development have become quite obvious. They are :

- (a) Establishment of norms of thinking, reasoning, creative behaviour of children.
- (b) Mechanisms underlying various changes occurring in the life of children.
- (c) Antecedents and consequents of behaviour change.
- (d) Studies of socialization and personality development and the factors associated with them.
- (e) Parent child relationship.
- (f) Cognitive development of children.
- (g) Use of experimental approach to child forsaking the traditional correlational designs.
- (h) Intervention programmes for enriching personality, linguistic and cognitive development from early childhood.

The twentieth century has, therefore, become known as the 'Century of the Child'.

### **THEORETICAL PERSPECTIVES ON CHILD STUDY**

The growing interest in child study, as has been said in the preceding pages, contributed to various perspectives embodied in the form of theories. Theories in fact describe, explain and predict what will happen in a given situation.

Freud was a medical doctor, who contributed to the development of psychoanalytic theory at the end of the nineteenth century. Freud's thesis was that an individual possesses two minds : conscious and unconscious. By using different techniques Freud investigated the unconscious and understood its nature. His main contribution was psychosexual theory of personality development. The individual is matured by going through a series of stages that are fixed in order *i.e.* oral, anal phallic, latency, genital.

The primary source of pleasure comes from stimulation of oral regions of the body primarily the mouth, in the oral stage or the infancy stage. Pleasure shifts to the anus and activities focus on toilet training in the anal stage. At about age three, the child's interest shifts to the genital region of the body and the child enters the phallic stage of development. During the elementary school years, the child is in a latency period that is essentially guilt. Adolescence brings the genital stage with a focus on sexual development and introduction. According to Freud the basic personality is shaped very early in life. Somewhat around five years of age. Feelings about the self, development of thoughts and attitudes are influenced by early childhood family relationships. Children perceive the world very differently from adults. They lack the cognitive and mental ability to understand all that they see and hear. The purpose of the psychoanalysis is to appropriately gear adult functioning. Psychoanalysis is a theory and therapy. It understands child's development and treats childhood problems.



Sigmund Freud

One of the students of Freud, named Erik Erikson extended Freud's psychosexual stages to include psychosocial learning, and included some ideas from cultural anthropology. His theory is popularly known as the 'eight stages of man'. Although Erik believes in the Freudian ideas but he places emphasis on the cultural and social factors that influence the development at each stage.

Erikson considered infancy as a period during which infants either learn to trust or mistrust depending upon how well their needs are met. Toddlerhood presents the conflict of autonomy *vs.* shame and doubt which is influenced by how others respond to the infants own attempts to gain some self-control. The pre-school years are concerned with initiative *vs.* guilt as children learn to undertake, plan and do things for themselves. Children who are rewarded

feel initiative, children who are punished feel guilt. During elementary school years there is the development of industry vs. inferiority depending upon mastery over things. Adolescence is a period of identity vs. identity diffusion during which the individual tries to become a person.

There is a great deal of crisis in adolescence. This is best described in the book *Identity, Youth and Crisis* (1968). Interpersonal relationship is emphasized in early adulthood, a period of psycho-social crisis of intimacy versus isolation. During this period the individual either develops a meaningful relationship with another person or does not. In the middle adulthood, the individual develops a commitment to improve the life conditions of their own children. Erikson calls this stage productivity vs. self-absorption. The final stage of adulthood is integrity vs. despair. In this stage the individual accepts the facts of his or her life and face death without fear.



Erickson

Both Erickson and Freud considered stage specific nature of development. Freud has emphasized biological factors. Erickson has emphasized the cultural factors. In any case they converge on one point that childhood forms the basis of later personality and functioning. As such, area of child psychology should concentrate on early influences in family, culture and external environment. Personality is not inherited. It is learned.

### Learning Theory

The behaviourists, stimulus-response and social-learning theorists all believe that behaviour is learned, no matter whether it is by conditioning, practice or socio-cultural conditioning. Watson's famous study with Albert in 1920 is a case in point. How Albert developed fear response can be seen in the chapter on emotion. The principle is stimulus generalisation. Watson said :

“Give me a dozen of healthy infants, well formed and my own specific world to bring them up in and I will guarantee to take any one at random and train him to become any type of specialist. I might select-doctor, lawyer, artist, merchant, chief, and yes, even beggar man and thief regardless of his talents, tendencies, abilities, vocations, and race of his ancestors (1930, P 82). Thorndike demonstrated how reward helped learning and Skinner, the giant among the present day psychologist demonstrated the modification

of behaviour by gradual change or successive approximations and reinforcements”.

The recent approach to behaviour development is imitation and modelling. The child sees, he believes, identifies, imitates and learns behaviour of the models. Albert Bandura (1924) is the leader of this movement. The child does not repeat the behaviour unless the model is rewarded. Both Skinner and Bandura emphasized the modification of behaviour principles to educational and clinical settings. They have successfully demonstrated that aggressive behaviours, thumb sucking, nail biting, isolate behaviours, crying, etc. can be decreased and more appropriate behaviours can be learned by differential reinforcement.



B.F. Skinner



Albert Bandura

### **Cognitive-Developmental Theory**

Jean Piaget, the father of cognitive psychology was the advocate of cognitive-development theory whose interest in science and psychology was from a very early age. He believe in the process of biological adaptation. Piaget's belief that the child's capacity for formal logical operation is developmentally linked and is only developed systematically when the child reaches the age of fifteen years.



Whatever may be the perspective, it sheds light on the

problem at hand. The more we know about the area of child development, the better equipped we are to understand the nature of the child. Perhaps it is a bit like the story of the blind men who wanted to understand the elephant. The one man who touched first said, "the elephant is like the snake, that can curve and curl around itself". "No, the elephant is not like the snake, it is more like a smooth limb of tree." The third man went upto the elephant and said, "Oh no, the elephant is neither like the snake nor like the limb of a tree, it is rough, wide and fall-like a wall. An elephant is like wall". "The fourth touched the ear, and said, gentleman you are all mistaken, the elephant is like a large leaf from the shady trees". So each man has his own way of looking at things, a piece of truth, a perception that was helpful but incomplete. Only by sharing the insights and accepting the realities the picture could be complete. This is truth with the theory of child development.

### THE HINDU THEORY OF HUMAN DEVELOPMENT

Hindus have a rich cultural heritage although they have different sects within other it. They believe in Karma (deeds) and transmigration of soul which are universally accepted. Thomas has outlined a Hindu theory of Human development based on 'the laws of Manu-manusmriti. The Griha Sutra, the rules of Vedic domestic ceremonies the Dharma Sutra, Upanishad, Vedas, Ramayan and Mahabharat.

Hindu doctrine holds that all things have derived from a Cosmic Soul or Divine self existent. Mind or power (atman) is the essence of reality and that the physical world of everyday life is a passing thing, a kind of illusion. The concern therefore is development of Soul rather than human body. The three elements which guide thinking are caste, reincarnation and Karma.

First, a person is immutably bound to his Caste by birth. Second, the rules of living which influences development varies from one caste to another. Failure to observe rules after the subsequent life.

A Key concept in development is the concept of justice. A person gets what he earns and desires. Justice operates through the principle of Karma.

Under the principle of Karma a person accumulates the effects of his acts in the four of an investment account, which is the algebraic sum of good and bad deeds at any point of time. Associated with this in the reincarnation of the soul *i.e.* a person is reborn in the form of human or an animal based on one's Karma.

The period of development for the body extends from the moment of biological conception to the moment of final heart beat, that signals death. In contrast the period of development of the soul extends from the tince individual soul emerges from the cosmic soul and countries till reunification with the cosmic soul in future.



The goal of development is release for life after attaining masters of knowledge from the sacred writings, being disciplined, dutiful, devoted, loving, and obedient, humble, unselfish, self effacing, and self sacrificing, free from desire and aversion, exempt from ties and affection, pure speech and thought and a confidence in elements.

The cause of development is based on free will, heredity and environment and its interaction. Heredity in the genetic sense does not exist in Hindu theory. A person creates his own inheritance of on earth by means of his past deeds in his previous existence. His characteristics, which he inherits, are all his past Karma. He is his own progenitor and his own heir.

A small portion of traits however, are inherited from the parents. These are all predetermined and is known as fate.

Environment in a Hindu perspective consists of a person's surroundings that provide opportunities which individuals use to create their own fate. This governed by free will. People are free to choose to think and act in terms of their knowledge and intention. The evidences are controlled through threat of punishment.

In Hindu theory, there are two types of learning, outer directed and inner directed. The outer directed learning is derived form formal study of sacred writings and informal interaction with the world known as experience. The inner directed learning is inner spirit or atman and its method is introspection through meditation. To motivate learning, Hindu theory emphasizes punishment or threat of punishment. 'Knowledge must be grown in fears equivalent to earlier western saying "Spare the rod and spoil the child"'. Punishment is given in earth by the king over the populace, the parent over the child, the teacher over the pupil. The second punishment is given by Brahma after the present life on earth. The inner disected learning is through meditation and Yoga.

There are three states of awareness through which the individual gains awareness (a) the waking state (b) the dreaming (c) the dreamless sleep. On the basis of these, individual creates his own experiences and volition.

There are different stages of development especially for men. The first stage is studentship — mastery of scriptures, vows, duties from a Guru after the individual attains maturity or shortly after. The second stage householder which begins with marriage. The third stage is hermit in the forest. When the individual is old he may resort to the forest saint life of an ascetic. He forsakes his earthly ties and cencern for his physical self and looks for merger of his atman with the cosmic soul.

Individuals differ in terms of caste, sex, age, physical attributes and intention. They themselves determine how they will act from day to-day.

These ideas and beliefs lead to certain practices in child rearing, teaching and counselling. In the early childhood the parents take care of the child, his nutrition, as well as voicing incantations through the ears of children. As soon as he reaches adolescence, they go to a guru for studentship which consists of drilling the scriptures and punishment is the real motivation. Counselling techniques logically would include sacred rites and austerities and motivating individuals to behave as recommended by scriptures and follow the path of righteousness.

Of course, this theory is of interest in terms of basic elements, many seem to be obliterated by the recent thoughts.

### **PRACTICAL IMPORTANCE OF CHILD STUDY**

Why do we study child psychology ? Like all other fields of science, child psychology has come of the age since World War II. Instead of only concentrating on description of child behaviour in terms of derived norms, child psychologists have accepted the four fold objectives of observation, prediction, guidance and control of child behaviour and development. These of course, presuppose a thorough understanding of the developmental trends and norms.

It helps one to observe child behaviour

It helps one to predict child behaviour

It helps one to guide child behaviour

It helps one to control child behaviour.

For example, it enables one to know how attachment develops between mother and child, how the child reacts to various anxiety and frustration producing situations, how the rate and quality of language acquisition can be accelerated, what is the role of sensory stimulation in early childhood on the development of behaviour, how far certain types of parental child rearing practices are helpful to the children's development of personality, how best early enrichment programmes can be arranged to promote growth. These problems are of crucial importance of parents, teachers and any one who is interested in child development.

More specifically, the practical importance of child psychology can be illustrated from the point of view of parents, teachers, and guidance experts.

For the parents, it enables them how to keep a record of the growth of the child if they are interested. They can know what to expect at what age of development. Whether the developments are taking place appropriately or not. Further, a knowledge of the conditions which are responsible for the healthy growth of the fetus during pregnancy is so valuable that nothing can compensate for it. The expectant mother knows what to eat, what precautions to take, which are the dangers (X'ray, drugs, alcohol) to avoid, and in what

way tension during pregnancy can be avoided before the baby may be born with damaged cerebral functioning, physical malfunctioning and deformities. Prenatal care is as important as postnatal care. The parents after reading child psychology become able to know what is the critical period in development, what constitutes an enriched environment, how such facilities can be created, how the baby will be reared democratically or under autocratic discipline, how to deal with his curiosity etc. Even the study of child psychology enables the parents to use healthy child rearing practices free of over protection, over rejection, indifference, double discipline etc. as a result of which the child develops into a balanced personality without much of a behaviour problem. In fact, children imitate parents. It is for the parents to know that how best they can serve as good models for their children.

A knowledge of child psychology enable the parents to know the technical know how for dealing with childhood emotions (fear, anger, jealousy) and when resultant frustrations in a more healthier way than by sparing or using the rod only. They apply the motivational and learning principles to bring changes in their children.

They can guide their children according to childhood interest. They can help them to develop socialisation and cognitive functioning through play. They can provide opportunities for the development of cognitive growth and creativity from early childhood by controlling and directing their own behaviour in relation to children. A parent ignorant of child psychology is definitely at a disadvantage. Of course knowing these does not guarantee use of these but it is a step ahead of ignorance.

Another area where a knowledge of child psychology is useful to parents is the area of language and socialisation. The parents' use of an elaborate language system is immensely helpful to the child's growth of languages. Many parents do not know this. They use threats, single repetitive directions, they stop children when they ask questions. They do not know that they talk elaborately during mealtime, bedtime, playtime, the child can learn more vocabulary, usage, and applications including comprehension of language. This enables him to have better socialisation, contact and communication. Many parents do not know that they are responsible for stammering, stuttering and certain other speech defects in the absence of any physiological deficit. This way they know how they can contribute effectively to reduce speech defects by their own behaviour *i.e.* by not criticising childhood speech, by not embarrassing them etc. There are many such specific uses which have been explained in detail at different places in this book.

Child psychology is practically useful to the teachers especially in the early childhood period. A naive teacher does not know what are the basic needs (security, safety, attachment) of children when they enter school. They

deal with them as guinea pigs or silent spectators of the instructional setting. By reading child psychology a teacher knows the basic needs of children that are to be complied in school without which the child may quit school. Unless a teacher takes care of the basic needs he can not expect the child to come to him with a smiling face. Hence, he will not learn spontaneously in school.

It enables the teacher to be acquainted with the milestones of development. He can cut his coat according to the cloth. Otherwise, what he is teaching may be beyond the developmental level of the child. At least, he knows after an exposure to the field of child psychology, new concepts develop, when do they develop, how best they can develop *i.e.* exploration or direct teaching, praise or reprimand.

It enables the classroom teacher to know and identify the behaviour problems in school. This he can do only when he knows what is normal behaviour and at what stage. The teacher is really master tailor and the knowledge of child psychology helps him to his job perfectly. He becomes acquainted with technique of socialising, rearing, learning and cognitive development, regulating his play and leisure time activities, building his personality, giving him remedial measures, matching his communication level with that of the level of child etc.

More important is the use of observational techniques by the teacher. The teacher for understanding the development of the child uses case history, experimental method, rating scales, checklists etc. These knowledge and competencies he develops from his reading of child psychology.

Many teachers spoil the child and their curiosity not because they want it but because they do not know how to develop curiosity, creativity, intelligence, positive mental health in children. A knowledge of child psychology this way becomes practically meaningful to him and he acts accordingly.

Most of the practical utilities mentioned for parents are also meaningful in the context of teachers because the teachers in the early stage of development become parent substitutes and mould the behaviour of children. In fact the teacher spends more of active time with children than the parents of children. Hence, it is all relevant for the teachers.

However, in our country child guidance service has not been developed except in very big cities and that too very rarely they are psychologically oriented. These are mostly medically designed with a catchy term of 'child guidance clinic'. This is in fact a great necessity for a developing country like ours. Building a bridge, expending agriculture are as important as shaping the child for becoming a healthy citizen of the country but seldom we care for this. The belief is, children grow, but we must know that they can grow

in any direction and in any speed. Child guidance is necessary. For this purpose thorough and comprehensive understanding of child development is essential.

The uses of child psychology are so many and varied. The child guidance expert contributes for helping the child who suffers from chronic behaviour problems, speech defects, learning dysfunctions as well as in giving advice to parents regarding the child's capabilities and deficiencies by proper testing. Child psychology becomes extremely useful in the context of guidance of children.

Further, an understanding of the child psychology is necessary because it contributes to later development of personality and behaviour. 'The child is the father of MAN' and 'as the twig is bent so grows the tree' are the popular proverbs which explain and emphasize the practical importance of studying child psychology.

### REVIEW EXERCISES

*Answer the following questions in about 500 words each :*

1. Define child psychology. What are the objective of child study ?
2. State the Nature and Importance of Child Psychology.
3. Describe briefly the development of child psychology from the prehistoric time to the modern period.
4. What are the various theoretical perspectives of child study ? Explain each veiw point.
5. "Child is a miniature adult". Comment.
6. What are the practical importance of child study ? Explain.
7. What is the subject matter of child psychology ?
8. State the Hindu view of child development.
9. 'The child is the father of Man'. What does it mean ? What care one should take of the children ?

*Answer the following personalities important in the field of child study (within 50 words each).*

1. Stanley Hall
2. Sigmund freud
3. Robert Sears
4. Erickson
5. Skinner
6. Preyer
7. Albert Bandura
8. Charles Darwin
9. Alfred Binet
10. Jean Piaget
11. Rousseau
12. Watson.

**Write answers to the following questions within 50 words each :**

1. Spare the rod spoil the child.
2. Learning must occur with tears.
3. The child is the father of man.
4. Twentieth century is the century of child.
5. The child is a miniature adult.
6. Uses of Child Psychology.
7. Difference between Child Psychology and child development.
8. Idea of people about children in the prescientific period.

**Answer the following in one word or sentence :**

1. Who is called the father of Child Psychology ?
2. Who did write the book "Centuries of Childhood" ?
3. Who did introduce "Baby Biographies" ?
4. Whose theory of development is known as "Eight stages of man" ?
5. Who introduced Social Learning Theory of child development ?

**Write whether the following statements are True or False :**

1. Freud is the father of Child Psychology.
2. Child Psychology studies the child from conception to death.
3. Darwin's origin of species theory influenced the growth of Child Psychology.
4. Cognitive developmental theory of development was introduced by an associate of Piaget known as Inhelder.
5. 17th century is known as century of child.

**Fill in the blanks :**

1. Until.....century there was no special emphasis on understanding childhood.
2. 'The contents of children's mind' was written by.....
3. Freud had a.....orientation towards study of children.
4. Hindu theory of development was written by.....
5. Developmental Psychology studies the entire.....span of individuals.

# 2

## Methods for Studying Child Behaviour and Development

Child psychologists use several methods for understanding, recording and interpreting behaviour of children. These methods range from incidental and subjective nature to well designed and objective procedures. In the beginning when the field of child psychology was not developed more attention was placed on anecdotes and collection of baby biographics.

As the field of child development matured many methods were developed to observe child behaviour and collect information, describe, measure, and make inferences about child behaviour. The naturalistic approach focused on at home observations for a specific period of time. The experimental approach emphasized observing the child in the laboratory. Norms are established by large scale survey. Indepth observations are made by case studies. Thus there are different techniques suitable for each situation.

The psychologists study the child behaviour in order to understand, control, and predict future development. To assist him in his observation he uses certain tools, commonly used as methods of child study. Some of the important methods are the following :

1. Biographical method
2. Controlled observation method
3. Case history method
4. Behaviour rating
5. Check list and Questionnaire
6. Experimental method
7. Clinical method
8. Differential method.

### 1. BIOGRAPHICAL METHOD

Biographical method or collection of Baby biographies is one of the oldest method used in the field of child psychology. The biographer is often the

Data for the case study of a child are obtained through interview with the child, his parents, neighbours, relatives, teachers, physician, or any person who knows the child. It contains information about the child's development and types of environment in which he has been living. Psychological test are used to ascertain his present intellectual and personality status.

Case histories have great value in handling maladjusted children.

**There are a number of merits for using a case study approach :**

- (a) It helps in analyzing the problems of child having physical, intellectual or emotional difficulties and solving these problems.
- (b) It helps in getting information on any child for occasional reports, interviews involving parents.
- (c) It helps in assessing growth, development or change in an individual.
- (d) It enables us to know an individual's learning style and coping style well enough that we can play appropriate guidance.
- (e) It provides records that can be useful to other educators or specialists as background data in future years.

**For conducting a case study one needs to collect information concerning :**

1. Physical description of the child.
2. Family background, socio-economic status.
3. School environment and achievement.
4. Activity in which the child is involved.
5. Language, motor development and cognitive skills of children.
6. Interaction pattern with peers, parents and teachers.
7. General behaviour in school.
8. Leisure time activities.
9. Coping style and reactions to frustration.
10. Early childhood experiences.
11. In case of special needs of children, opinions from various sources are essential.

**However, as a scientific method, case histories can be accepted only with certain reservations, or demerits**

- (i) Casual relations deduced from case history are adhoc and not subject to experimental verification.
- (ii) Since data are collected primarily/usually from selected groups of maladjusted children and parents the obtained data cannot be considered as representative.
- (iii) It does not provide cause effect relationships.
- (iv) One cannot relax on pragmatic grounds and assume that these generalizations are sound.



The criticisms of course do not apply completely to case history of children because collecting case histories of children is an interdisciplinary approach. The talents of psychologists, pediatricians, biochemists, physical anthropometrics, sociologists, and other specialists are used in compiling the case histories of children as time advanced.

4. BEHAVIOUR RATINGS

Many of the complex aspects of child development are as yet inaccessible to measurement by psychological test. With the help of rating technique some of the components of child behaviour can be quantified in a rough rule of thumb manner. Crude measurement is usually considered superior to a complete lack of knowledge.

Rating scales became popular as soon as they were developed. Rating scales continue to be popular today and are used in many studies of child development. All rating scales are not similar J.P. Guilford (1954) identified five different types of rating scales :

- A. Graphic
- B. Numerical
- C. Standard
- D. Cumulative points
- E. Forced choice

నాటికా పాఠశాల, హైదరాబాద్  
 Nalika Pathashala, Hyderabad  
 పాఠశాల నెంబర్ / Acad. No. 5830  
 తేదీ / Date : 27-7-2005

They differ in physical arrangements, the kinds and number of steps on the scale, and the level of discrimination required.

Ranking procedure is most simple. The child psychologist observes the behaviour of children for a few days and then assigns ranks or positions i.e. 1st, 2nd, 3rd, 4th as regards creativity, aggression, sociability etc. Since no standardised tests are available to measure many behaviour, ranking method can be used to quantify observations. The rating procedure involves an observer indicating where he believes a child stands on a continuum with respect to some characteristics, triat or type of behaviour. The rating is frequently made on a linear, graphic scale as the following example illustrates.

Behaviours

Rating Scale



Very much

Average

Least or very little

1. Aggressive	_____x_____
2. Fearful	_____x_____
3. Social	_____x_____

A sequence of defined numbers is assigned to descriptive categories. The observer or rater selects most appropriate number for the behaviour he observes in a numerical scale.

For example, the behaviours for measuring attentiveness may be :

1. Overt disruptive activity
2. No overt disruption
3. Follows teacher visually
4. Facial expression shows interest
5. Makes appropriate verbal or motor activities

An average is calculated on the basis of several observations regarding a particular behaviour of the child.

Standard rating procedure is the third variation. The rater is presented with a set of standards against which judgement of others are done. This rating procedure is usually done by the University departments.

The format is like the following :

Traits	Top 1%	Top 2%	Top 5%	Top 10%	Top 50%
Intelligence		x		x	
Responsibility			x		

Cumulated points type of rating scale arranges items to be rated so that each one acts as a separate indicator of an overall trait. There are positive and negative characteristics. The score is positive minus negative score, which gives a total picture of a given trait. For example, an estimate of the character is made on the summated score of a series of characteristics of a given trait *i.e.* character development, morality etc.

Forced choice ratings are slightly different. The rater or observer is given a series of descriptive phrases and he is forced to choose one of the alternatives. The child can be best described as :

- friendly
- cooperative
- a good leader
- hard working

Rating scale is very easy to prepare and use. It takes very little time, usually 10 or 15 minutes. The scale is very easy to score and quantify. It is used to study a wide range of behaviours. It requires very little training for any one to use it, whether he is a teacher, or parent or any researcher. It can also provide a match between a person's perception and reality.

There are however, drawbacks to the use of rating scales that make them less reliable than other observational measures.

One of the most serious limitations of this method is the effect of observer's prejudices, and biases on the ratings. Further, the observer may

be more familiar on some traits about the child. So his observational ratings are more appropriate for these traits than other traits or those of other observers. However, ratings are quite useful even though the findings are to be interpreted with caution.

Therefore, Guilford (1954) identified six potential rating errors and biases of which the rater must be aware of.

There are : error of leniency, error of average *i.e.* tendency to rate everyone as average, the halo effect *i.e.* other factors might influence rating : error of logic *i.e.* rating in the opposite direction; and proximity error *i.e.* ratings are similar to preceding items either in space or in time.

Further, items are sometimes so ambiguous that error of judgement is likely to occur. Social desirability comes into play in judgement unless one is conscientious at the time of rating. One has to weigh all these considerations before rating any child, since most rating scales ask the observer to reflect on past impressions to generate ratings.

### 5. QUESTIONNAIRE AND CHECKLIST

The questionnaire method was introduced by Stanley Hall (1891). This instrument is very often mishandled because it appears on the surface very simple. The questionnaire which contains a series of verbal questions has been widely used as an instrument to solicit the opinions and attitudes of children. This is the most useful device in an exploratory study. Children's anxiety level, feelings of security, etc. are measured by this technique.

A questionnaire because of its simplicity very often leads to obtaining weird and confusing findings but with careful administration and collection of information the technique yields more information in a short time. Questionnaire is not a mere print out of random questions but it should be prepared more accurately before it is used. It can take any form.

For example,

1. Do you think going to movies is harmful ?  
Here it elicits opinions attitudes of the child.
2. How many hours does your child
  - (a) plays ?
  - (b) sleeps ?
  - (c) read ?

Here the question elicits information about the child.

Validity of data depends upon the care in which data are collected and questions are phrased as well as the sincerity of the children who respond to the questionnaire.

Checklist is an offshoot of the questionnaire method. In this form a large number of behaviour patterns are mentioned. The individual child if he can read and write, or an individual who is acquainted very thoroughly with the child gives a tickmark against any or all points given in the behaviour checklist. The procedure of giving ready made list of behaviour patterns is useful in the sense that children and parents or observers don't know and or timely remember the appropriate terminology to indicate the presence of such behaviour. But again it deserves to be considered in its own merit.

A check list is prepared before doing the observation. The target behaviours are also mentioned in the list ahead of time to note the presence or absence of the characteristic. Thirdly, the checklist is logically organised. It is based on the objectives set for observation.

Checklists are useful for classroom teachers and other service personnels. They are easy to use. The teacher can identify behavioural objectives, translate them into specifics, and check up their behaviours against the list. It allows recording of behaviour very quickly and very efficiently with minimum of strain. It is a very simple method and the behaviours entered can be reviewed. The format of the checklist is as follows :

Child/Activity	Activities		
	Social	Aggressive	Thoughtful
I.S. Sharma			

A checklist makes it easy to incorporate recording in a flexible manner. More specifically, a checklist serves four functions :

- (a) It is record of daily activities
- (b) It provides diagnostic information relating to participation in the various indoor activities.
- (c) It is useful for curriculum planning
- (d) It is very quick and efficient observational tool.

Checklists call for qualitative judgements about the presence or absence of behaviours. Rating scales call for quantitative judgement about the degree to which behaviour is present.

## 6. EXPERIMENTAL METHOD

An experimental method is a method of observation under controlled conditions. In child psychology, it is primarily used to determine changes in child's behaviour as a result of certain environmental variables. Such investigations are usually carried out with control groups; matched groups, matched pairs of children and identical twins.

Before the use of experimental methodology in child psychology, man

had been observing the 'whole child' for centuries. History bears witness to the paucity of information that accrued from this approach. In experimental method the behaviour of the child is recorded in the most reliable manner and under high degree of control of extraneous factors. For example, if the child psychologist wishes to study the relationship between frustration and aggression, the E sets up conditions accordingly and exposes the child to that situations and observes the behaviours of the child.

The technique is most commonly applied when the investigator wishes to study a suspected causative relationship holding between a phenomenon of some interest (dependent variable) and one or more other factor (independent variable). A situation is constructed in such a way that the dependent variable is readily observable, the independent variable is introduced and varied in a systematic manner and all other variables are controlled to prevent them from influencing the dependent variable. Changes in the dependent variables are then stated as a function of the preceding in the independent variable.

A laboratory is simply a place in which causal factors may be brought under the investigator's control more easily than elsewhere. Hence, the accuracy of the data about child behaviour would depend upon the extent to which the E has controlled :

- (a) the child's present environment
- (b) the child's history of interactions with his past environment
- (c) the child's genetic endowment.

The first one is the best to control. For example, the child's discrimination learning can be studied in a laboratory for some continuous days or trials and the trend can be easily observed. Similarly development of attachment behaviour toward mother can also be experimentally studied in children.

Matched group is technique is used to observe changes in development of behaviour due to certain conditions. In this set up, groups of children are matched earlier on sex, mental ability, age, or any variable or more than one variables for better control and then the treatment is applied and after the termination of the treatment, behaviour of the two groups are compared.

Matched pairs of children are used when it is not possible to obtain large number of children and form matched groups. Developmental differences are obtained by comparing the two children. Identical twins often the most accurate identical matching because of common heredity. Hence, if the child psychologist wants to study the effect of heredity and environment of the child he can very well use the identical twins. After exposing the twins into differential treatment the behaviour development can be compared and the cause effect relationship can be established.

Hence by experimental method, child's behaviour can be reliably

observed as compared to other techniques. But certain ethics are to be observed because children as research subjects present problems for the investigator different from those of adult subjects and consent of the parent for the child is a pre-requisite to obtaining consent from the child. And the young ones are more vulnerable to distress and as such one cannot put them in complete isolation or in harmful positions for the sake of observation.

A common argument against the experimental method in child psychology results in the E's losing sight of the unique distinctiveness of the child because of greater involvement with methodology, theory, statistics, and apparatus.

Secondly it is often supposed, quite wrongly of course, that experimental method applied to child behaviour precludes the investigation of truly relevant, real life, socially and personally significant behaviour. For example, the child's affection for the mother cannot be studied in an experimental laboratory. Recently it has been possible to show effects of mother absence on child behaviour and personality.

## 7. CLINICAL METHOD

Clinical method is helpful to the child when the child displays any problem behaviour of sign or mental tension reflected in his behaviour. The method offers insight for undertaking remedial measures.

During the course of analysing and understanding the child's problems, the clinical psychologist uses data obtained by experimental and differential methods in addition to using his own insight and clinical experience. The clinician looks at the child as a person or his own right.

The clinical approach traces back into the past life to find out what has really made the child to have some problems. As such the clinician wants information as is necessary for diagnosing the problem and suggesting remedial measures. All sources are used. He relies on case history reports, experimental findings, data obtained by differential method and then traces the cause. Observation is most crucial for the clinician. Symptoms in children may arise due to a single cause of different causes or their interactions. It is different from an experimental method. Religious control cannot be used in this method. Instead, insight is more useful.

This happens because psychology of the child is not a finished body of knowledge. It is rapidly changing. Therefore all methods of observation have to offer meaningful, accurate data for child guidance. Clinical data might lack exactitude and precision but it is necessary to understand why a child becomes a problem, emotionally disturbed, socially maladjusted, juvenile delinquent and so on. The information concerning these, probably, cannot be obtained by other available techniques.

## 8. DIFFERENTIAL METHOD

In the experimental method the investigator generally manipulates one variable and arrives at concluding corresponding changes in the dependent child behaviour. But sometimes such control may not be possible. So the psychologist has to wait for some occasions where he can compare the behaviours of one group of children with another group. Further, sometimes it may involve violation of moral and ethical rights to observe children, for example, deliberately placing children in deprived environmental and comparing them with those of enrichment may contribute to our understanding of the role of environment on child behaviour, which is not humane. In such cases, the psychologists can locate such cases or groups and can compare the development of behaviour. The differential method is therefore more useful.

This method enables one to observe life as it exists and offers greater promise than does and experiment. Here the child psychologist finds a situation. He does not arrange for it. The children are behaving in a situation that is natural for them. In differential method we use independent variables but we do not purposively manipulate these. We identify these and establish antecedent consequent relationship. We choose children according to certain and compare their behaviours. Hence, use of control groups is still possible in this method. Correlational studies mostly use this differential technique.

However, in many situations the child psychologists use a combination of methods and techniques in observing children behaviour to make it more meaningful, objective and comprehensive as well as reliable.

### Cross Sectional Versus Longitudinal Approaches

The purpose of both the approaches is to arrive at establishing norms and trends in development. In cross sectional method data are gathered by studying many groups over a short period of time. The groups are selected on a random basis. Hence, norms derived from the sampled groups become more reliable and valid. In a short span of time it becomes possible to get an idea about the trends in development. For example, if we want to know the development of interest patterns in children from age 4 to 16, we can select samples at each age level and administer the interest battery and derive the interest scores. It is a less time taking process in the sense that we do not have to wait for 16 years to get the data. But the merit of this method is also cited as the strongest demerit. Because in child development it becomes essential that norms are derived taking into consideration developmental changes in relation to cultural and environment factors. Unless one observes that changes in one person continuously for more years, growth changes are to be questioned as regards their validity.

Primarily for the above reason child psychologists use longitudinal approach. Under the framework of this approach the same child has to be observed continuously over the years at certain intervals of time. Data thus obtained would provide trends against increase in age. This procedure is time taking, expensive, and cumbersome. Because on many occasions morbidity, mortality and lack of parental support create problem in following up the same group of children over the years. In spite of the tediousness, this approach has certain distinct advantages.

- (a) It helps us to understand the growth trends of the same child and at the same time it provides idea of growth increments of the group.
- (b) Relationship between maturational and learning processes can also be obtained from the observations of growth trends when the data are obtained from the same children.

#### Comparison between longitudinal and cross sectional approach to child study

<i>Characteristics</i>	<i>Longitudinal</i>	<i>Cross sectional</i>
1. Method of study	Same group is tested over the years repeatedly.	Different groups are tested belonging to different developmental or age levels at a particular time.
2. Cost and time involved	It is expensive, and takes years to arrive at a generalisation.	Less time taking and comparatively less expensive.
3. Interpretation of results	It has to wait for years or till the entire data are collected.	Interpretation is done as soon as the data are collected, since data are gathered quickly.
4. Quality of data	Shows individual growth and change over a period of life. There is possibility of sample mortality.	Large data are collected and norms can be established. No possibility of sample loss since data are collected at a stroke.
5. Professionals involved	Many observers and expert researcher are needed.	Relatively few persons under a researcher can collect the information.

Studies based on longitudinal approach are very seldom undertaken. But it is true beyond doubt that the findings obtained from longitudinal studies will prove to be valid both internally and externally.

Longitudinal studies are certainly among the most complex though sensitive methods of investigation since they combine the developmental-psychological and differential view points and therefore come to closest to the actuality of the psychological process.



**REVIEW EXERCISES**

**Answer the following questions in about 500 words each :**

1. What are the disadvantages of behaviour ratings, as methods of observing children's behaviour ? Give examples.
2. Describe the merits and demerits of experimental method as a method of observing children's behaviour.
3. What is a case study ? How can you prepare a case study report ? What are its uses ?
4. What is a check list ? What preparations are necessary for recording children behaviour using a check list ?
5. What is a Baby Biography ? What are its limitations ?
6. Write a note on the clinical method with reference to understanding behaviour problems of children.
7. Distinguish between longitudinal and cross-sectional approach to child study.

**Write short notes on each of the following within 50 words each :**

1. Questionnaire
2. Biographical method
3. Differential method
4. Rating scales
5. Objective observation.

**Answer the following questions within 50 words each :**

1. Merits of experimental method used for observing behaviour in children.
2. Uses of case study.
3. Uses of Baby biography.
4. Advantages of checklist.
5. Merits and demerits of Questionnaire.

**Write the answers to the following in one word or a sentence :**

1. Who introduced objective observation method ?
2. Who advocated experimental study of children for the first time ?
3. When is clinical method used in case of children ?
4. Why is longitudinal method not preferred to Cross Sectional method ?

**Fill in the blanks :**

1. Stanley Hall introduced.....method for understanding children.
2. Cross sectional method gives very.....results.
3. In..... method same group is tested repeatedly over the years to yield results about behaviour development in children.
4. In.....method different groups are tested at one time belonging to different age groups.
5. .... introduced conditioning method for developing fear in children.

# 3

## Principles of Development

Child psychologists are interested understanding and predicting behaviour. This presupposes knowledge of principles of development and normal developmental patterns.

In the area of child psychology very often doubts arise concerning the meaning of the two terms most commonly used : Growth and Development. The two terms are, however, very clearly different in their meaning. Generally growth refers to quantitative changes in physical development while development refers to qualitative changes occurring in behavioural characteristics of the child leading towards maturity. In course of the process of growth and development certain basic characteristics appear and are quite prominent. Growth and development are incremental processes.

### TYPES OF CHANGE

Each year the child undergoes a series of changes in size, height, weight, etc. Similarly as would be from the works of Piaget and cognitive developmental theorists, the child's development also undergoes qualitative changes *i.e.* sensori-motor, preconceptual, concrete and formal operations.

Proportion is another dimension where growth changes are noticed. With increase in age not only the body proportions changes but also the level of thinking. Thinking instead of based on pleasure principle gradually becomes reality oriented. Interest patterns undergo dramatic changes.

Certain physical features do disappear such as the baby hair, baby gland, thymus gland function, first teeth, baby reflexes, mental symptoms like egocentrism, baby speech and so on. Instead, new features appear in children which were not present earlier. For example, physical features undergo changes in middle childhood, and early adolescence. Besides these, mentally the child becomes a different one at each successive of growth. He becomes

more curious, especially about sex and moral standards, religious habits, language usages etc.

Further, when we speak of development be it physical or mental, it appears that it is not a uniform process. It is very rapid in babyhood especially upto 3 years. From a microscopic cell the baby grows into a perceptible human being. The rate growth between six and adolescence slower down a bit but again it makes it up during puberty. Mental development is also quite rapid at first. It is observed that about  $\frac{1}{3}$  of intelligence and mental ability is developed by age 3 years,  $\frac{1}{3}$  between age 6 to 10, and the remaining  $\frac{1}{3}$  by age 16 years.

Studies in genetics have shown that behavioural development follows a pattern even though there is individual difference among children. The various principles of development are mentioned below :

(a) **Development is similar for all children.** There is a sequence in physical as well as in mental development. The rate of development may differ in case of average, bright, and dull children, but the baby must stand before he walks, he must babble before speech appears.

(b) **Development of behaviour proceeds from general to specific.** For example, before birth the fetus moves the whole body but is incapable of making specific responses. In emotion, there is general excitement at the beginning and specific emotions develop late in the process of growing-up.

(c) **Development is continuous.** There is no discontinuity in development. Speech for example, is not developed overnight. Instead, it gradually develops from cooling, babbling, monosyllabic sounds.

(d) **Development proceeds at different rates for different behaviours.** Development of mental and physical traits are continuous but is never uniform for the entire organism. The feet, hands reach their maximum level early in adolescence; the face and shoulders are slow in development.

(e) **There is correlation rather than compensation in development.** Gesell observed that there is a relationship between the development of physical and mental traits. Development of language is related to development of speech organs; sexual behaviour depends on the maturing of gonads; school readiness depends upon maturational development of the various parts of the body. Evidence contrary to this assumption does not exist. One cannot find someone who is above average in one trait but below the normal in another trait. As a matter of fact, genetic studies of the genius have shown that desired traits go together. Negative relationships are not observed.

(f) **Development follows two sequences.** Cephalo-caudal and proximodistal sequences : The cephalo-caudal sequence means that development spreads over the body form head to foot. That is structural and functional

developments occur first in head then in trunk and lastly in legs. The baby can turn his head, lift it up before he lifts his chest or legs. At the fifth month, the baby can control eye movement, head movement, shoulder but he cannot sit in the chair.

Proximodistol laws explain the development from central part of the body towards peripheries or extremities. In the prenatal period, the head and trunk are fairly well developed and at that time the rudimentary limbs appear. Gradually arms enlarge and then developed into hands and fingers. Proximo-distal development is better known as side-wise development. These two sequences suggest that the development is predictable in some ways :

<i>Onto- genetic sequen ces of behaviour</i>	5 years	— Sociability
	4 years	— Concepts of from/number
	3 years	— Speech, Sentences
	2 years	— Bowel control
	18 months	— Larynx, words, phrases
	12 months	— Legs, feet, stands
	40 weeks	— Trunk, fingers, sits, creeps
	28 weeks	— Hands, grasps, manipulates
	16 weeks	— Head, balance
	4 weeks	— Eyes ocular control
	0 birth	— Vegetative functions, vision
	24 weeks	— Autonomic Nervous System
	20 weeks	— Tonic neck-reflex
	18 weeks	— Hand closure and grip
16 weeks	— Perspiratory movement	
10 weeks	— Swallow, Babinsky reflex	
8 weeks	— Trunk extension	
1 weeks	— Embryonic stage	
0 weeks	— Conception	

**(g) All children do not reach the point of development at the same age.** Depending upon the interacting influence of heredity and environment children attain various behavioural characteristics at different age and in differing degree. In other words, there is individual difference in the development pattern. Individual differences arise due to various conditions prevailing in the homes : emotional climate, cultural milieu, emotional deprivation, socio-economic status of the family etc.

**(h) Early development is more important than later development.** Early childhood is characterised by plasticity and the child is most malleable during this period. As such, early childhood experiences such as emotional, cultural, and nutritional have a greater say in the developmental progression.

In many cases, early childhood sufferings are not reversible and are not made up by experimental manipulations. Recent research with Guatemala children by Kagan proves that deprivation in early childhood is reversible if children are brought up under better environment.

(i) **Development proceeds stage by stage.** The development of the child occurs in different stages. Each stage has certain unique characteristics, and in each stage certain behaviours or traits stand out more conspicuously than others. Since there is individual difference in the rate of growth, age limits for different stages can be regarded as merely approximates and suggestive. However, the entire period of development is divided into the following stages :

### Major Developmental Periods

From conception to birth	— Prenatal period
From birth to 2 weeks	— Neonate
From 2 weeks to 2 years	— Infant
From 2 years to 6 years	— Early childhood
From 6 years to 13 years	— Late childhood
From 13 years to 16 years	— Adolescence.

All children normally pass through these stages of development around the age levels suggested. Hence, it is necessary that training and learning materials are planned to fit to the age levels or characteristics of the child in a given culture. Special provisions are called for when development does not follow normal limits and sequences or otherwise.

(j) **Certain behaviours considered normal at one stage may not be accepted as normal in a different state of development.** Supposing a child who refused to sleep or who wants water when he is put on a bed is considered to have shown problem behaviour'. But we must understand that the child is acting upto his age. Lying is a common behaviour just before the child enters into school. Similarly day dreaming is quite normal in early states of school. Hence, child's behaviour is to be predicted and understood against the expected behaviour at his stage. No problem behaviour is to be overlooked or unduly emphasized.

### EARLY EXPERIENCE AND CRITICAL PERIOD IN DEVELOPMENT

The concept of early experience implies two things : providing enriched stimulation, and accelerating development through compensatory programmes. Historically, the roots of the concept of early experience can be traced to the writings of Rousseau, the work of Dr. Itard and Dr. Seguin with wild Boy of Aveyron, in the tradition of infant and nursery schools in Germany and in the writings of Montessorie.

In the traditional set up, behaviour development was considered fixed and predetermined but this doctrine began to lose its force in the first quarter of the present century. After the 1940's there remained two byproducts. The first one is whether nursery school attendance had effect on the child's development. Secondly, the works of Skeels and his colleagues on the use of enriched rearing conditions with infants raised in orphanages. Although Skeel's work has been criticised yet it has stood the test of the time.

It is said that the "childhood shows the man, as morning shows the day". It means that the early years are critical in the child's development more specifically the preschool years *i.e.* 2 to 5 years. On the other hand, White (1976) remarked the first two years are more critical. If rich experiences are provided during this period, then personality has its smooth growth and differentiation.

Critical period and early experience have traditionally been given important roles in intellectual, personality, social and emotional development. These early developmental periods are critical because experiences occurring during this period have greater impact upon later behaviour and deprivation effects are irreversible. Whether one is extreme hereditarian, an environmentalist, a constitutionalist, or an orthodox psychoanalyst, he is not likely to anticipate major changes in personality after the first year of life.

Hunt (1961) clearly stated the relevance of early experience on development. Inadequate experience according to Hunt, retards intellectual development. Enriched experiences can remedy the deficits in adaptive behaviour and intellectual functioning. Early experience is emphasized so much because it is during early childhood that evanges take place rapidly. Hence, providing enriched experience would lead to better behavioural change. Several infant and preschool early enrichment programmes have been reported in the literature. These experiences vary in terms of language lessons, exposure to new materials, training parents for early stimulation but all these programmes have led to significant gains in intellectual functioning. Median IQ gains are between 11-15 points and average gain in IQ vary from 41-2 to 3 IQ points. Of course, the gains might appear due to motivational factors. Yet some precise conclusions can be drawn from such studies. Gains are observed when a trained educator is utilised to train mother to interact with their children. Providing the children wide range of experience are more meaningful and effective than specific experience. Not all children benefit from these projects. Those who benefit, not all of them benefit equally.

Moreover, the effects of early experience do not last over time unless the programmes are long term or continuous or the natural environment itself is enriching. Hence, gains can be maintained if compensatory educational

programmes are introduced to supplement the natural input or environment. For preschool children between age 2 and 5 the results are mixed. Gray and Klaus (1970) reported that the enrichment does not act as an inoculation against the long term effects of inadequate environments. Adequate early experience seems to be a necessary but not sufficient condition for later adequate intellectual functioning.

### **What is an enriched environment ?**

Operationally an enriched environment means :

- providing children with a chance to the child to explore his environment;
- providing a physically and socially responsive environment to the child;
- providing variety and change in stimulation offered to the child;
- providing an environment that is rich in verbal stimulation;
- providing a high level of adult child involvement but one that does not interfere with the child's intention and actions;
- providing adult modeling of desired cognitive skills or attitudes;
- the use of positive reinforcers;
- matching the interaction with child's level of development.

A good number of studies have raised the role of maternal deprivation as a contributing factor to early experience and its effect on development. Inadequacies in mothering leads to behaviour deficiencies. Bowlby (1951) after reviewing the literature stated that mothering is essential for providing enriched environment for the infant. Very rarely it can be substituted. Bowlby concluded, 'that the prolonged deprivation of the young child of maternal care may have grave and far reaching effects on his character and so on the whole of his future life'. The meaning of deprivation or separation may be many, temporary absence, illness or hospitalisation, desertion etc. But the implication of the separation for the child are also many. The child during the first six to eight months of life learns to discriminate the mother from others, and develops a primary attachment for the mother, which can not be substituted. This contributes to feeling of security which then contributes to cognitive development and behavioural adjustments.

### **Are there research evidence in Support of Early experience ?**

Recent studies however, reject this notion of continuity in development. The effects of early experience are neither enduring nor irreversible. The evidences are :

1. Early feeding, toilet training and other experiences are not correlated with later behaviour (Kagan and Moss, 1962).

2. Most children recover from mild perinatal insult, recovery from severe insult is much less likely.
3. A number of severely deprived children have shown much of intellectual and social development after much of intervention (Clarke and Clarke, 1976; Skuse, 1984).
4. Critical period does not exist according to various researches.
5. Brief intervention does not inoculate children against adverse effects.
6. Maternal deprivation in and of itself does not provide lasting deleterious effects upon children (Rutter, 1981).

Although early experience is still viewed as playing an important role in human development, its role is not as pervasive as once thought. Evidence for critical periods in some areas of development is strong (Colombo, 1982). Further, evidence that change in normal development occurs throughout life and that effects of extreme deprivation can be partially countered with intensive therapy should not be misread as implying that plasticity is equivalent across life. Humans are more responsive to many types of experience at a relatively early age. Indeed, MacDonald (1985) suggests that plasticity declines with age and that more intense therapy may be necessary with older individuals. Similarly Brown (1986) proposes a continuum of therapeutic environments, suggesting that the greater the degree of early impairment, the greater and more unusual may be the needed intervention. Recovery from some early experiences will occur only in response to therapies that are not part of the normal environment. Recovery from others that involve manifest brain damage may not be possible under any condition. A question of considerable current interest is whether recovery from early brain damage is more complete than recovery after later damage. Further, we need to distinguish between different types of early experiences and critical periods (Brown, 1981). Areas where adverse early experiences have disrupted a developing organic system will be more resistant to therapy than areas where the experiences have resulted in the learning of particular behaviours. Early interference with organization of an organic system is likely to be permanent, whereas interference with the organization of behaviour through learning can be overcome through relearning.

Parents should not be blamed for their children's autistic or schizophrenic behaviour, nor should complete recovery of most such children, particularly autistic ones, be expected. Much recovery from early psychological deprivation or adverse conditions can be effected with sensitive and intensive therapy. Psychodynamic explanations of childhood and adult behaviour in terms of infant experiences have little scientific support. Early intervention programs



can be effective in increasing the intellectual, emotional and social development of highrisk infants and children, but they need to be intensive and long term (Bricker, Bailey and Bruder, 1984). Finally, therapy or rehabilitation of children with manifest brain damage should be undertaken as soon as realistically possible in order to effect maximum recovery.

### COMPENSATORY EDUCATION

Few aspects of education that currently command the attention is the education of the weaker section of the community, especially at the early childhood stage. Wastage and stagnation not only lower down the literacy rates in the country but the children coming from lower class homes are pushed backward in greater numbers to the pool of illiteracy because of failure to meet the requirements of a standard curriculum, slightly alien to their own. This is not peculiar to our society alone but this has in the recent past created problems in the most advanced countries of the world. Advanced countries through various enrichment programmes have been able to succeed in combating this disease but for us, it has become an epidemic in education and therefore demands more attention than it would normally receive. We now think loudly for providing compensatory education, remedial education or enrichment programmes. What is the rationale behind such a thinking? What in reality do the previous research on compensatory education tell us? What infact, can be undertaken within the limits of a developing economy? Plans and thinking have been quite ideal with us but regrettably the implementations lag behind.

The rationale that influenced a few of the compensatory education programme approach is the developmental assumption *i.e.* children coming from weaker section of the community are slow in the rate of development. Therefore, for these children education can start a year earlier *i.e.* should be given some preschool experience. Such programmes were organised by Parents' associations in most part, in U.S.A.

The second approach was the 'critical period hypotheses' akin to the developmental process. This approach emphasized that certain structured learning experiences are to be provided to children of the weaker section of the community in early childhood since they suffer from environmental deprivation including the vagaries of poverty. Infact, as much 50 per cent of the intellectual potential of an individual is determined during the preschool period and it constitutes a kind of general critical period of intellectual development (Bloom, 1964).

The third approach has been reinforced by the belief that is possible to ameliorate intellectual deficits. Although Jensen (1969) in his famous article denied the effect of environment on intellectual ability (IQ) and asserted that

'compensatory education has been tried and it apparently has failed, a number of well designed compensatory programmes demonstrate remarkable achievement gains : If genetic or cultural deficits impair the learning capacity of low SES children, such children would never be able to learn successfully. This conclusion is not tenable, in view of the findings from research on compensatory education.

The compensatory education programmes vary widely in size and scope but have in common the dual goals of remediation and prevention. They are remedial in the sense that they attempt to fill gaps : social, cultural or academic in the child's total education. They are preventive in that they try to forestall either initial continuing failure in school and in later life.

The principal focus in the compensatory programmes has been on reading and language development, arithmetic, improvement of psychomotor ability, personal and social adjustments. These programmes have operated either at preschool years or during the elementary school years and sometimes have been built into the regular school periods or have been introduced in the summer breaks, so that weaker children make up the deficiencies before entering into the next grade. The well known compensatory education programmes are these of; Bereiter and Engleman (1966) in the area of Reading. Arithmetic and spelling, using drill approach; Martin Deutsch's (1965) enrichment programmes in the areas of language, mathematics, science, reading skills, concept formation, and personal adjustment; Susan Gray and Klaus (1965) in the areas of perception, concept development, and language development, during the summer break, and Spicker, Hodges and McCandles (1967) in the areas of Psychomotor, language, intelligence, and social adjustment. In all these studies significant gains have been achieved but the acquired gains did not persist for long in case of short term interventions. However, these programmes do suggest that children coming from weaker section can be helped through enrichment programmes and the degree of their efficiency depends upon how well the programme has been formulated.

In our country, we have a large segment of children population in the school who come from tribal areas, scheduled caste and families who are very poor. These children come to school very rarely under compulsion and very soon drop out from it. Although poverty and economic reasons do account for school dropout, yet a great many of their children do not succeed in school because of low ability consequent upon deprivation of one sort or another.

Sinha (1976) after examining a whole series of work on the deprived stated that an early enrichment programme at the preschool and kindergarten levels may be helpful in removing the arresting or reversing the cumulative deficit. For the Indian disadvantaged tribal children Rath (1974) recommended

interventions in forms of compensatory and high intensity education as remedial measures. The writer (Panda, 1976) has also suggested the special requirements of an instructional design that will be suitable for the disadvantaged children. The suggestion included modification in teacher training curriculum, changing the life style characteristics of the deprived, use of accelerated learning programmes and changing the motivational and affective climate of the classroom (Panda and Lynch, 1972).

Perhaps the answer may be sought in training the deprived children for realistic goal setting, developing self attribution, developing a more analytic way of information processing while in school and giving training for intellectual activities and/or skills where they are deficient. But it is essential that parental education is more crucial in so far as providing an enriched interaction environment in early childhood is essential.

The Coleman data has proved that integration resulted in improvements in the achievement test scores of Black students, in integrated schools do better than those in equally middleclass all Black schools. Coleman suggests that the overall gain in verbal ability for Blacks in an integrated schools is approximately of one SD. Crain and Weisman (1972) observed the problem of achievement in relation to the integration. They defined integration (a) the Negro students in the school with White at least for 5 years (b) no White student did move out the school (c) the school was at least half White.

Compared to segregated school it was found nearly 1/2 of the segregated respondents did not finish high school. 48% completed compared to 36% students of the integrated schools. That dropout rate is reduced by 1/4 in integrated schools. Further, integrated education seems to cut the dropout rate for southern migrants nearly a half. Pupils of integrated schools are more likely to finish elementary and high school and they attend and finish college. Respondents who attended integrated high schools and segregated elementary schools fare as well in terms of finishing high school as those whose schooling was entirely integrated. The effects of integration are stronger for both men and women students. Students who attended integrated schools scored higher on the verbal Achievement test than those who attended segregated schools. Occupying a deprived status or a minority status in an integrated school failed to poise social and psychological strain among the pupils. Optimism concerning the effectiveness of preschool compensatory programme such as project Head start has waned considerably in the last few years. Findings have been consistent that at the end of a year of Head start type of experience children are superior to children without preschool experience in both intellectual and social emotional functioning (Klaus and Gray, 1968; Weikart, 1971). However, the superiority of Head Start children vanishes and is greatly diminished by the end one year of formal school

(Bronfenbrenner, 1974). In the face of this evidence some have concluded that compensatory education or Head start in particular, is a failure (Eysenck, 1971; Jensen, 1969). It is unrealistic to expect long term effect of a short term intervention. But it can't be denied that the programmes have in fact succeeded in removing educational disadvantages which economically disadvantaged children might encounter in later life (Bereiter and Engleman, 1966). For this reason the Follow Through Project has been introduced which is 4 year compensatory education programme in USA school system. Longitudinal data analysis revealed that the follow through programme assessed was not capable of ameliorating all of the negative effects of living in an economically disadvantaged the programme was highly beneficial to the children who participated in it. The longitudinal and cross sectional evidence together lead to the conclusion that the gains accruing from compensatory education programmes are commensurate with the duration and amount of effort which are expended on these programmes. Abelson and Zigler (1974) are thus very clear in their statement confirming the efficacy of enrichment programmes. Developmental psychologists agree on two basic assumptions : Environmental factors help determine how fast or slowly children develop intellectual ability and second, experiences during the first years of life strongly shape children's relative intellectual functioning. Harvard University psychologist Prof. Kagan asks a fundamental question, "Are the ill effects of early deprivation irreversible ? or does delayed growth persist children ? Only if the environment that causes the delay remains the same," replies Kagan to his colleagues.

Kagan (1977) from his studies in Guatemala a non western culture came to a conclusion—" Children listless, silent, apathetic infants, passive, quiet, timid three years olds but active gay, intellectually competent 11 years old". He said that children are more resilient, and more malleable that is more capable of making a comeback after a poor start than most psychologists have believed. Kagan readily admits that his data are not yet adequate to prove the thesis he is putting forward, but they provide sufficient evidence "for a grand jury to say, there should be trial"

In the isolated Indian village of San Morcos in Guatemala babies are raised in small, dark huts that lack even windows. These infant are not allowed outside where it is thought that seen or dust might harm them. In Psychological terms, they lack experiential variety, the very thing essential for intellectual development and later achievements and they must contend with malnutrition and disease which combine to retard their development as well. By comparing the developments of some Marcos infants with American babies of two years old, Kagan and his co-research workers found that San Morcos children are 3 or 4 months behind.

Kagan had sampling problems but his one year observation of children “with pale cheeks and vacant stares had the quality of tiny ghosts”—would suggest that infant’s development was in fact retarded.

By age 3 or so the children still seemed inordinately inhibited and shy but says Kagan, “they began to look like children”. Cross sectional studies using American children did well on a few culturally fairer memory and intellectual ability tests than 8-9 years old Guatemale, at age 10 and 11 no such difference was observed between the two groups. Kagan attributes the make up’ to change of environments of the San Morcos children to an urban setting. Whatever may be but you can get there” because there is inherent resiliency in human development. Kagan in no way implies that the early environment is not important—or that in an age-graded schooling system parents should not be concerned with nurturing children’s early growth. But he emphasizes the reversibility of early deprivation through the provision of a better environment. This hopeful message needs additional research to confirm or refute.

It seems that the evidences are quite convincing that cultural deprivation and consequent discrimination do create psychological disability which in turn arrests school achievement. It is true that deprived children remain in an impoverished environment which hampers their school achievement. But the school is a part of that environment and school integration is a simple and effective method of cultural enrichment. School integration of course represents a partial solution to the problems of underachievement of the deprived.

Conditions which promote early childhood development in terms of enriched experience are :

- (a) Favourable interpersonal relationship
- (b) Emotional acceptance by parents
- (c) Democratic but not permissive family atmosphere
- (d) Early role play with increasing confidence
- (e) Small family structure
- (f) Stimulating environment.

The child tends to use his abilities spontaneously. The famous child psychologist Jersild has said, that the child’s capacities for doing, thinking and feeling emerge in the process of growth. He has an impulse to put them to use. This is what he calls indigenous motivation. The child has a tendency to speak, to search, to explore, to seek out new stimuli. In earlier years of schooling this behaviour is prominent and often wanes as the child reaches upper grades due to pressure for conformity. This is not hereditary. Therefore, a great responsibility lies on the teachers to foster this sense of curiosity, drive and interest of the child for spontaneous expression. Then only

understanding the nature and principles of growth will be meaningful.

### **FACTORS AFFECTING DEVELOPMENT**

The development of physical and mental characteristics are influenced by a host of factors. These factors can be grouped under certain broad areas :

- (a) Maturation and Learning
- (b) Heredity and Environment.

#### **Maturation and Learning**

Maturation refers to the unfolding of traits potentially present in the individual resulting from his hereditary endowment. Some of these are insensitive to environmental influence while others are dependent upon environmental influence while other are dependent upon environmental conditions. For example, crawling, sitting, standing, walking etc., appear with physiological maturation of the system, whereas swimming, cycling etc. require training or practice. Further mental abilities simply do not depend upon maturation but on environmental conditions in which children are brought up.

On the other hand, learning refers to the acquisition of a few behaviour or modification of the previous behaviour consequent upon some kind of practice, exercise or effort on the part of the individual. The child shows certain changes in his physical structure and other behaviours. A child may have a mechanical aptitude but if in the environment he does not get a chance to play and manipulate different mechanical activities, then his mechanical aptitude will not develop. Hereditary potential may remain in extinct state. Learning may take place under imitation, identification or training under different conditions of motivation. But the fact remains that behavioural manifestations are the product of learning. Maturation and learning interpretations offer two conflicting view points for description and development of behaviour.

The methods of isolation and cotwin control have invariably resulted in bringing inadequate and inconclusive evidences regarding the relative contribution of maturation and learning on behaviour. The issue can be dealt more effectively if we analyse the relative importance of maturation and learning in relation to prenatal/postnatal periods and physical/mental development.

It is true that the prenatal development is mostly rather solely influenced by maturation. Fetus which are most well developed and active appear to acquire skills most readily in postnatal life than those who were less active. But the child learns many things from society, culture and the neighbourhood where he lives. If he is physically and mentally well developed, he assimilates

and accommodates from experience than the child who does not have a well developed structure. It can be stated that maturation in and by itself does not produce much of the changes in and organism but it provides the ground for further behavioural development to occur due to learning.

Piaget has said, the child tries to adapt himself to the environment and in this process of adaptation he acquires new behaviours in a coordinated sequence. This concept of coordinated sequence automatically confirms the notion that physiological maturation of the organism does have a role to play. Learning helps in acquisition of new behaviour but the sequence in which different developments occur are age specific in (approximately) character. In other words, maturation sets a limit beyond which development cannot go even when learning is encouraged.

This concept of limit is quite meaningful from genetic and pedagogy points of view. The genetic specialist like Gesell would insist that growth can be guided but not created.

No behaviour will appear unless there is genetic transmission or genetic basis for it. Learning is limited to the genetic potential. It has therefore, pedagogic significance because if learning is pushed beyond the maturational level or the genetic endowment. Psychological damage may occur to individual child.

Here again an optimistic note comes from Watson, the behaviourist. Watson emphasized excessively on the role of environment and development of behaviour through conditioning. The over emphasis on the role of learning or environment has been abandoned. Evidence for such a statement comes from the studies on education of mentally handicapped children, and failure in increasing IQ and aptitudes to a considerable degree.

Learning techniques are nevertheless helpful. Wherever there is a block to progress, on individual's inability to improve further, change in the method of learning has brought improvements in the activities of the individual. In other words, innate capacities must be stimulated by environmental factors. If children are brought up under deprived and under-nourished environment, there is no doubt that their intellectual and physical growth will be retarded. For example. Bloom has very recently stated that if the fetus during the last two weeks before birth and upto six weeks of postnatal life fails to get nutritious food, mental and physical growth will be retarded *i.e.* he cannot function in accordance with his genetic potential. Similarly, children coming from poor socioeconomic status groups, broken homes, crowded and slum areas fail to get rich stimulation, suffer developmentally. In rare cases such deprivation effects are reversible but usually not so. Hence, even with large genetic potential for mental ability,

children under—achieve in a classroom and are developmentally below their age in adaptive behaviours.

Parental expectancy, aspiration, child rearing habits have a lot to do in engineering development of the new born upto the age of maturity. Under a high achievement atmosphere, the child sets up goal, tries to achieve it, makes attempts to reach it and become self-directed or self motivated. Invariably such as motivational set helps the average child to achieve superior status in life.

The relationship between maturation and learning can be examined from point of view of readiness. The developmental cognitive theorists like Piaget and Kohlberg believe that a child cannot learn unless he is ready to learn. Whether one talks of motor activities, sensory conditioning, or higher forms of learning, maturational readiness of the physical and mental apparatus is a must. You cannot teach a child the concept of reversibility at 4 years of age; the concept of volume at age seven; the grasping behaviour at 2 months no matter how much practice you give. The system has to take it and it must be ready for it structurally. Studies have shown that teaching reading at 13 months brought little improvement in vocalization until they reached 17 months of age. Training is ineffective until the baby is matured.

The concept of readiness is vital for educating the children. It is ascertained by means of (a) the child's interest in learning (b) the duration of sustained attention or persistence in a task, and (c) the improvement that comes as a result of his practising the task. An assessment and undertaking is necessary for teachers in making instruction effective. It thus seems logical to state that both maturation and learning age necessary for development of the child. Maturation besides bringing some automatic changes, provides the ground for learning to occur. Further, acquisitions of skills reflect a better maturational status of the children. Hence, both are interrelated and interactive. In any case, maturation is a necessary condition for learning.

### **Heredity and Environment**

The word environment is so broad that it includes a large variety of factors *e.g.* family, peers, school, culture, socio-economic status, nutrition, child rearing practices and so on. The term heredity is also quite inclusive and generic to cover effects of sex hormones, sex, twin birth, chromosomal anomalies. Each of these factors have been discussed at appropriate levels in respective sections on development of physical, social, intellectual and emotional, abilities. As such, there is no need to present a general picture here excepting discussing the main interacting factors *i.e.* heredity and environment in detail. Gregor Johan Mendel (1822-1884), an Austrian



Monk, the father of modern genetics, published certain laws of hereditary transmission on the basis of his observation on peas. He observed that hereditary characteristics are transmitted from parents to children through genes. Like begets like was his general promise of operation. He crossed pure strain of white and purple flowers. In the first generation all the offsprings had purple flowers. Here one was the parent characteristics because dominant (purple) and the other was recessive (white). In the second generation grand parental traits appeared in a ratio of 3 : 1. This was Mendel's first law *i.e.* law of segregation. It means that genes occur in pairs and one member of the pair is contributed by each parent. When sperm and ovum unite a new and unique gene pair is transmitted to the offspring. His second law is that of independent assortment. This means that every character is inherited independently of any other character. The paternal and maternal genes present in the offspring of the hybrid will undergo independent assortment for the production of all the combination of genes in the gametes. The result is that in each generation random combination of characters are present.

After some years of Mendelian theory the law of mutation was introduced. According to this law characters which are not present in parental generations do appear in children due to chance and cannot be explained by hereditary principles.

Many times we feel whether we inherit any thing from our parents except the property rights. Do we carry the culture ? More precisely. Is human behaviour inherited or is it a result of environment ? This way of putting a question is equivocal. Because such question cannot be answered in either manner. All behaviours infact are the result of the interplay or interaction of both heredity and environment. Their relative contribution however, differ from traits to traits.

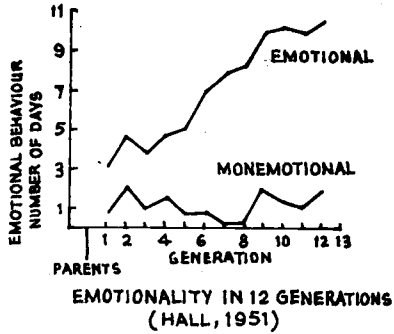
### ROLE OF HEREDITY

In most case, genetic studies of behaviour have been conducted on animals than on human beings. This has been a practice because animal behaviour is less complex, animal environment can be controlled at ease and breeding rate of animals is faster. Although animal studies can not be generalised to human beings yet they certainly prove the genetic influence.

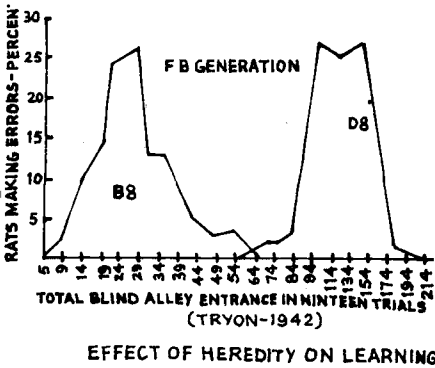
Mendel's laws of hereditary transmission have now been established for many traits such as : eye colour, baldness, hereditary diseases and a condition known as albinism. The albino individual is born with white hair, pigmentless skin, pink eyes. These persons are sensitive to light, and their vision is always poor. Taste is also found to be inherited, particularly with reference

to phenyl theocarbamide. Nearly 30 per cent of the population cannot taste it.

In case of emotional behaviour also the role of heredity has been demonstrated by Hall (1951). Hall inbred the most and the least emotional rats and observed the emotionality in 12 generation of rats. The figure shows the emotional behaviour of rats for 12 generations. It is quite clear that emotionality in rats has a genetic base.



Tryon (1942) demonstrated the role of heredity in maze learning ability of rats. He selected 142 rats and gave them 19 trials in a complex maze. Some animals learned the maze very late and others learned it very quickly. The bright rates were met each other and the dull rats were met with each other. Both sets of the offsprings were followed and the process was repeated for eight generations. By the eighth generation there was practically no overlap in maze learning ability between "bright" and "dulls". This is seen from the graph where learning ability shown in trials.



From this experiment it is clear that maze learning ability and heredity are related. Selective breeding could demonstrate this genetic basis very clearly.

The question may arise here. Is intelligence also inherited? Twin studies after some meaningful answer to this question. The correlations and heritability ratios and shown here to indicate the role of heredity (Vandenberg, 1972).

Country	Year	Identical Twins	Fraternal Twins	Heritability ratio ( $H = V_{genetic}$ $V_{Environment}$ )
England	1933	.84	.65	.54
	1954	.76	.44	.57
	1958	.97	.55	.93
	1966			
U.S.A.	1932	.92	.61	.80
	1937	.90	.62	.74
	1965	.87	.63	.65
	1968	.80	.48	.62
France	1960	.90	.60	.75
Sweden	1952	.89	.72	.61
	1953	.90	.70	.67

Studies of identical twins reared apart have been powerful in substantiating the role of heredity on development of intelligence. Vandenberg 1971 (b) have obtained correlations between IQ scores when children are reared apart and when they are raised together. The data are :

Country	Year	Identical Twins	Raised together
U.S.A.	1937	.77	.98
England	1962	.77	.76
England	1958	.86	.92

Cyril Burt's (1955) study is very well known in this field although there is some concern about his data after his death. Skoddak and Skeels (1949) examined the intelligence scores of 100 adopted children who were tested for a period of 16 years. It was found that with increasing age the IQ the adopted children became highly correlated with the educational level of biological parents than with that of their adoptive parents. This was reflected in the absolute scores of IQ.

#### I.Q. Correlation From Child Adoption Studies

Study	Adopted child vs. Adoptive parents (averaged I.Q.)	Own child vs. Adoptive parents (averaged I.Q.)	Control child vs. True parents (averaged I.Q.)
Freeman et al. (1928)	0.39 (N = 169)	0.35 (N = 28)	
Burks (1928)	0.20 (N = 174)		0.52 (N = 100)
Leahy (1935)	0.18 (N = 117)	0.6 (N = 20)	0.36 (N = 137)
Pooling all studies (Kamin 1974)	0.26 (N = 520)	0.35 (N = 48)	0.57 (N = 237)

There is also strong evidence that verbal ability, word fluency, and spatial ability have larger genetic component (Thurstone, 1941). Jensen (1969) in his most widely circulated paper proved that IQ is inherited and the heritability scores are reported in large number of studies prepared by Burt (1966).

### Correlations between Relatives

<i>Correlations between</i>	<i>No. of studies</i>	<i>No. of pairs</i>	<i>Medium Correlation</i>	<i>Theoretical Value</i>
With parents	13	374	0.54	0.49
With parents (as children)	1	106	0.56	0.49
With grandparents	2	132	0.24	0.31
Between identical twins reared together	13	95	0.87	1.00
Between identical twins reared apart	3	54	0.75	1.00
Between identical twins same sex	8	71	0.56	0.54
Between fraternal twins different sex	6	56	0.49	0.50
Between sibling reared together	36	264	0.55	0.52
Between siblings reared apart	33	151	0.47	0.52
Between uncle (or aunt) and nephew (or niece)	1	161	0.34	0.31
Between first cousins	2	215	0.26	0.18
Between second cousins	1	127	0.16	0.14
Foster parent and child	3	88	0.20	0.00
Children reared together	4	136	0.23	0.00
Children reared apart	2	200	0.01	0.00

These results clearly show that intelligence is inherited and 20 per cent variation occurs due to environment.

A deaf child on the other hand suffers from intellectual rataradation but in such cases hereditary handicap may be offset by training procedures. In case of blood groups the relation to specific genes is so close that no other concomitant heredity or environment can alter the outcome. Certain characteristics on the other hand are hereditary. Sex, and skin colour, including general body build depend upon heredity. By citing correlations from the studies of identical twins, fraternal twins, twins reared apart and together in one environment and siblings with regard to presence of intelligence, Burt proved that intelligence is hereditary. So also Jensen, who reviewed a large number of studies to establish that there is evidence for genotypic intelligence or what Cattell calls the fluid intelligence. This is hereditary to the extent that 80% of common variance is attributable to

hereditary factors. Only 20% remains to be accounted for by environment and measurement factors. However, estimates regarding the contribution of heredity is only indirect and is based on logical inferences. The actual position is rather more complex, and there is infact, a range of variations. There are many others who believe that enriched environment will increase the depressed intelligence and other behavioural characteristics. The preschool projects and compensatory education projects are not cent per cent ineffective in enhancing the rate of development of mental abilities in children. Short term intervention might have resulted in equivocal findings..

### **ROLE OF ENVIRONMENT**

Many studies have examined the role environment in the development of behaviour in animals and human beings. What precisely we mean by environment ?

Environment refers to all the external events to which the individual is subjected including prenatal and neonatal conditions, nutrition, medical care, parents child rearing practice, cultural millieu, educational experiences, types and place of occupation, and even the climate of residence and epoch in which the person lives.

The importance of environment is determining physical traits can be seen in study of Himalayan rabbits. When rabbits are raised under natural conditions, these rabbits have a white body with black extremities. When the same rabbits are raised in warm case, they do not develop the black pigmentation. This indicates that rabbits with same genetic make up have different phenotypic appearance as a result of environmental factors.

In case of human beings similar things do appear. A man's physique is strongly determined by genetic factors, but environmental influence like nutrition, has strong influence on the size and weight at any point in time. In case of mental ability also, a highly intelligent man may not recall anything under stress. Hence, each genotype or hereditary trait may show itself in many phenotypic characteristics depending upon environmental influences, but within limits.

An experimental evidence by Freedman (1958) can be cited here. Freedman (1958) reared four types of pups under either indulgent or disciplined regiments. At eight weeks each pup was tested for inhibition of eating by being punished by the person who reared the animal and left the place. It was observed that the Baseujis (a type of pup) ate as soon as the trainer left regardless of whether their rearing has been indulgent or disciplined. Shetland sheep dogs did not eat the food no matter how they have been reared. The indulged beagles and terriers were more inhibited by punishment than those of the same type reared under strict discipline. Environment had precisely effect on their behaviour.

The role of environment on behavioural development can be analysed with reference to stimuli (a) producing organic changes which influence behaviour and (b) those directly produce psychological reactions or behaviours.

Mental deficiency or retardation sometimes result from cerebral birth injury and prenatal nutritional deficiencies. In the absence of any neurological impairment resulting from injury in the brain, there are evidences of cerebral palsy or motor disorders, which in turn affects lowering the mental ability of the child. In other words, because of environmental factors there is organic damage and that damage in turn leads to behavioural deficiency.

Social class membership may serve an illustration of broad, pervasive and enduring environmental factors. It has wider influence on the behaviour development. Bernstein has proved that the language spoken at home has far reaching effect on the language development of the child. In slums, parents use restricted language and as such the linguistic competence, of slum child or lower socio-economic child is further restricted. One's aspiration and expectations are also shaped by parental, especially mother's expectations about the child. Highly restricted environment in early childhood determine to a large extent the development of intellectual competencies in children. Emotional and social traits may likewise be influenced by the nature of interpersonal relations characterising the homes at different SES levels.

Personality traits are very much influenced by environmental factors compared to intellectual ability. Studies of Margaret Mead, Malinowski and Ruth Benedict, the well known cultural anthropologists of the world have demonstrated the role of the culture is shaping personality characteristics. The emphasis on early childhood emotional experience in the family by Freudians also has great significance on personality development of the child. Details of parent's child rearing habits and child's personality development are described in the social learning section of this volume.

Early learning and experience contributed to the maze learning ability of the dogs. This was demonstrated further by Fuller (1967). There were two breeds of dog and same pups of each breed was bred normally and others in isolation. The effect of isolation was observed in each breed and environment had differential effect on each breed. Fuller observed that dogs reared in isolation demonstrated a poorer learning ability because of emotional factors. When this was controlled their maze learning performance increased, Fuller's work demonstrated a lot of truth as the how deprivation starts quite early in life in case of human children.

Cooper and Zubek (1958) studied the role of environment on maze learning ability of bright and dull rats reared under there different environments : enriched, restricted, and natural. At sixtyfive days of age each groups was tested for maze learning. The enriched environment helped

the "dull" but did not affect the "bright". The restricted environment had no dulls but depressed the "brights". It seems that instead of environment having a direct effect on genotypes, it has an interacting effect.

Some theorists believe that social experience are of utmost importance to intellectual development and that social deprivation can cause IQ changes. Skeels (1966) studied 25 children who were in orphanages devoid of early stimulation and personal attention. At the age of 11-12 year thirteen of these children were transferred to an institution of retarded women. These children had IQ of 64 at that time. Each child was nourished by a retarded woman and recieved much affection. They were given toys to play and were taken on field trips. It was found these children had their IQ by 28 points. In the mean time children who remained in orphanage had 20 points of droppage in IQ. These studies raise many issues. Whether early deprivation is reversible? Is there any direct relation between social deprivation and IQ or intellectual development?

Kagan's (1977) study in Guatemala is convincing. In these villages children are confined to dark huts. Adults seldom pay with infants. At the age of 2 they are listless, apathetic, and retarded in development. But when these children do learn to walk, they leave the huts and begin to participate in community life. By the age of eleven they are active children and intellectually competent.

Dennis (1973) found that in case of children living in orphanage home in Lebanon, under extreme social deprivation, they become mentally retarded and the IQ is around 55 if they continue to live in such atmosphere upto adolescence. But children who were adopted before age 2, they had varying degree of decline in intellectual development. Social deprivation therefore affects adversely the intellectual functions depending upon how long the deprivation continued and how early it started.

It is obvious from the previous discussions that range and nature of influence of heredity and environment on the behavioural development of children are quite varied. It is clear that all the evidences regarding the presence or absence of one of the other variable, is based on biographical follow-up data or correlational studies. In recent years the trend has changed. There is more emphases on verifying explanatory hypotheses and observing changes in behaviour as a result of intervention of changes in situations.

### HEREDITY ENVIRONMENT INTERACTION

An organism basically inherits a range of characteristics and there is a limit of their modifiability. Each genotype can specify a range of phenotypes. Environment can have very little influence on it. On the other hand, there are traits which are greatly modifiable by environment. Experimental

evidences can be cited to make this interactional view points more precise and clear.

In one of the studies Haldane (1946) demonstrated that individuals with genotype 'A' always scored higher than genotype 'B' but then they were exposed to two different environments 'X' and 'Y'. It was found that both the genotypes improved under environment 'Y' than under 'X'. This was an ordinal interaction. Better nutrition increases the heights of both men and women although in general men are taller than woman.

In certain situations the interaction is disordinal. For example, there are two genotypes 'A' & 'B'. There are two environment 'X' and 'Y'. Genotype 'A' Develops better under environment 'X' but genotype 'B' performs better under 'Y' environment. Europeans outlive Blacks in Europe because of their resistance to Tuberculosis where in Africa Blacks outlive Europeans because of their resistance to yellow fever (Haldane, 1946).

In some cases environment has no effect on one genotype but dramatic effect on the other. An illustration can be drawn from classroom instruction on two methods of teaching reading to 18 pairs of identical twins. Out of 18 pairs some of the twins pairs are average intelligence and some were superior in intelligence. One of the twin in each pair was assigned to a classroom and the other to another classroom instruction. Reading was taught by the phonic method in one room and sight method in another room. Within each room there were the average and superior children. It was observed that the average children learned better by the phonic method where as the gifted ones learned better by both the sight and phonic methods. In other words, two environments had same effect on the gifted but different effect on the average children.

The above findings show that environment acts on the genotype but genotype does not act on the environment. But this assumption is not true completely. Growth does not proceed in a simple reflex manner in relation to certain environmental manipulation. Rather there are evidences where heredity sets a limit in which environmental influences can act. The individual can act on the environment and control, manipulate and change the environment to his experiential level. In other words there is reciprocal relation between the individual and his environment. For example :

“There are parents who abuse their children tend to be impulsive, self-centred, imatured, self critical and less intelligent. Not all children activate these abuses. Only certain children do *i.e.* the chronically sick, the unmanageable ones, the malnourished. Hence, neither heredity nor environment alone determine behaviour, the emphasis is upon one or the other but both the factors interplay in determining the course of development.



But the fact remains, that we can easily manipulate the environment, create environment and produce behaviour change. Manipulation of heredity is a stupendous task, often baffling the genetists" (Panda, 1983).

Seven types of investigations have been undertaken by different psychologists to explain the process through which such influences operate.

**Selective Breeding.** This practice was used to identify specific hereditary conditions underlying the observed behavioural differences. Rather than simply telling that 'maze learning ability' is inherited, attempts were made to find out what chemical properties of the genes ultimately lead to behavioural characteristics. A follow up study on Maze bright and Maze dull rats developed by Tryon on various breeds and cross breeds of dogs it was crystal clear that 'difference in performance are produced by differences in emotional, motivation, and peripheral processes and the genetically caused differences in central processes may be light or non-existent'. Breeding differences in physiological characteristics were established.

### BEHAVIOUR AND PHYSIOLOGICAL VARIABLES

Research on electroencephalograph recordings, autonomic balance, metabolic process and chemical factors substantiate that defective genes of dominant/recessive genes through metabolic process cause cerebral malfunctioning such as PKU, feeble-mindedness, schizophrenic reactions.

### PRENATAL ENVIRONMENT

Prenatal and parnatal deficiencies are significantly related to mental defect and psychiatric disorders in children. These deficiencies mostly occur in low socio-economic homes. Direct evidence on maternal nutrition and child's IQ has also been obtained in a study made by Haldane and his associates. Two groups of pregnant women were selected from the lower SES. One group was given a supplementary diet during the period of pregnancy and lactation. The other group was left to their normal diet. The children of these mothers were tested at age 3 and 4. Higher IQ was observed for the children of experimental mothers than those of the control.

### SENSORY DEPRIVATION STUDIES

Animal studies in many cases offered most crucial evidence. Studies on prenatal radiation and neonatal asphyxia upon cerebral anomalies and subsequent behaviour development have established quite clearly the role of environmental factors. Sensory deprivation studies also demonstrate deficiencies in development of perceptual responses motor activity, learning, emotionality, and social reactions, and when animals are again put in nourished environment they invariably regain their depressed.

### COMPARATIVE STUDIES ON CHILD REARING PRACTICES

Whiting and Child (1953) analysed the data on child rearing practices of different primitive societies and clearly stated that personality development of children are influenced directly by child rearing practices. Whether we analyse from psychoanalytic orientation, or cultural orientation the fact clearly emerges that parent-child interaction contributes to the personality development of the child no matter what his genetic endowments may be.

### SOMATO-PSYCHOLOGICAL FACTORS

Although Sheldon, Kretshmer and a few others have explained personality characteristics of the child according to the body physique yet direct evidences are wanting. More of research is necessary to find out the direct relationship between the two variables. But in any case it will merely provide an indirect estimate about hereditary influence.

### TWIN STUDIES

Whatever information has been obtained regarding the role of heredity or environment it is primarily by comparing identical twins, fraternal twins under different child rearing conditions by using the cot-twin control method over a short term period. In longitudinal studies are undertaken from very early age though school age the effect of heredity and environment will be more readily identified with regard to intellectual and personality changes in the twins.

These principles and factors of development are necessary for parents and teachers to know in order to regulate the development of their children and also to observe if there is any deviation. Successful developmental pattern requires guidance for which a knowledge of normal developmental pattern is required. Lack of opportunity and lack of encouragement may delay developmental sequence.

### REVIEW EXERCISES

*Answer the following questions in 500 words each :*

1. What are the principles of development ? Explain the principles by giving examples.
2. Point out the relationship between maturation and learning.
3. Discuss the relative importance of heredity and environment on the development of the child.
4. Write a note on the sensory deprivation studies in relation to development of behaviour.
5. What is the role of early experience on development ?
6. What are the views of Piaget and Watson on role of environment in the development of children ?

**Write notes on in 50 words each of the following :**

1. Stages of development
2. Concept of growth and development
3. Selective breeding
4. Sensory deprivation
5. Twin studies
6. Role of enriched environment
7. Heritability of Intelligence.

**Write the answers to the following questions within 50 words each :**

1. Stages of development.
2. Types of growth.
3. Rate of development.
4. Difference between growth and development.
5. Cephalo-caudal sequence in development.
6. Proximo-distal sequence in development.
7. Enriched environment.
8. Heredity.
9. Environment.
10. Size of the head.

**Write whether the statements are True or False :**

1. Mental development and physical development are not uniform processes.
2. Development is very rapid upto 3 years.
3. Development proceeds at different rate for difficult behaviour.
4. There compensation rather than correlation in development.
5. All children donot reach the development at the same age.
6. A child cannot come back after a poor start.
7. Child develops in a continuous manner.
8. There is a difference in rate of physical development.
9. It is not possible to accelerate development.
10. There is discontinuity in development.

**Fill in the blanks :**

1. ....is the beginning of development.
2. Development proceeds from.....to specific.
3. Early childhood is more important than.....childhood.
4. There is.....in the development of children.
5. Child hood shows the man as morning shows the.....
6. The period from 2 weeks to 2 years is known as.....
7. The period from 2 years to 6 years is known as.....
8. The period from 6 years to 13 years is known as.....
9. The period from 13 years to 16 years is known as.....
10. The effects of early experiences are neither enduring nor.....

# 4

## Prenatal Development

Life of an individual begins when a sperm from the male enters into the wall of an ovum from the female. This movement or union is called conception. The characteristics of the parents are transmitted to their children at conception. The mechanism through which such hereditary characteristics are transmitted is known as 'mechanism of hereditary transmission.'

Each fertilised egg, otherwise called 'Zygote' contains 23 pairs of chromosomes equally released from both parents. The chromosomes contain genes. Genes are the carrier of heredity. Each gene is composed of a chemical called DNA. This DNA is actually the molecule of heredity. There are about 1,000,000 genes in a human cell, approximately 20,000 in each chromosome.

In spite of this common carrier of heredity children born to same parents are not identical. Because each child inherits only half of each parent's genes. This combination occurs during the process of cell division. Only in case of identical twins heredity remains same, as in this case same fertilised egg splits into two individuals and the 46 chromosomes in the germ cell are divided always in the same way. It is possible only in rare case.

### **SIGNS OF PREGNANCY**

The first symptom of pregnancy is a missed menstrual period although this may occur due to fear of pregnancy. Nausea or morning sickness occurs after about two weeks of conception and lasts until end of 3rd month. Tingling sensations appear in the breasts after about a month of conception with nipples becoming large and areas around these become dark. Frequent urination especially at night is another indication of pregnancy. Medical examination reveals that around sixth week the lower portion of the womb becomes soft. There is swelling of the abdomen by twelfth week. Various tests are conducted to ensure pregnancy by physicians such as frog test, rabbit tests etc. The average lasts about 280 days from the date of conception to the date of child birth.

## COMPLICATIONS OF PREGNANCY

There are a few conditions which are more susceptible than others during pregnancy.

Cystitis is an infection of the bladder. The symptoms are frequent desire to urinate, pain and burning sensation during urination. It responds to sulfa drugs and antibiotics and fluid intake.

Ectopic pregnancy results when the fertilised egg implants itself in the Fallopian tube instead of the wall of the womb. Since the tube is small it tends to burst when the embryo increases in size. Surgery is necessary to save the mother.

Toxemia *i.e.* puffness in face and hands, persistent vomiting, severe strain in vision, rapid gain in weight indicates medical attention and control of salt intake and sufficient rest. Otherwise this leads to another complication *i.e.* Eclampsia whose symptoms are difficulty in breathing, convulsions and in extreme cases coma. These occurs primarily in the case of first pregnancy and lasts 3 months during pregnancy.

There may also be premature misplacement and separation of placenta demanding immediate medical care for saving the mother and baby as well.

## MENDEL'S LAW OF HEREDITY

The basic principles of heredity were formulated in 1865 by Gregor Johann Mendel (1822-1884), an Austrian monk. He has pollinated red and white flowers of true breeding species of a garden pea which is self pollinating and which he called parental generation (P). Then their seeds were collected to grow the first filial generation of F<sub>1</sub>; these were self pollinated to produce offsprings of the second filial generation or F<sub>2</sub>. After many years of experiment Mendel concluded that :

(a) the flowers of the first filial generation had both characteristics of redness and whiteness. Mendel called such individual or offspring having dual characters as hybrid.

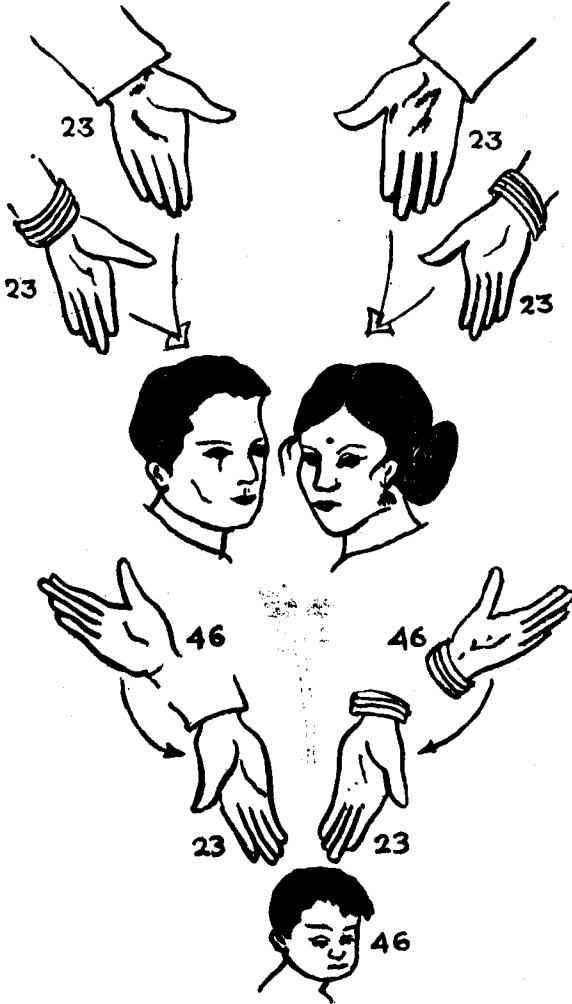
(b) that something takes place by which the two characters (redness and whiteness) are segregated or separated in the next filial generation.

These experiments can be graphically represented.



Gregor J. Mendel

Every man and every woman  
at conception receives 23 chromosomes  
from each parents.



The heredity of the child is  
determined by 46 chromosomes  
i.e. 23 chromosomes from each parent.



character that expresses itself in the hybrid is called dominant and the alternative or that fails to show itself is called recessive.

**(b) The law of segregation**

According to this law, the F1 hybrid tall peas of Mendel's experiment will produce two kinds of gametes, some carrying the factor of Tallness and an equal number carrying the factor for dwarfness. This law can also be defined as non-mixing of genes in the hybrid. A gamete is pure for a character.

**(c) The law of independent assortment**

Every character is inherited independently of every other character. The different maternal and paternal characters (or other genes) present in the offspring of the hybrid will undergo independent assortment for the production of all the combinations of genes in the gametes. The result is that in each generation random combination of characters or their genes takes place.

After some years law of mutation was introduced. According to this law some characteristics which are not present in parental generation do appear due to chance factors and that cannot be explained by Mendel's laws of heredity.

## SEX DETERMINATION

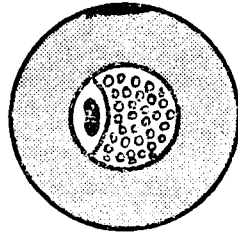
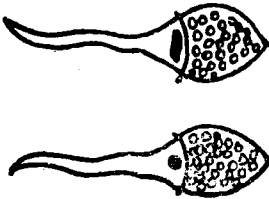
A curious question often arises, as to how the sex of the offspring is determined? Recent advances in the field of biology have made it possible to explain. Out of the 23 pairs of chromosomes, one pair is responsible for determining the sex of the child. In the female this pair contains XX chromosomes which are large in size. In the male, there is one large chromosome (X) and another small chromosome known as (Y) chromosome. When mating between a male and female occurs and the ovum containing X unites with a sperm containing Y chromosome, the result is a boy (XY). On the other hand, when sperm and ovum are united each carrying X chromosomes, there is the development of a female baby (XX).

## PRENATAL GROWTH

It has been already stated that life begins at conception and not from the time of birth. Birth is only a point in the continuity of development. Conception occurs during mating of a male with a female. And there are particular periods when mating results in conception. In other words, around the middle of menstrual cycle, an ovum ripens in one of the two ovaries. It then enters into the Fallopian tube and marches towards the uterus. This ripening of the ovum occurs only once in every 28 days. Further, during the

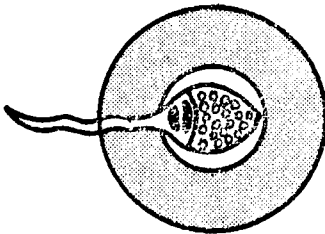


Father produces sperms of two kinds, in equal numbers :  
(a) with large X sexchromosome. (b) with small Y chromosome



Mother produces eggs all of one kind,  
each with a large X sexchromosome.

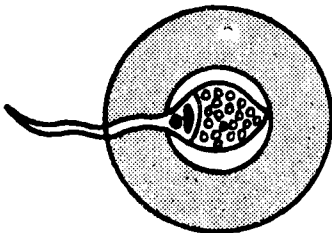
1. If sperm with X enters egg :



X X



A Girl



X Y



A Boy

2. If sperm with Y enters egg :

Sex determination.

course of its journey to the uterus, if it unites with a sperm, as a result of mating at this time of menstrual cycle, then conception occurs.

At the beginning of this union of sperm and ovum, the chromosomes line up and split, and the process of development begins. The fertilised ovum or Zygote is very small at conception, about 1/175 of an inch in diameter. The period from conception upto the time of birth is best known as Prenatal period, which is again subdivided into three phases : period of ovum, embryo, and fetus. The 10 lunar months (280 days) are marked off into these divisions.

### PERIOD OF OVUM

The period of ovum extends from the time of fertilization upto the end of second week of life. During this period the size of the ovum is about the size of a pinhead and the size hardly changes because it does not receive any external nourishment. Around 10 to 14 days after fertilization the ovum will attach itself to the uterine wall. Before the 10th day it was unattached and free moving. When it becomes attached to the uterine wall, it derives nourishment from the mother. The period of ovum then comes to an end.

### PERIOD OF EMBRYO

The period of embryo extends from third week to the end of second lunar month. Growth of the embryo becomes rapid. By the end of this period the embryo has all the important external and internal features of the human being. The embryo begins to function by the end of 3rd week. By the end of second month the embryo is approximately 11-2 to 2 inches long and weight 2 grams to 2/3 ounce.

In fact, the inner cell of the fertilised egg which develops into an embryo begins to differentiate into 3 layers from which different organs develop.

- (a) **Ectoderm.** The outer from which skin, hair, nails etc. develop.
- (b) **Mesoderm.** The middle layer out of which muscles, skeleton, circulatory and excretory organs develop.
- (c) **Endoderm.** The inner layer from which the gastrointestinal tract, Eustachian tube, lungs, liver, pancreas, salivary glands etc. develop.

Various nutritional substances from the mother pass to the embryo through the placenta. The placenta regulates the embryonic development.

### PERIOD OF FETUS

This period extends from the end of second lunar month to birth. Upto this time the fetus was passive and was floating quietly in the amniotic fluid. It becomes capable of reacting to tactile stimulation. By the end of 3rd month,

it becomes about 3 inches long and weights  $\frac{3}{4}$  of an ounce. Muscles are well developed. Eyelids and nails are developed. The sex of the fetus can also be distinguished.

In the fourth month there is rapid increase in growth. The fetus now becomes 7 inches in length and weighs approximately 4 ounces. The head is disproportionately large. The digestive system is fairly well established. The fetus is active. The food intake, oxygen and water is increased. The eyebrows and genital organs are fairly noticeable.

Around 5th month, the mother begins to feel the movements of the fetus. By this time the fetus has become  $4\frac{1}{2}$  inches long. By the end of 5th month it becomes 10 inches long and in weight, it is about 8 or 9 ounces. The fetus resembles a human baby. The fingers grip; eyes blink; mouth opens and closes. The skin is developed which protects the fetus. The eyelids are still fused and shut. Except lungs all other internal organs are matured. The fetus has now both sleeping and waking moments.

The sixth month fetus is over a foot in length and is about  $1\frac{1}{2}$  pound in weight. It looks as a miniature baby. The eyelids are separated. Finger nails appear. The fetus can now make eyelids are separated. Finger nails appear. The fetus can now make a fist. Bones have become gradually hard. Sometimes babies are born at this stage but they very rarely survive.

During the third trimester i.e. seventh to ninth month there is rapid growth and increase of weight. The weight is about 6 pounds and height  $1\frac{1}{2}$  to 2 ft. Crying, breathing and thumb sucking appears in the seventh month. The uterus becomes cramped. The brain stem is developed but neural functioning is not perfect. That is why there are respiration problems if babies are born at the seventh month. By seventh month almost all sensory functions appear in the fetus excepting sensitivity to pain. Many children are born at this stage and they reveal the following characteristics :

Movement and muscle tones are poor; avoidance to bright stimulation; breathing is irregular; head turns to sides; crying is absent; and no definite period of waking and sleeping. These functions are all modified and well developed when the fetus reaches the end of 10th lunar month. The nervous system is now adequately developed and it functions independently.

#### **ENVIRONMENTAL FACTORS INFLUENCING PRENATAL DEVELOPMENT**

Human development is complex. Neither heredity nor environment shapes the course of development. It is as a result of the interaction of the two that various growth and behavioural characteristics are manifested in human beings. It is true that genes carry hereditary influences but genes develop

under different environments. Recent researches have established some crucial factors which influence the development of the child during prenatal period.

### **Age of the Mother**

Age of the mother during pregnancy is responsible for the mental development of the child. If mothers become pregnant before they reach 20 years or after they attain 35 years, there is a greater possibility that less intelligent children will be born to such mothers. Especially the danger of having retarded children is more when mothers become pregnant in their late 40's. Studies have shown the best age for women to have children is between 21 to 28.

### **Nutrition**

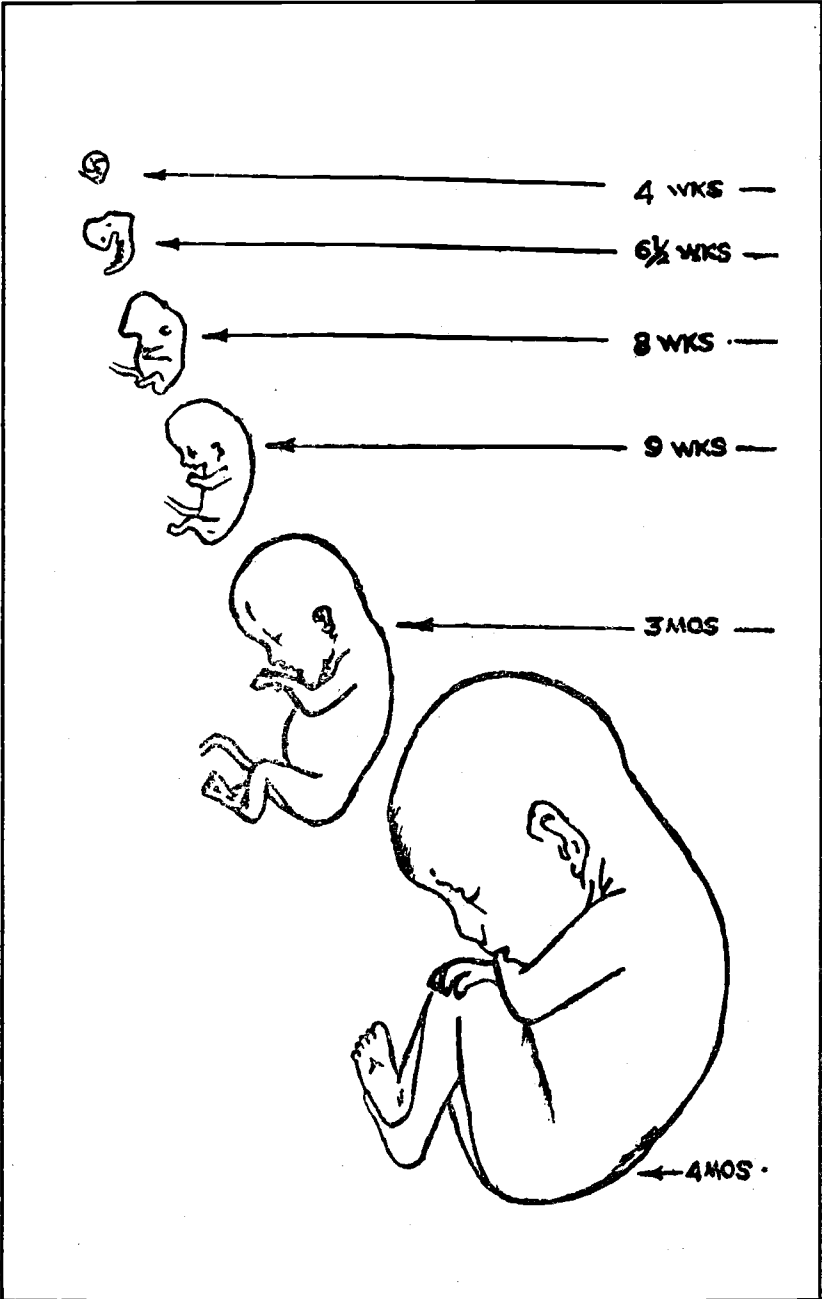
During pregnancy the mother not only needs better food for herself but also for the growing fetus. The fetus derives the food from the blood stream of the mother through placenta and umbilical cord. Hence, if the mother suffers from malnutrition, complications such as anaemia, toxemia, premature and still birth, miscarriages do arise more frequently. If the mother is poorly fed during first four to five months of pregnancy the baby born to such mothers suffer from pneumonia, ricket, cold bronchitis, immediately after birth. Burke has observed that lack of sufficient protein in mother's diet is responsible for premature birth and neural defects in the infant. Mental retardation of the baby has also been associated with maternal malnutrition in the prenatal stage.

### **Drugs**

Intaking of drugs by the mother has a deleterious effect on the development of fetus. For example, if the mother takes thalidomide of fetus. For example, if the mother takes thalidomide during pregnancy, the child is born with anatomical defects. Respiratory troubles in children are seen if the mother has taken barbiturate drugs during labour period. Use of second sodium during labour also results in low cortical activitas as revealed from EEG records. Besides, permanent brain damage to infants occur if the mother remains under excessive drugs during pregnancy.

### **Smoking**

Smoking by pregnant mother affects adversely the development of fetus. Heart rate of the fetus is often accelerated following mother's smoking. It may lead to impairment in the heart and circulatory system. Alcohol, tobacco, etc. have similar adverse effects.



Prenatal development of the human baby

### **X-Ray Treatment**

It has become a fancy even with the rich and educated elite to check the pregnant mother and development of the fetus by frequent exposure to X'ray. Medical science has shown that frequent X'ray treatment precipitate abortions and other damages. In addition usually physical and mental abnormalities appear. In a research investigation, 75 full term babies were observed whose mothers underment frequent X'ray treatment. Of the 75 babies, 25 had mental and physical abnormalities; 16 became microcephalic; and 8 were blind and physically deformed; 20 had severe disturbances in their central nervous system. The disaster is still more if X'ray treatment is applied at the early stage of pregnancy.

### **INFECTIONS AND CHRONIC DISEASES OF MOTHER**

Mothers who suffer from syphilis face miscarriage. Their children become extremely weak and mentally deficient.

If the mother gets infection by German measles during early pregnancy, the child is more likely to be mentally retarded. Nearly 47 per cent of the children born suffer from mental retardation if the mother gets an infection of Rubella or German measles in first month of pregnancy; 22 per cent of these become victim to deficiency in case of the infection if occurs in 2nd month of pregnancy and nearly 7 per cent suffer in case of infection during the 3rd month of pregnancy. Besides mental deficiency such infections do produce deafmutism, cardiac lessions, contracts etc. Mothers who suffer from diabetis during pregnancy give birth to children with respiratory and circulatory troubles. Toxemia *i.e.* swelling of the limbs during pregnancy leads to kidney troubles in the mother and intellectual deficiency in children.

### **Rh-incompatibility**

Differences in blood composition of the fetus and the mother leads to bio-chemical incompatibility. The Rh-positive fetus produces antigens which enter into mother's blood stream. Antibodies are formed in the mother's circulatory system and these antibodies are passed into the fetus through placenta. The red blood cells of the fetus are destroyed and it also prevents supply of oxygen to the fetus. Consequently it creates erythroblastosis leading to death of the child in most cases. In case of chance survival, the child suffers from paralysis. The first born children are not affected by this blood incompatibility. Recent advances in medical sciences have been able to take care of this incompatibility by blood transfusion when detected early in pregnancy.

### **Maternal emotional states**

Mother's emotion influence the fetus through glandular changes caused by her emotions. Whatever may be the cause, if the mother remains in tension, anxiety, and depression during the pregnancy period it leads to increased fetal activity which makes the baby leaner than the normal baby. Again, if tensions occur early in pregnancy then damage done to the fetus is more. A woman resents to be pregnant but becomes pregnant is emotionally more upset for having a child. This emotional attitude is more damaging not only for the fetus but for future psychological adjustment of the baby.

### **Birth hazards**

Certain factors at the time of birth also cause damage to the unborn child : (a) hemorrhaging and (b) failure to breathe early. In case of birth injury or injury to the head during delivery the blood vessels in the brain are destroyed. Hence, supply of oxygen to the brain becomes limited. The brain cells die for want of oxygen. As a result, the child may die or become deficient. When the cells of the brain stem are damaged motor defects are likely to occur. The child may also have difficulty to speak.

It is clear partly from the foregoing discussions that hereditary factors might affect an individual in important ways but the prenatal influences certainly contribute greatly how the Zygote has to develop itself into a full grown baby. The prenatal period is a critical period for the to-be-born child in as much as the first three years is for the new born baby. All effects of deprivation can be offset but enrichment studies are not very convincing.

### **Teratogenic Agents affecting the Embryo**

It is any substance that causes a change in the genetic code. This in turn produces abnormalities in growth and behaviour of the baby. Teratogenic agents environmental or genetic affect genes and protein production. The genes may be damaged or become incapable. Enzymes may be blocked or totally destroyed. As a result of these, there may be developmental halts, incomplete development or overgrowth. Thalidomide is a dangerous drug which affects development of arms and legs as would be seen from the following summary table which contains other agents which inhibit growth.

<i>Category</i>	<i>Cause</i>	<i>Effect</i>
Physical	X'ray of the mother during pregnancy	Malformation of any organ, depending upon stage or development of the embryo
Infections	Rubella	Brain damage, Mental Retardation, sensory loss in hearing and visual field
Chemical	Quinine	Possible deafness and malformation.
	Thalidomide	Taken after 21 days of pregnancy creates absence of external ears, cranial nerve paralysis. After 25-27 days creates agnesis of arms, after 28-29 days creates agnesis of legs.
	Vitamin A	Large dosage taken during pregnancy creates cleft palate, eye damage, congenital abnormalities
	Vitamin D	Large dosage taken during pregnancy cause mental retardation
	Alcohol	Mental subnormality.

### Vitamins

Deficiencies of vitamin C, B-6, B-12, D, and K in mother are especially responsible for inhibiting prenatal development of the fetus.

These factors are therefore, very essential for maternal care of the pregnant mother and unborn baby.

### REVIEW EXERCISES

*Answer the following questions in 500 words each :*

1. What is Mendel's law of heredity ? Explain the mechanism of hereditary transmission.
2. Describe the prenatal environmental influence on the development of the fetus.
3. What physical and psychological changes take place after birth ?
4. What care the mother might take to give birth to a healthier child ? Describe briefly.
5. What are some signs of pregnancy and complication of pregnancy ?
6. Explain the effect of the following :
  - (a) Rh-incompatibility on growth of fetus.
  - (b) X'ray on infant behaviour.
  - (c) German measles on mental characteristics of children.



(d) Maternal intoxication on growth of new born baby.

**Write notes on in 50 words each :**

1. Period of Ovum
2. Determination of Sex
3. Law of dominance
4. Period of embryo
5. Period of fetus
6. Conception
7. Maternal emotional states
8. Birth hazards.
9. Contribution of Mendel to Child Psychology
10. Hereditary transmission process
11. Law of dominance
12. Law of independent assortment
13. Zygote
14. Rh-factor.

**Write whether the statements are True or False :**

1. Identical twins reared apart develop in similar way.
2. Child's sex is determined by combination of XY chromosome.
3. There are 47 chromosomes in a mentally subnormal child.
4. Heredity sets the limit of development.
5. Fraternal twins have common heredity.
6. DNA is the molecule of heredity.
7. Each gene is composed of a chemical called DNA.

**Fill in the blanks :**

1. ....is the carrier of heredity.
2. X chromosome when combined with.....chromosome of the mother produces a male child.
3. X chromosome when combined with.....chromosome of the mother produces a female child.
4. Personality of the identical twin is.....when they are reared apart.
5. Ovum period extends from conception to.....
6. There are.....pairs of chromosomes in a fertilised egg.
7. ....is responsible for sex determination.
8. When sperm and ovum are united.....is formed
9. Sex of fraternal twins are.....
10. Mother in case of Drugs have a.....effect on child.

# 5

## The Neonate : Effects of Birth on Development

Life does not begin at birth, it begins at conception. Birth is merely an interruption. "Birth represents a transition from a parasitic type of sheltered existence in a relatively invariable environment to a physiologically autonomous existence in a less protected and highly variable environment"—Ausubel and Sullivan (1971). Because of birth, the organic system and sense modalities are brought into use for the first time. These organic system need time for adaptation and adjustment.

### PHYSIOLOGICAL AND PSYCHOLOGICAL CHANGES

Immediately after birth the neonate starts the respiration for his own survival. A few infants have difficulty in establishing respiration after birth. Birth cry becomes the first sign of life after birth. But breathing is imperfect and irregular. At birth, respirations are mostly of the abdominal type and during sleep average about thirtytwo per minute as compared to 20 in the adult. There is change from fetal to nasal respiration because the former is not adequate for the full term fetus. In fact, during the last few weeks of prenatal life the amount of oxygen available from the placental circulation becomes insufficient leading to severe anoxia if pregnancy is prolonged beyond term. There is high mortality rate in post-masture infants due to oxygen deficit.

The two major cardiovascular changes at birth are (a) termination of the placental circulation that links maternal and fetal blood systems. (b) Obliteration of the shunts and channel fetal blood away from the lungs at birth. The fetus oxygenate his own blood and the lungs are inflated with air. Neonatal pulse rate is approximately twice as that of the adult, and blood pressure is only half as high as that of the adult, and blood pressure is only half as high as that of the adult.

For the first time ingestion and digestion of food occur after birth. The neonate looses weight during the first few days of life but tends to regain has

birth weight after a week. First born children loose less weight than do later borns. Infants born in summer and autumn regain their weight sooner than those born in winter and spring. The kidneys also become functional at this time since wastes can not be disposed of through the placental channel.

Birth has certain psychological effects. Birth is considered as a catastrophe in the life of the child. The feeling of oneness with the mother and the serenity of the womb always remind the child when the child feels helpless and insecure. This feeling becomes the primal basis for later anxiety. Clinical studies support such kind of mental reactions.

### PREMATURITY

There is variability in period of gestation and in the rate of prenatal development. Because of these reasons children vary in degree of maturity at birth. The Mean length of the gestation period is 280 days with an upper limit of 334 and lower limit of 180 days (Carmichael, 1954). Approximately one third of all post-mature infants fail to survive if the mother is primiparous and over 26 years of age (Clifford, 1954). Prematurity is most likely to occur among first born children.

Nearly 5 to 10 per cent of all live births are prematurely born. Very rarely children born before 26 weeks of age survive. Survival infact, varies according to the period of gestation and weight of the baby.

Prematurity is associated with unmarried motherhood and advanced age of the mother, with maternal infection of Rubella, congenial Syphilis and Rh-incompatibility and inadequate maternal nutrition.

Prematurity accounts for physiological and anatomical anomalies. Prematurity is a casual factor in more than half of all neonatal deaths. General activity level is lower and required responses are rudimentary. His respirations are shallow. His body is very weak. He is unable to regulate body temperature effectively. Prematurity is ascertained primarily on the basis of birth weight which is less than 5 lbs. The head circumference is less than 33 cm. Scalp hairs are shorter than 2 cm. Crown-Tump length is less than 32 cm.

The prematured born infant requires a special environment for improvement, most nutritional adequacy. The prematurely born child experiences retardation in postural, locomotive and manipulative activities.

The prematurely born child does differ from the normal baby. The fetus is likely to be restless, distractible and displays motor and cognitive deficits during the first year of development. In case, the child weighs less than 4 lbs, he hardly survives and in case he survives, he becomes a severely brain damaged child. After the 9th month no damage occurs to the baby due to premature birth. Nearly 10 per cent of the children are born prematurely and

most of them are due to maternal malnutrition, anoxia, toxemia and emotional stress.

Prematurely born infants are show in physical growth. They have more physical illness. They are slow in motor development and are mentally deficient and are retarded in language development. They are highly sensitive to sounds and noises and are easily distracted. Nervous symptoms *i.e.* thumb sucking, irritability, tempertantrums are seen among these children. In early childhood they are shy, dependent but later on problem behaviours are more often seen.

### **TYPES OF BIRTH**

The effects of Birth injury on development depends largely upon the types of birth. Hurlock (1972) describes four different types of birth : Spontaneous or normal birth, Breech birth, Transverse-presentation birth, and Caesarean-section birth. In spontaneous birth no external aid is required. The head appears first, followed by one shoulder and the other and so on. This is normal and no complication occurs usually. The breech birth uses instrument to get the baby out since the buttocks appear first in the birth canal followed by the legs, arms and finally the head. In the Transverse-presentation birth, the fetus lies cross-wise in the uterus. The child is born only after instruments are used. When fetus is large enough to pass through the birth canal with a difficult and prolonged labour. Surgical methods are applied to deliver the child through maternal abdominal wall. Although in case of the birth through prolonged labour, the later developments of the infant are affected adversely, it may also happen in normal deliveries if the mother is emotionally tense and fearful of child birth.

### **BIRTH INJURY**

When the neonate is born after prolonged difficult labour Asphyxia becomes a common complication. Sometimes fracture in the skull, intra-cranial hemorrhage and cerebral laceration may result. Development becomes retarded in the first two years of life, perceptual and motor defects do appear. Inter-cranial injury may lead to convulsive disorders, cerebral palsy and mental retardation.

Anoxia refers to interruption of oxygen supply to the brain. This is more common and damaging than Asphyxia *i.e.* pressure on the brain. A total lack of oxygen to the brain will kill the brain cells in 18 seconds. Anoxia is caused by prematurity or abnormality in circulation.

Epilepsy is most common in breech birth because of damage to the brain call due to oxygen deprivation. The transverse type of birth which uses instruments, if applied to fetal head, causes brain injury. The infant born

through caesarean method is less likely to have brain injury but has difficulty of respiration and the brain cells might suffer from oxygen deprivation. Less serious disorders are : Loss in auditory acuity, slow breathing, less initial activity following birth, hyper irritability and general Psychomotor problems, lower attention level, reading disability etc. Prematurity also affects birth process and development adversely.

### THE NEW BORN BABY

The neonate makes certain major adjustments. These are : adjustment to temperature, breathing, nourishment, elimination process because of the vast differences in internal and external environment.

Several reflexes appear at this stage. Moro or startling reflex appears in the new born due to loud noise, bumping crib, sudden loss of support. The neonate draws legs up, arms are brought forward in hugging. It must appear in normal babies. Its absence indicates brain damage. Hands grasp objects with firm grip than let go. Toes curl downward. Absence of this grasping reflex indicates neural depression. Absence of sucking while touching lips indicates immaturity, brain injury, retardation. Hot milk bottle, pinpricks induce withdrawal behaviour. The neonate cries in pain. Absence of this behaviour indicates immaturity and damage of brain.

Babinski reflex appears when there is stimulation in the foot. The neonate spreads the toes. If it persists it indicates malfunction. These are some of the reflexes which appear in the neonate.

The first two weeks or a month of postnatal life refers to the period of neonate. The neonate's general appearance indicates disproportionate head, eyes, trunk, and limbs in relation to childhood standards. Mean weight at birth is between seven and one half pounds and mean length is 20 inches. First born infants tend to be smaller at birth than later borns. Infants from lower socio-economic levels tend to be smaller and lighter at birth.

The behaviour of the new born is general and of gross nature. There is little cortical inhibition of control which is necessary for specific and directed movements, as well as for integration and coordination of movements. The whole body is almost involved even in simple act like sucking. The neonate shows eyelid closure in relation to illumination or a blast of air, pupillary contraction and dilation in response to change in illumination, nystagmus sneezing urination, defecation, balancing, movements of the head in response to change in bodily position, tonic neck reflexes, knee and ankle jerks, Gradually specific behaviour develops. The grasping reflex is replaced by volitional reflex which again is replaced by volitional grasping involving the thumb. Reflex behaviour undergoes relatively little developmental change after the neonatal period.

## **CRYING**

Crying and whinning are the only sounds the new born is able to utter and are invariably accompanied by mass activity. Crying is not under cortical control and serves no communicative purpose and is different from speech sounds. At the earlier stage it is involuntary but later on its casual relationship to need reduction is established.

Hunger accounts for 1/3rd of all crying. Its incidence is just prior to feeding. Infants cry less when there is some type of auditory stimulation present and if they are kept in a prone position.

## **FEEDING**

Neonates suck when they are awake or aroused irrespective of degree of hunger. Ordinarily the neonate sucks milk from any thing that is soft. The older neonate sucks more vigorously and is less responsive to irrelevant stimuli. Gradually the neonates are placed on a feeding schedule. Breast-fed babies are more agitated and show more sucking than bottlefed babies.

## **SLEEP**

The younger the child, the longer he sleeps. The neonate sleeps from 16 to 20 hours a day. But individual periods of sleeps are relatively short, approximately three hours in duration. At birth, almost equal amounts of sleep occur during day and night but by the 16th week twice as much sleep occurs at night as during the day. With increase in age total time for sleep decreases. Most of this decrease occurs during the first three months of life. Further, individual periods of sleep and wakefulness become longer in the older infant.

## **PAIN**

The infant is sensitive to pain and this sensitivity painful stimuli increases during the first four days of life. A little pin prick, produces pain in the infant. The infant's reaction to pain is not enhanced by anticipatory anxiety or emotional reactions to threatening stimuli but by painful physical stimulus. All skin sensitivities are highly developed in female than in male infants.

## **SENSORY — RESPONSE DEVELOPMENT**

The sensory response capacity of the neonate is little different from that of a full term fetus. The neonate is exposed to a greater degree of exposure to adequate stimuli in postnatal life.

## **VISION**

At birth the eyes appear to function quite independently. Monocular vision

occurs during the first six weeks and binocular vision thereafter. The neonate responds to light very rapidly. Intense stimuli of short duration elicit pupillary contraction, eyelid closure, the Moro and startle reflexes etc. Brightness discrimination undergoes rapid improvement during the first two months of life. Visual acuity increases with age. The infant prefers familiar faces to designs of pictures. The infant is able to discriminate patterns, forms, shapes at a crude level but color discrimination is late to develop.

Robert Fantz (1965) conducted experiments on visual acuity of young infants. The young infant typically looks for longer time at the stimulus that is tall. If he is shown two stimuli with differing amount of contours or height he will look longer at one of them. This indicates that he differentiates between the two.

Fantz concluded that as two weeks of age the infants can detect the difference between a grey patch and a square of stripes that are only  $1/8$  of an inch wide, at a distance of 9 inches from his face. At 3 months of age, the infants will look longer at stripes of  $1/64$  inches wide than at a grey patch, at a distance of 15 inches.

By the time the infant becomes half year old, his visual acuity is comparable to that of any child or adult.

Fantz (1965) did another study to study differences in fixation time for six different patterns for infants of varying ages. All five stimuli with Black and White contours hold the infants' attention longer than the plain grey patch, as early as 2 days of age. This is not due to learning but due to the result of biological characteristics of the central nervous system. This enables the child to focus on the mother's eyes because of black and white contrast.

## HEARING

Because of presence of amniotic fluid or mucous in the middle ear and Eustachian tubes the neonate's auditory acuity is still poor. The Neonate is less sensitive to sounds. Even when a sound occurs over 10 seconds the neonate is not very clear. Most infants can discriminate the location of sound within the first 3 to 4 days after birth.

In fact, much less is known about hearing of the child between 2 weeks and 1 year of age. The new born is capable of hearing at birth, and is sensitive to location of sound as well as to frequency. Experiments have shown that new borns can discriminate between tones of 200 and 1000 cycles per second *i.e.* between a fog horn and a clarinet whether he responds to tones or not can be known from his motor movements, babbling, heart rate changes etc.

The new born reacts differently to sounds differing in frequency or pitch. Low frequency sound causes more of motor behaviour (200 to 600 cycles). High frequency sound (4000 cycles leads to freezing behaviour and a dramatic alerting behaviour as if the child is asking, what is it ?

Sounds of short duration have a minimal effect (less than a second). Sounds of 5 to 15 seconds have maximal effect on the activity level of the new born. If sounds last too long, and the infant becomes less responsive.

Third quality of sound is rhythm. New born responds quickly to rhythmic sound than two dysrhythmic sounds. This is a learned reaction. Low frequency rhythmic sounds tend to stop baby's crying. This is why learning over a baby and rhythmical repeating hello... hello....in a low voice is often very effective in quieting an upset infant.

### **TASTE AND SMELL**

Taste and smell sensitivity of the neonate is minimal. The neonate reacts positively to sweet stimuli and negatively to bitter ones during sucking. Taste discrimination tends to improve during the neonatal period. Taste and smell sensitivity is known from facial grimaces, respiration and circulation, crying etc. Olfactory sensitivity is not well studied and well developed in the neonate.

These early neonatal indices are useful for diagnostic and prognostic purposes when early infant complications are seen.

### **GENERAL BEHAVIOUR**

The neonate exhibits generalised or undifferentiated excitement in emotional situations. These occur mainly due to loud noises and other abrupt or intense stimuli. Smiling occurs to familiar faces. Although some conditioning of behaviour and discrimination appear at the neonatal level yet much of these activities are at the subcortical level, and are reflexive. This gradually gives way to more cortically controlled activities. Early environmental stimulation has significant effects on the growth of the neonatal system and his characteristic ways of functioning .

An understanding of the effects of birth on development of the new born reveals various significant features and characteristics which are the result of interaction between genetic endowments and environmental pressures and forces. In general, the characteristics and trends have far reaching use for parents and teachers of early childhood in understanding the children in their right perspective. Knowledge of such development would enable parents to have preventive steps.



**REVIEW EXERCISES**

**Answer the following questions in 500 words each :**

1. What are the effects of prematurity and birth injury on mental development of children ?
2. Describe the characteristics of the new born.
3. Write a note on the sensory development of the new born.
4. 'Birth is the greatest of human frustration'— Discuss.
5. 'Life does not begin at birth, it begins at conception'- Discuss.
6. What are the various types of birth ? Explain their characteristics.
7. What is Moro Reflex ? At what stage of development it is found ?

**Answer the following within 50 words each :**

1. Prematurity
2. Neonate
3. Birth injury
4. Fantz's experiments on perception.

**Write whether the Statements are True or False :**

1. Birth represents a transition from parasitic type existence to a variable environment.
2. Nearly 5 to 10 percent children are immaturely born.
3. Anoxia refers to lack of oxygen supply to Brain.
4. Epilepsy is most common in breach birth.
5. Amniotic fluid cause poor auditory acuity.
6. The neonate exhibits undifferentiated emotion.

**Fill in the blanks :**

1. Prematurity born infants are.....in physical growth.
2. ....Reflex appears when there is stimulation in foot.
3. ....vision occurs during the first six weeks after birth.
4. The first.....weeks after birth refers to Neonatal period.
5. A total lack of oxygen supply to Brain will kill brain cells in.....seconds.

# 6

## Baby Care and Childhood Problems

There are certain specific activities which need special attention of mothers in order to regulate and control development of children in a wholesome way. Many mothers are not conscious of these and they let children go on their own. Others become extra conscious and expect things to happen before the child is ready. From the point of child development, it is imperative that some care activities are known to mothers and the ways they should perceive and handle these so that concern is not created in them and their children. Quite often unnecessary concerns have led to development of behaviour problems in children. The present section discusses some of these aspects.

### FEEDING THE BABY

Infants are given liquid foods after birth. After three weeks, solid foods are added to their diet. Variety of soft foods are given to infants and babies : rice, barley cereal and mashed bananas. The baby learns the swallowing process. First solid foods are added with enough milk. Once the baby is accustomed to swallowing process the milk mixed in the food can be reduced. Mashed beans, peas, can be given in small quantity. But solid foods should not be given more at a time. Do not speed up the process of feeding. Do not be *critical how he eats when he does it independently.*

### Breast Feeding

There are two issues : Whether baby be breast fed or use formula milk ? This is a controversial issue which is difficult to resolve. Upto 1950 when formula milk was not upto the mark mother's milk was the only way to go. Breast feeding promotes close psychological and physiological blending between mothers and infants. It also prevents allergy conditions (Caplan, 1973). Mothers if in good health do feel relaxed, peaceful, and calm.

Breast milk is the natural food for the infant. The fetus remains dependent on the mother for its nutritional requirements and after birth the

newborn depends solely on breast milk for its healthy development upto 4-6 months.

In our country infants belonging to poor families are breast fed for several months. Children upto age six months do not suffer from malnutrition if breast fed but only after that protein calorie malnutrition, starts.

The National Institute of Nutrition has emphasised the nutritive value of breast milk. Soon after delivery the mother secretes a thick milk like fluid called colostrum. Its quantity may not be much but it makes a good food for the newborn. It contains high amount of vitamin 'A'. Unfortunately our mothers do not feed this milk to the newborn due to false belief. Since vitamin 'A' deficiency is very common in children in our country this colostrum should not be wasted.

A study covering 400 nursing mothers showed that 90% of them breast fed their infants upto six months. About half of children are breast fed upto one year.

It is also a common practice among the poor mothers to continue lactation even till the onset of next pregnancy. The Indian mother maintains nutritional standard of her milk even at the expense of her own body rescue. Only after six months breast milk would not be enough and hence needs to be supplemented by other food.

### **Bottle Feeding**

When mother's milk is not available due to sickness or otherwise, cow's milk is desirable for infant feeding. Milk should be boiled well and stored in a cool place. Milk bottles should be kept clean. The cow's milk should be properly diluted in 2 : 1 ratio (milk : water), in the first month. By 4 months whole milk can be given. Amount of sugar per day in milk should be increased from 69ms (1 teaspoon in the first week to 4 teaspoonfuls) at 6 months about 24 gms.

There cannot be any better substitute to mother's milk. It is therefore advisable to continue breast feeding as long as feasible, particularly in poor communities.

Bottle feeding has certain advantages. It is mobile and the mother can use anywhere she likes. While some mothers welcome bottle feeding, others feel terribly embarrassed socially to use it (Newton, 1972). No scientific evidence is available on either.

Babies are now a days fed with bottle than from the breast. The formula for bottle fed babies is basically made of cow's milk, water, and sugar and the proportions depend upon each baby. The formula can be made at home or commercially purchased. Mothers and baby can get off good start in bottle

feeding if the feeding experience is being held in the mother's arms. It is advisable to hold the baby even when bottle fed. The baby gets plenty of cuddling and is held for most of his feelings.

For bottle feeding the equipment must be sterilised in hot water or refrigerated. In either case, it is good. But if the mother wants to give warm milk, the bottle can be heated in a pan with water. The milk should be luke warm not hot. The milk bottle should be tipped high enough to keep the nipple full of milk so that the baby does not swallow too much of air. The hole of the nipple should be of right size so that it is safe for the baby.

Bottle feeding can be given on demand feeding basis or four hour schedule. Babies differ in widely in their appetites and the way their systems function. Demand feeding is therefore, desirable. At early period, the gap may be less and it increases as the baby grows.

Mother's attitude is quite important on whether the baby will be brestfed or be kept on formula. Breast milk is most digestible and it contains all nutrients needed by the baby; it is safe and clean. It also contains antibodies which works against infections. The act of nursing also satisfies many needs. Breast feeding is an economy measure and it does not prevent further conception. However, breast feeding need rest and good diet so that she does not feel tired and milk supply is regular.

Babies, of course, need vitamins. To prevent rickets a baby should have vitamin D from the time he is two weeks old. Vitamin C is another vitamin the babies should get. Small babies are given vitamin A,C,D in small drops dissolved in water in dropper. As they grow the amount is increased.

Milk alone does not contain some nutrients essential for keeping the children's teeth healthy and strong. That is why from six months on words children can be given seasonal fruits, orange, tomato grapes. Fruit juice in small doses can be given even from third month with little dilution, twice or thrice a day.

Instead of milk, porridge made from milk, Ragi flour, wheat flour, suji, rice or sage may be used for preparing the porridge leafy vegetables may be boiled in water and water filtered. This water may be fed after adding a pinch of salt to it. Mashed potatos with salt, pulses with salt can be given, yellow part of the boiled egg can be given after six months. Shark liver oil can be given after sixth month onwards to help children to grow and it is good for eyes. From 2 to 3 drops the amount can be increased to one spoonful for a day. This may continue till they are five years old.

For a preschool child soon after he gets up from bed a glass of milk sweetened with sugar.

10 Am—rice, 'dal, or cereal-pulse mixture, boiled egg, half a glass milk or half glass of fruit juice is ideal.

1 Pm—rice, cooked vegetables, dal, or fish.

3 Pm—milk 1/2 glass, with shark liver oil.

7 Pm—two spoons porridge from cereal with milk.

Before bed—Half glass milk.

Between 3rd and sixth year milk quantity can be decreased and quantity of food increased. Sweets particularly those remain for long should be avoided to prevent dental disorders.

### MALNUTRITION

Nutrition food is very essential to provide resistance against diseases. It consists of good amount of pulses, leafy vegetables, and fruits, and food with proportionate nutrients. Proteins *e.g.*, milk, eggs, flesh food vitamin 'A' in leafy vegetables, carrot and fruits are essentials. If children at one to 3 years of age are not given good nutrients particularly proteins and calories they became prey to nutritional deficiencies and diseases.

Kwasiworker is a nutritional deficiency disease which arises due to protein deficiency among children between 1st to 6 years. The word Kwasi worker is an African word which means "the disease of the displaced child", a disease normally affects the first child when the second in born. This is common in our country. Why does this occur? How can we prevent it? Will this disease have effect on the future health? Where its symptoms?

The first main symptom is lack of growth in children. Swelling of the body on hands, feet, face, reduced muscles, dullness and inactivity, hair turns pale are some other symptoms. Liver disorders are also seen. Stunted growth of the child, frequent diarrhoea, occurrence of respiratory diseases may be considered as signs of impending Kwasiworker. The disease can be prevented by nutritious food described earlier in addition to mother's milk. But when disease sets in, easily digestible proteins should be given, more food to increase calorie and protein intake. Bannana is a good supplement. As appetite increases, more food can be given. Kwasiworker condition or protein calorie malnutrition leads to mental retardation and in extreme cases may be responsible for premature death of the child. Hence, parents ought to take care to the maximum if such symptoms are noticed in their children.

### BURPING AND CARRYING THE BABY

Babies have small stomach. If they swallow a large amount of air when nursing or taking the bottle, they are likely to feel uncomfortable on full. Burping is therefore necessary. If the baby sleeps on his stomach, he himself

produces burp rather than on his back. It helps the baby to take enough food. Rubbing the back of the baby helps to a great extent, and pat his stomach. Some babies do not even require burping because they are breast fed than bottle fed.

Parents are often uncertain to carry their babies. They think the baby too fragile, as a result they carry the baby in such a way that the child is not feeling secured. While carrying the baby the child should get enough physical support and a sense of confidence. The cradle technique is the more common. This technique brings the baby against the mother's shoulder and in the foot ball technique, he rests against her lips which is not comfortable. A firm grip in carrying the baby gives him feeling of confidence and security .

### **BATHING THE BABY**

Bath serves as a means of maintaining cleanliness, relaxation and a sense of well being. In infancy, the baby should take bath at the same time and the timings may change as the baby grows older. Upto 2 weeks the baby should have sponz baths in warm water and only after that, they can have their first bath. The vessel in which the baby should take his bath should be convenient and comfortable. The following things are necessary. Soft wash cloth, towel, clean set of colthing, mild soap, oil. Wash the baby's face and ears quickly with soft cloth from most of the water has been squeezed out so that little of it drips into his eyes or ear canals. No need to wash his mouth and eyes. Wash the scalp with water but only very little. After the bath, the baby can be dressed. As the child becomes grown up or 4/5 years old, they regulate their bath habits and it can take place daily.

### **BED FOR THE BABY**

The baby can sleep on a firm mattress with no bumps. The child can be placed in a crib which is fairly long enough so that he can use it for 3 to 4 years. The crib can be kept clean. Do not use heavy, stiff covers such as quilts and pillow. A baby's bones grow but his posture develops properly when head lies perfectly flat. A pillow also may present the danger of suffocation. Put water proof under the mattress pad. If the child suffers for any ailment it is better to clean the mattress.

Getting a child to bed sometimes creates problems and concerns for parents. If properly handled, it can be relaxed and rewarding time both for parent and child. Children often get a sense of security from being allowed to sleep with a favourite toy. Many bed time problems arise because the parents think that the child should sleep more than he does.

Most infants will sleep as much as they need to but it does not match

with that of parents. There is a stress on self demand feeding and attending to child's cry whenever the situation occurs.

Real sleep problems start when the child is about 2 years old. The parents should be affectionate and relaxed but firm at the time of taking children to bed. Give the water to the child before going to bed and take him to bathroom and thereafter try to be consistently firm to control him on bed otherwise the child will ask for these things and keep himself awake. Children cry at the time of going to bed, they scream, and hold onto the furniture. Do not sneak away before the child sleep. This will increase his terror. Most of the sleep problems at this age is called separation anxiety. He realises that after he sleeps the parents will run away from him by putting him to sleep. Bed time stories should not be terrifying to children. Rather it should be pleasant and entertaining inducing children to sleep.

Another problem of bed time is jealousy and fear of the dark which is seen among children of 5 to 6 years of age. But the child should learn to think of bed time as a regular rule. Bed time stories make the habit regular and choosing a story is no problem with children of two or so. One can narrate what they have done during the day. For others, story should not be terrifying and it must be interesting.

### **CLOTHING FOR THE BABY**

Infant clothing are very quickly outgrown and one must have only a few of them. Only essential items are required in proper quantity than to acquire a variety of useless clothes. Cotton knit is the best material. Shirt should have easily extended necks. Night clothes that are easy to lie are easy to cope with. Sweaters should have large bottoms. Too much trimming is not necessary. The child may prefer a particular colour by age three to four then he should be given the same.

### **SLEEP OF THE BABY**

Sleeping is absolutely essential for the physical and emotional well being of children as it is for adults. It is as important as food. There is no hard and fast rule but the baby must be put in a schedule so that he gets proper amount of sleep. At the very young stage the baby has regular patterns of hunger, wakefulness, and readiness for sleep. Sometimes they are so tired that they literally cry for sleep. Mornings should be kept as quiet as possible so that they sleep well.

The child at 3 to 4 sleeps almost 12 hours at night and about 1 to 2 hours during day. From five to six there are great variations in sleep needs. Sleep indicates the emotional and physical well being of the child. In periods of rapid growth there is also a definite need for additional sleep. His sleep is

reduced as the child adjusts to school. By age 12 the child should have sleep about 10 hours a night. The child should not be given heavy meal before he goes to bed. The bed should be comfortable and the room should be free of noise and other disturbing activities. Serious problems in sleep can occur in families where discipline is too strict and unyielding. The alternative is also true when the child is left on his own. Hence, a regularity in sleep is essential for development.

### **TEETHING IN THE BABY**

By the time the child is born his baby teeth as well as his permanent six years molars are developed inside his jaw. There are babies who are even with one or two teeth. There is no fixed age at which such development would occur but tooth development is influenced chiefly by heredity, parental conditions, nutrition, serious illness etc. It takes about full 21-2 years before the full set of twenty teeth to appear.

Sometimes teething brings loose motion or fever. The baby refuses to take a bottle at that time. A teething baby often finds relief in chewing. There is constant crying because of teething pain. The rubbing the baby's gums frequently makes him feel better. But no medicine should be applied. In the beginning there is nothing, no pain but around age 1-2 when molars appear, the babies feel discomfort and cry. A few comforting words and something to drink may keep the baby asleep. When teething appears it should be shown to doctors regularly.

### **WEANING IN THE BABY**

The age at which weaning process starts varies a great deal with children. In some children, it continues upto one year. In others weaning starts at six months and the babies are interested in outside food. Weaning is a slow process. The mother should be careful to know its signs when the baby wants to cooperate. Most mothers postpone weaning and go on breast feeding beyond the time required. Some mothers even look at every drop of milk in the milk bottle and can not resist it to be left out.

In general, between sixth to tenth month babies start weaning. It is related to teething at this time. It is therefore desirable to introduce a cup or glass (small) for taking milk after six months which may be of bright coloured plastic. Obviously at initial stages milk will be spilled, dabbled and wasted. Parents therefore should not get angry, worried, and they will see that the babies will have full control using cups by the 19th month. There is nothing to be upset. The baby is sure to wean by the end of one year. Extra cuddling, holding, or singing and talking to the baby may help him toward weaning. If during weaning the milk intake is reduced, weight is reduced, this should not cause concern to the mothers so much because this is natural.



The child can be given some solids to munch or chew on. The child will be left to complete his own weaning.

### **BED WETTING**

Most children wet their beds. It is called enuresis. If it is occasional, it is not a problem but if it continues after certain age it is a problem. They do not wet the bed by the age of three to six. It is sometimes suggested that a child will be less likely to wet his bed if he is awakened and taken to toilet during night. Sometimes the child is not given enough of fluid before going to bed. As the child grows older it can be reduced or eliminated.

Emotional factors are sometimes the reason. This is true with children to revert to bed wetting after a period of control. Too early efforts bladder control also results in bed wetting because of a feeling of insecurity. He wets in bed for getting unconsciously the attention of parents.

Scolding and sparking for bed wetting does not help and they should not make this as an important issue. Neither should they be overpraised nor overprotected for toilet training. A relaxed home atmosphere reduces bed wetting in a general way.

### **TOILET TRAINING**

Toilet training is a milestone in the life of children. It varies widely with individual child. There is no uniform way to deal with such training. Until the end of 1st year of development, the bladder and bowel function remain a completely involuntary process beyond the baby's conscious control. That is why the early toilet training is a waste of time. The mother keeps a track of child's pattern of elimination. Attempts to early toilet training may create a very angry feeling in the child.

Normally children respond to toilet training when the baby is 2 years old. He is able to respond to body needs and he uses language. He understands and imitates adults. He expresses interest to be neat and clean and dry. Children become interested in this routine behaviour and cooperate with parents. Neither extreme praise nor scolding is essential for this training.

Studies show that bowel control precedes bladder control. Boys achieve bowel control somewhat earlier than girls whereas girls gain bladder control earlier than boys. Usually a potty seat is provided to the baby inside the toilet and the mother accompanies the baby to the otty seat and helps him to sit on it. He can see the bowel as he is curious to watch it. Neither parents should show disgust nor tenseness in cleaning the child. Some children may go through constipation because of this discomfort.

Sometimes during 2.5 to 3 years they do it independently and want privacy. They tell the mother to leave. They control their movement now.

Bladder control especially at night is a slower process and a complex too. Before the end of first year the baby can hold urine for 3 hours but he is not yet ready for conscious control. By two he follows a routine of going for urination. By 2.5 its span becomes about five hours. Some children make up at age 3 and go for urination from this on there is wide variation of bladder control. Some children achieve control earlier because of muscular agility, talking, social awareness but others go on upto age six and have bed wetting due to emotional factors. Toilet training therefore is a delicate area of concern which parents should be aware of.

### **THE BABY TALK**

Most babies talk to themselves before they are six months old but they learn a single word like 'baba', 'mama' by one year. The mental process in which this talk develops is a remarkable mile stone in the process of development. Babies normally avoid complicated sounds and substitute with baby talk, which is easier sounds. The babies learn language by imitation. Parents should not imitate baby talk because the babies will not learn the right pronunciation. In case of faulty pronunciation they should ignore it. They should not tense him, or caution him or make him self-conscious about his talk and faulty pronunciation if any. It sometimes leads to greater speech problems. The technique should be : leave him alone and he will learn.

Sometimes a child who has no problem of talking has taken recourse to baby talk especially when the child is jealous about the other siblings. In such cases, the parents should give more attention to the child so that he is not unhappy. Often lisping, stammering and stuttering defects are seen due to this emotional difficulties.

### **LEAD POISONING IN BABY**

Now a days infants and toddlers are victims of lead poisoning who are likely to put edible objects into their mouths. The most common source of lead poisoning is crumbling plaster from walls painted with lead paint. A child may eat paint flaking off window sills, furniture, crib rails, toys, battery cases. Unfortunately these are discovered only after the child has it enough and it has produced certain symptoms. Effects of lead poisoning are seen in weightloss, anemial stomach, cramps, and constipation, mental depression, irritability, convulsions etc. Since lead is retained in the body the effect of poisons grow more serious as the amount of lead taken into the body increases. It might result in brain damage and mental retardation. Prevention is more important than cure which is very difficult.

**THUMB SUCKING**

Thumb sucking is a normal infant activity. The instinct is present from birth. The infant desires both pleasure and nourishment from nursing. Thumb sucking is thus a continuation and it appears in almost all children. It does not result in any facial deformity. When it continues for some years it becomes a warning sign of nervousness. Parents put bad taste thing on thumb which has bad effects. Instead, he needs encouragement in doing other activity during the day. Sometimes he gives up the habit when he enters the school. When he clings to do it for long years it indicated nervous tension. In such cases parents should try to find out the cause of tension and reduce the causes which are bothering him.

**NAIL BITING**

Nail biting may begin when thumb sucking stops even among those who were quite relaxed during childhood. When the pressures are more especially in school home, classroom competitions nailbiting starts. Usually it is a symbol of nervousness and a means of reducing tension. It has an unpleasant social effect. In order to remove this habit, try to build up confidence and reassurance. The nail biting can be mentioned in passing but without pointing toward it. Diverting the attention of the child when he/she bites the nail to some other substitute is another way. Punishment and ragging do not help in removing the habit. Once tensions are over nail biting is eliminated automatically.

**REVIEW EXERCISES**

*Answer the following questions within 500 words each :*

1. Explain the importance and need for taking care of the baby ?
2. What are some of the most essential baby care activities ?
3. What problems are seen in childhood ?
4. How can you prevent lead poisoning, bed wetting, Thumb sucking and Nail biting ?
5. What should a mother do to help the growth and development of the baby ?

*Answer the following questions within 50 words each :*

1. Bottle feeding vs Breast feeding
2. Burping the baby
3. Bathing the baby
4. Bed wetting
5. Clothing
6. Sleep
7. Weaning
8. Toilet Training

9. Lead Poisoning
10. Baby talk

***Write whether the statements are True or False :***

1. Solid foods are added to the food of diet of the baby only after 3 weeks.
2. Breast feeding promotes close psychological and physical blending between mothers and infants.
3. To prevent rickets in a baby vitamin A is given from the time the baby is two weeks old.
4. The child should not be given heavy food before he/she goes to Bed.
5. Emotional factors are the reasons for bed wetting.

## Common Ailments of Childhood

According to UNICEF figures nearly 750 children in India are affected by poliomyelitis. A few die but the future of nearly all of them is shattered. For those who survive, live in quiet desperation, leading sadly diminished lives. Their genetic potential is destroyed for want of a simple in-expensive intervention. Every two minutes in India there is a child death directly related to measles *i.e.* two out of every 100. Among malnourished groups the fatal proportion is 10 to 100. About 250,000 infants die each year of neonatal tetanus. Hundreds of thousands of children in India are affected by tuberculosis. Those who do not die they are prone to suffer permanent brain damage. Whooping cough ravages the respiratory systems of hundreds of thousands infants and children. The situation is a burden on social conscience and a drag on national development. Therefore, from the points of view of child care and development there is a need to know the common childhood ailments, their prevention and care by parents and the schedule of immunisation in order to save children from decay and despair and deal in a certain cases.

Hence, the organisation of this chapter includes an awareness of immunisation programme and a brief discussion on some selected childhood ailments which are common, frequent and damaging for the physical and intellectual growth of children. In this context, it has meaning and significance.

### CHILDREN AT RISK : THE IMMUNISATION PROCESS

Immunisation has become a programme of utmost priority. Immunisation of all children against the six diseases : Diphtheria, tetanus, whooping cough, poliomyelitis, tuberculosis and measles is necessary. The schedule is given below which is meaningful by itself.

#### Immunisation Schedule

<i>Prenatal</i>		
16-20 weeks	Tetanus Toxoid	1st dose
20-24 weeks	Tetanus Toxoid	2nd dose
36-48 weeks	Tetanus Toxoid	3rd dose

*Children*

3 to 5 months	Small Pox Vaccine BCG Vaccine	Booster dose
5 to 7 months	Diphtheria-perusis  Tetanus, Poliomyelitis	at an interval of 1-2 month. 3 doses at an interval of 1-2 months.
9 to 12 months	Measles	Booster dose
18 to 24 months	Poliomyelitis	Booster dose
5 to 6 years	Diphtheria Typhoid	Booster dose One dose
10 Years	Tetanus Toxoid	Booster dose
16 Years	Typhoid	Booster dose

A new vaccine schedule is also available (Vijay Kumar, The Tribune, 1987, May 10).

0-3 days	Polio I	BCG
6 weeks	Polio II	DPT-I
10 weeks	Polio III	DPT-II
14 weeks	Polio IV	DPT-III
9 months	Measles	—
18 months	Polio	Booster

**ALLERGY**

Allergy is a condition, children are sensitive to certain substances. For example pollen of plants to which some children are allergic. They experience streaming eyes, running noses sneezing normally found in hay fever. Pollen is thus an allergen. Allergens enter the body by being inhaled, swallowed touched, or unjected. Some of the common allergens are : milk, animal hairs, dusts, foods, feathers, dyes, detergents, cosmetics, plastics, pencillin. Allergy reactions can take place anywhere in the body. It does not develop in the first contact but on first contact of the allergen antibodies are formed and remain in the body tissues. Sometimes it develops in second contact or even after.

Most common allergies affect the skin and respiratory system. Hay fever, asthma, itchy swellings or gives, eczema, eruptions in the skin are allergy symptoms. Irritant soap, insect bites, poisonous plants, create skin allergy. Precautions are therefore necessary. Skin tests are often done to identify allergy.

A particular allergy is not inherited from parents or grandparents but the tendency to be allergic can be inherited. Anxiety, fear, anger and strong excitement are likely to precipitate allergy attack.

A doctor's advise is always necessary whenever such allergies occur. The cause of allergy is identified by applying minute quantity of the suspected allergens to the skin of the child's fore arm using potch test or

scratch test. The tests are not painful. Therefore patients should take care to see that allergens are tested. After ascertaining the allergens by the doctor they should avoid children to come in contact with such conditions or agents. Dust allergy is quite common. Hence, parents should not keep things in room which will make dust due to crowdings. Clean the room thoroughly and do not allow the child to remain present during cleaning.

The next allergy is food. Certain foods like eggs, milk chocolate, seafish do produce allergy in certain children. Breast fed babies are seldom allergic to milk. In case of mild allergy a doctor may prescribe antihistamines or decongestants but in severe cases desensitization treatments are necessary. Parents should after identification keep a note the substance to which their children are allergic as a precautionary measure and avoid exposure to or use of these allergens.

### ASTHMA

Asthma is a breathing disorder. It appears in the child periodically. It ranges from slight difficulty in breathing to severe suffocation and attacks. Quite often childhood asthmatic attacks disappear after adolescence. In asthma, there is a sudden contraction of bronchial tubes characterised by spasm which carry air from the wind pipe to lungs. There is irritation and coughing. It is reduced after taking proper medical care and more often it is a nuisance and hazard to health. It can also be quite dangerous.

The first attack is quite frightening for parents. But they should work with patience and care so that the fears of child are lessened. The child lie down can in the bed and rest so that his attention can be diverted. Proper and expert medical care is necessary because by repeated treatment the bronchial tubes may be damaged.

The causes of asthma are quite complicated. It may arise out of dust allergy. One should not use the medicines which worked with other babies for asthmatic attack for each child because the cause may be different. Three types of causes are identified : Allergy, infections and nervous tensions. It occurs along with hay fever, due to irritating pollens, other allergy conditions such as dust. Hence, allergy sensitivity should be diagnosed and identified while treating asthmatic patients.

Sometimes bacterial infections especially of sinuses, throat and nose cause asthmatic attacks. Nervous tension and emotional problems are also precipitating factors. For this reason, it is often known as a psychosomatic disease.

When a child is suffering from asthma the best way is to take medical advice and personal care. Parents often think to shift their place of residence from one part of the country to another part but it has questionable effects.

### **COMMON COLD**

Most of the viruses are transmitted through air. Overcrowding, bad sanitation and malnutrition are precipitating factors. The chilling or dampness also increase susceptibility to infection. Onset is abrupt often beginning with sharp rise in temperature or insidious with running or stiffness of the nose followed by cough. Sometimes decreased appetite, inactivity, irritability, and diarrhoea precede common cold. This lasts 1 to 7 days but at times there are complications.

Children are more susceptible to cold. Cold as such is not more important but it leads to a few complications such as earache, whooping cough etc. Hence, it needs care and attention by parents.

Colds are caused by virus which run to as many as 20 in number. There is no preventive vaccine for this. In spite of all hygienic care, nutrition, rest, exercises babies and children catch common cold. But one should not invite this by sheer negligence and lack of care.

In case of common cold babies and children should get enough rest and are kept preferably under warm condition in homes. If there is fever, plenty of liquids should be given to the child in small quantities but frequently. This will prevent dehydration and its consequent effects. Nasal drops are recommended. Good health habits prevent cold by developing resistance but it cannot be completely prevented.

### **CONSTIPATION**

Constipation occurs in children and young babies no matter how mild it is. The frequency of bowel movements vary in children according to body make up, eating habits, physical activity. One bowel movement in a day is average but it is not necessarily right for all children. It is best not to express any concern about the baby's bowel movement. Rather they should see that the baby is getting normal food which is balanced for him, plenty of fluids or milk. Sufficient movement is also necessary. Unless the baby feels pain one can wait 4 to 5 days for bowel movements to occur. Sometimes constipation occurs due to toilet training reactions. Chronic constipation however, needs medical care and advice.

### **DIARRHEA**

Once upon a time diarrhoea was fatal. Now a days because of improved nutrition and medical science it has become less fatal. Since diarrhoea causes dehydration because of liquid bowel movement it should be controlled immediately.



Diarrhea results out of infection in the intestine, too much sugar in formula milk, rapid changes in the formula, new food intake, too much fruits and vegetables and in older children overeating, allergy, tension.

The infant therefore should be kept away from infectious persons, used bottle and other utensils must be clean and sterilised or washed in hot water.

Young babies have between one to four times bowel movements in a day. In the first six weeks many babies may have 10 to 12 times of bowel movements in a day. But if it becomes loose, their color becomes greenish, then doctors have to be consulted.

The danger in diarrhea however mild it may be, is loss of water, salt and other minerals from the body leading to dehydration. Therefore, it needs to be checked immediately, in consultation with physicians.

Certain temporary precautions have to be taken to control diarrhea. In case of mild diarrhea, discontinue usual formula food and instead take a liquid consisting of 1 teaspoon sugar, 1 teaspoon table salt, 1 quart boiled water, and repeat this intake in small quantities every one/two hours. This can continue for 12 to 18 hours. Then substitute it with diluted skimmed milk or diluted formula. This is applicable to the babies on formula.

If the baby is breast fed, then give some boiled water before nursing the baby. Omit unusual things from the mother's diet, and omit orange juice etc. from the baby's food...

Proper diet, care and medical attention would prevent all cases of diarrhea if treated at its onset.

*Diarrhea* is caused mostly by unclean feeding bottles, dirty water, spoiled food, dirty nails, flies, dirty toilets etc.

The following are the danger signs of dehydration when one must see the doctor and take care of the baby.

- (a) Eyes are Sunken and dry
- (b) Tongue dry, thirsty
- (c) No firmness in skin, looks wrinkled
- (d) Voice hoarse
- (e) Fast breathing
- (f) Convulsions
- (g) No Urination
- (h) Stomach is disturbed.

### **EARACHE**

Babies have earaches. It is caused due to bacterial infections in the middle ear among other causes. The middle ear is most common sign of ear infection

in children. Bacteria enter the eustachian tube during respiratory infection, sore throat, head colds and pressure in the ear. There is ringing in the ear. In infants fever and irritability are the signs. Unless treated very timely it may lead to perforation, or soaring of the ear drums and hearing impairment. Medicines such as sulpha drugs and antibiotics have made ear infections easy to control. Until the doctor attends one can control it by using a heating pad or hot water bottle against the affected ear or using aspirins made for infants and children.

### **EYE PROBLEMS**

Eye injuries in children are by and large preventable. On several occasions of festivity, crackers, bow and arrow games, sharpened household articles like needle, knife, and pointed toys cause eye injuries. Watering is a common eye problem in infants which starts a few days after birth. This results due to non canalisation of the membrane at the lower end of lacrimal passage. So the tears do not drain into nose. If not treated early it can lead to ulceration and other serious problems. Eye specialist are to be consulted. In the mean time eye drops like soframycin, gentamicin can be used 3 to 4 times a day.

Conjunctivitis are also seen in children due to infections. Eyes itch, look reddish, and thready discharge takes place. A frequent eye wash with tap water and antibiotic eye drops are the main treatment.

Vitamin A deficiency also causes blindness and corneal problems. Retinoblastoma is the commonest intraocular tumour in children which appears during 1-2 years. The child may also have a cats eye *i.e.*, white reflex. This has to be treated immediately without ignoring it.

### **BLINDNESS**

Blindness or partial sightedness children are due to vitamin 'A' deficiency. Nearly 30,000 children go blind due to vitamin A deficiency in India. The national programme for control of blindness initiated in 1976 aims at reduction in incidence of blindness for 1.4 per cent in 1982-83 to 0.3 per cent by 2000 AD. Lack of vitamin C causes scruvy, and are more seen among bottle fed babies.

### **FEVER**

Fever is an elevated abnormal body temperature from the normal body temperature. It disturbs the baby and the balanced mechanism that regulates body temperature. Since it can be destructive, as high fevers usually are, attempts should be made to reduce the body temperature from high to normal temperature. Normally rectal thermometer is used in case of babies and the temperature reading in this case is three quarters of a degree higher than

mouth temperature. Mouth thermometer however, can be used with children.

Normally children have a slightly high temperature than the normal 98.4 degree during the later part of day, after play, or lively activity or emotional excitement but these situations are not causes of concern.

In some diseases fever is present. For example, common cold, influenza, scarlet fever, sore throat, influenza, measles, diphtheria, whooping cough, cuts, burns, appendicitis. In such cases temperature should be taken after every four hours.

The child who suffers from fever is weak. There is softness in muscles and bones and chills, headache, thirst, loss of appetite, dry skin, coated tongue, etc. Occasionally there is convulsion but not serious. Pulse rate is increased by 8 to 10 beats per minute for each degree of temperature rise. The need for fluid is increased. Urine become darkish and frequent.

When temperature exceeds 100 degree by mouth and 101 degree by rectal it is necessary to take immediate care. But certain precautions are necessary. The child should be given plenty of water, liquid food or fluids. When the temperature is very high give the child aspirin or crocin to bring the temperature down and consult the physician or give 1 baby aspirin every 4 hours, whereas a five year old may take one adult aspirin to reduce the high temperature. A wet rub is also advisable in case of sudden high temperature. This can be repeated every half an hour if the temperature does not decline. Medical care is a must even though such preventive care is taken by parents.

### MEASLES

It is a highly contagious virus disease of childhood. Although it has been eradicated and/or prevented yet it does occur in children. It is an airborne disease which is transmitted from sneezing, coughing or talking, touching an article which was used a measles attacked child such as handkerchief, towels. It appears during winter and spring. Its incubation period is eleven days. When the child catches the disease he can give it to others three/four days before the rash appears. One attack of measles gives a life time immunity to the individual.

The child when gets the attack has cold, running nose, fever. He feels tired, uncomfortable, cough, pain in head and neck. His eyes are reddened and he can not see light easily. The second stage begins on 3rd/4th day of attack. Temperature becomes 103 degree to 104 degree. Small white dot like grains of salt are seen in cheeks. Rash appears in the whole body within a day and half. After five/six days the rash disappears.

When the child gets the attack he should be given rest and he should lie down as long as fever and rash continue. Water and fluids can be given in plenty and the room should be well ventilated and warm.

If care is not taken, it might lead to encephalitis causing mental retardation. If the symptoms continue after the rash disappears, doctors should be consulted to prevent further damage to the child. Preventive immunisation against measles is given by 1 year or before exposure to the disease.

### **POLIOMYELITIS**

This is a serious disease. Every child should be vaccinated or immunised against this at an early stage. Even at times immunisation does not guarantee attack. Hence, parents need to remain careful about the symptoms and causative factors.

This is an infantile disease by a virus. It attacks the central nervous system by destroying the motor nerve cells in spinal cord that move the muscles. Polio ordinarily occurs in legs but it can occur in the breathing and swallowing organs. However, it does not affect the mind or sensory nerves. This disease is not a killer but it affects the motor functions quite significantly. It is an airborne disease. The polio virus is found in the throat during first few days and then it enters the intestines where it remains as much as 4 months or a little more. The incubation period is one to two weeks.

The symptoms include high fever, vomiting, sore throat, pain and stiffness in back and neck and drowsiness. Polio may be paralytic type and non-paralytic type. Many common childhood diseases begin with similar symptoms. Therefore, it is necessary for parents to take medical advice.

There is no full cure of polio excepting that proper care and treatment reduces the magnitude of crippling effects. Bulbar polio cases which happens in case of swallowing and breathing difficulties, have to be treated in hospitals.

For prevention purposes both the salk and sabin vaccines have good effects in terms of safety and effectiveness. When any one suffers from Polio nearby the children should be kept aloof. They should keep their hands clean, they should not be over tired and should take rest. These children can be rehabilitated safely.

### **THRUSH**

It is a mouth infection which is caused by a yeastlike fungus. It is characterised by white patches that may occur any where in the mouth although they are most likely to appear on the inner cheeks. Pain and fever

are occasionally present. In case of the new born one notices this thrush quite often.

The cause may lie in use of antibiotics. These are harmless bacteria in the mouth. These antibiotics destroy these bacteria which prevent the thrush causing fungus. Children with sore throat have thrushes. They should be treated otherwise they enlarge themselves, become inflamed and will even bleed.

### **WHOOPIING COUGH**

It is a contagious disease. The child coughs excessively, gasps, and sometimes becomes out of breath. It is quite frequent in babies and children under five although it is also seen among children upto age 10. It is infected from others while sneezing, coughing or by touching objects which the other affected baby has used. It is caused by a germ which is settled in throat. Infants are vaccinated against whooping cough quite early in a series of injections.

It starts with a common cold, running nose, slight fever. After 2 weeks he begins to cough eight to ten times at a stretch. This forces air from his lungs and the face turns purple or blue. Then the child catches his breath in a long noisy intake. Often vomiting appears in whooping cough. It is usually severe at night and lasts about six weeks from its first occurrence. During the first three weeks the child should be kept isolated so that infections do not spread. Isolation is recommended till the germs are killed and treated on the basis of bacterial culture of his sputum.

The child or infant should be properly guarded from people who suffer from cough/cold. Once they get the attack they should be isolated. Cough provoking atmosphere in the room may be avoided and the child is given rest. Antibiotics are given to prevent secondary infection. Constant nursing and care of the baby is essential. A proper diet may be given as per doctor's advice to prevent vomiting. But the baby should be immunised against this at a very early age.

### **WIND**

Formation of wind or gas formation is quite common in infants since food is not well regulated in the beginning. This causes pain because air accumulates in the stomach or intestine and exert pressure and then lead to feeling of pain sensation. There is swelling of abdomen, belching and discharge of gas or wind from the rectum. Whether the infant is breast fed or fed through formula unless the wind swallowed is removed by burping of the baby it may cause gas pains. In older babies, gas pains or wind formulation may occur due to over eating, hasty eating, poor diet, allergy to food, spices, eating under tension.

Use of laxatives and other forms of treatment conventionally used in homes are found to be harmful and therefore should not ordinarily find a place in the treatment for wind or gas pain. It is always desirable to seek medical advice as soon as the syndrome are seen.

### **DIPHTHERIA**

Diphtheria is a bacterial disease which can be mild or life threatening. In developing countries where sanitation and hygiene are poor it appears as a skin disease primarily. One out of 10 children having throat Diphtheria die.

It is acquired through personal contact. It is contagious upto 4 weeks. Initial symptoms include fever, malaise, mild sore throat. Membranes may develop in throat. It produces a toxin which passes into blood and may attack the heart or the nervous system with fatal results. There are also paralysis of the palate, eye muscles, throat, respiratory tract, arm or legs.

DPT vaccine is given in three doses at 6, 10, and 14 weeks of age of the child.

### **TUBERCULOSIS**

All forms of the disease begin initially as pulmonary (Lung) tuberculosis. TB can affect the brain, spinal cord, bones, joints, kidneys.

TB afflicts approximately 10 million a year and of these 2 million are under age five. It is often a family disease which spreads from person to person without treatment. Ofcourse treatment is very long. Pulmonary TB is contagious and fatal.

The symptoms in this case include, low fever, cough, blood in the sputum, chest pain, sweating at night, weight loss. This often leads to meningeal type (Brain and spinal cord) or other types. Once a person is affected by TB its bacilli remain dormant and can be active at any time when resistance is lowered due to malnutrition, extreme fatigue, and stress. BCG provides protection against TB during childhood as per immunisation schedule.

### **INFANT MORTALITY**

Infant mortality rate is defined as the number of infant deaths per 1000 live birth in one year. Infant means a child who has not attained one year of age. In India the infant mortality rate is 146. It is the largest single age category of mortality. Death at this age is due to a particular disease or conditions to which the infant is exposed. Due to improvement in child care and health there is a steady decline in infant mortality rates.

Advances in standards of living, better control of communicable disease, advances in chemotherapy, antibiotics, better nutrition, and better obstetrics

have reduced infant mortality rate. In developing countries however the rate is high. In India the infant mortality rates were 204 in 1911-1915, 161 in 1936-1940, 146 in 1963, 140 in 1969 and 146 at the present. Situation has not drastically changed from 1970.

**The causes are :**

Neonatal mortality (0-4 weeks)  
(1-12 months)

Immaturity Birth injury and  
difficult labour

Congenital anomalies

Haemolytic disease

Conditions of placenta and cord

Enteritis and other diarrheal  
diseases

Acute respiratory functions

Postneonatal mortality

Enteritis and diarrhea

Respiratory infection

Whooping cough

Malnutrition

Congenital anomalies accidents

Besides these medical causes the biological causes are : less birth weight, young age of the mother (under 20) order of birth (1st borns), short interval between births, multiple births, large family size leading to maternal deprivation, high fertility.

Low social-economic status, illiteracy of parents, lack of breast feeding, ignorance of child care, broken families, poor sanitation, illegitimacy, brutal habits, the indgenous dal, differential attention to female child are some of the socio-cultural factors that are responsible for infant mortality.

It is usually prevented by prenatal care of mother, immunization, breast feeding, family planning, medical care, improvement in standard of living. Health education in India, and postneonatal mortality is dominated by environmental socio-cultural factors and the causes of death are due to combination of malnutrition and infection.

### MATERNAL MORTALITY

Maternal mortality rate is a fine measure of the quality of maternity services. It is defined as the number of deaths from puerperal causes per 1000 live births. The causes include complications of pregnancy, child birth and puerperium. It occurs during pregnancy, child birth and puerperium. It occurs during pregnancy or within six weeks of delivery. In India, during 1969 the maternal mortality rate is 3.0. Maternal mortality rates are separate for Bombay, Madras, Calcutta, Delhi hospitals and these range from 0.9 to 6.1 in rural areas. It has however declined from 20 in 1946 to 3 in 1969.

The causes of maternal mortality are both medical and social. Social causes sometimes precedes the medical causes.

The medical causes in India are : Toxemia of pregnancy, Haemorrhage, sepsis, vascular accidents, anaesthesia, Transfusion, shocks or accidents, anaemia, cardiac, renal, hepatic, metabolic infection, malignancy, accidents.

The social causes are : age of mother at birth, birth interval and parity, too close pregnancies, large family size, malnutrition, poverty, illiteracy, ignorance of health habits, lack of maternity service, delivery by untrained dais, poor environmental sanitation, social customs, poor transport.

Antinatal, intranatal and postnatal care are necessary for prevention of maternal mortality in India. The measure also should include-community improvement, improvement in environmental sanitation, nutrition education and care of the mother. Infact, in any society mothers and children constitute priority group. In India, children and mothers constitute nearly 65 per cent of the total population. They are not only the large group but they are the vulnerable group. The risk is connected with child bearing in case of women and growth, development and survival in case of infants and children. Therefore, maternal and child care are important areas of concern.

### REVIEW EXERCISES

*Answer the following questions within 500 words each :*

1. What are some of the common childhood ailments ?
2. Write a note on infant and maternal mortality.
3. Write the characteristics, causes and preventions of each of the following ailments : (each within 200 words)
  - (a) Asthma
  - (b) Allergy
  - (c) Common cold
  - (d) Constipation
  - (e) Polio myelitis
  - (f) Fever
  - (g) Diarrhea
  - (h) Earache.

*Write the answers to the following in about 50 words :*

1. Allergy
2. Asthma
3. Common Cold
4. Constipation
5. Earache
6. Fever
7. Measles
8. Polio



9. Thrush
10. Whooping Cough

*Write whether the statements are True or False :*

1. Asthma is a breathing disorder
2. ORT is applied to Diarrhea
3. Ear ache is caused by bacterial infection
4. National mortality is the number of deaths from puerperal causes as per 1000 births.
5. Infant mortality is the number of infant death per 1000 like birth in one year.
6. A particular allergy is not inherited.
7. Booster doses are given for measles when the child is to 12 month old.

# 8

## Physical and Motor Development

A child's ability to perform a physical task is based not only on certain maturational phenomena in the brain but also upon the muscle and skeletal systems. The concept of growth therefore involves a sequence of physiological events which results out of interacting influence of heredity and environment.

Physical growth is one of the more overt and impressive indication of children's development. It is necessary, therefore, to know the normative growth changes. Physical growth illustrates many of the principles of development. It has an important impact on motor and other aspects of development. An understanding of physical growth reveals various age level uniformities as well as orderliness. Growth in the form of age level changes can be characterised as qualitative, quantitative and sequential. Directly, it influences what an individual can not do and indirectly, the attitudes one has towards self and others.

### **PRINCIPLES OF PHYSICAL GROWTH AND MOTOR DEVELOPMENT**

#### **Physical growth**

Physical growth is an indication of children's development. It follows cephalo-caudal and proximodistal sequences. Two basic principles concerning physical and motor development need mention here. These are : Cephalo-caudal, and Proximodistal. The cephalo-caudal principle refers to the fact that growth and motor development proceed in general, from head to the foot. At birth, the head of the child most closely approximates the adult size and the legs least closely approximate the adult size. The baby first lifts head from a surface when the baby is in prone position. Only later on, he moves arm' shoulder and abdominal muscles. After that comes the movement and lifting of the legs.

The second principle deals with proximodistal development that proceeds from the axis of the body outward to the periphery. The baby makes gross

movements of the shoulder to reach something and hands are used. During the later part of his first year the baby makes independent finger movements. These two principles have been explained in earlier section in more detail.

There is, however, a third principle which indicates progression from general to specific action patterns. The infant cries when pricked with a pin and there is reaction all over the body. But at 6 months he reacts much more specifically and adaptively. He may cry but he also withdraws effectively. Early grasping is clear example of gross or general behaviour and only after muscular development co-ordination and specific uses of finger muscles start.

Growth rates are affected by a number of environmental conditions such as dietary improvement, parental care, social-economic status, depressions etc. But heredity has more influence on physical growth.

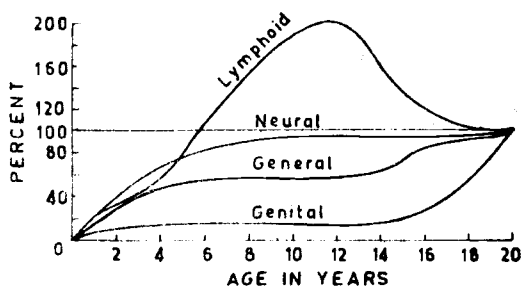
Longitudinal studies have shown certain growth trends (Meredith, 1935).

- (a) Growth is very rapid in the first three years of life.
- (b) Growth continues at a diminishing rate until about two years before the beginning of pubescence.
- (c) Before the advent of puberty, a significant increase in growth rate appears.
- (d) Following puberty there is a continuous declaration of the rate of growth.
- (e) The shape of the growth curve for both sexes is very similar but the timings of adolescent growth spurt tends to disturb the growth curves for boys and girls.

The body does not grow as a whole and in all direction at once. Growth changes in organic system can be divided into four types : Neural, Lymphoid, general (Skeletal and visceral) and Genital. During the prenatal period these four kinds of growth follow parallel development but they differ markedly after birth. Neural growth is most rapid. Nearly 80 per cent of this is complete by age four after which it tapers off greatly. Lymphoid tissue reaches the adult level at age six, becomes double at age 12 and then declines until maturity. Genital growth occurs markedly after pubescence. Growth of Skeletal system is quite rapid at birth and at the time of pubescence, following a decline after each spurt of rise. Respiratory and vascular organs tend to grow at the same rate as bones and muscle tissues. Throughout the childhood, the heart grows more rapidly than the arterial system.

Important qualitative changes take place in the bones during the course of skeletal development. Degree of skeletal maturity is affected by hereditary

factors and is positively related to social class status. Girls are more mature in their skeletal development and the sex differences increases with age. Muscular growth parallels general body and skeletal growth throughout childhood and it shows a marked spurt at pubescence.



#### Nature of Types of Growth

- |               |   |
|---------------|---|
| Lymphoid Type | 1. Thymus, lymph nodes and intestinal lymphoid masses.  |
| Neural Type   | 2. Brain and its parts. Dura, Spinal cord optic apparatus, head dimensions.   |
| General Type  | 3. Body as a whole, external dimensions (with exception of head and neck) Respiratory and digestive organs kidneys, pulmonary trunks, spleen, Musclature as a whole, skeleton as a whole, Blood volume. |
| Genital Type  | 4. Testes, Ovary, Epididymus, Uterine tube, prostate, prostatic urethra, Seminal resicles.  |

#### CHANGE IN BODY PROPORTIONS

Physical growth follows cephalo-caudal and proximodistal sequence during fetal period. At birth, the head and trunk are disproportionately large and extremities are disproportionately short. The rate of increase in head circumference is greater in males from birth through 15 months, and in females from the second through the twelfth year. After the first year the head grows more slowly and its proportion to the total body decreases progressively. The legs grow more rapidly than the trunk through childhood. Beginning with adolescence the reverse trend is seen.

### CHANGES IN HEIGHT

Growth in height is not evenly distributed over the first twenty years of life. At birth the height of the baby is between 17 and 21 inches. The growth rate is rapid during the first two years. At 4 months, the child measures 23 to 24 inches. At 8 months, 26 to 28 inches and at one year 28 to 30 inches. At 2 years, it is 32 to 34 inches tall. Yearly increments in stature are small and relatively constant until the second growth spurt in pre—and early adolescence. Boys are slightly taller than girls until the age of 11 after which there is a reversal of the trend upto 15 and again boys regain their superiority. Height is normally distributed and mostly genetic. The adequacy of nutrition plays an important role in growth of height within genetic limitations. Deficit in protein calorie malnutrition affects height adversely. Because of genetic factors skeletal growth occurs more uniformly throughout the growth span. A child who is tall or short at birth also tends to be similarly tall or short at age six and nineteen. Change in height is a significant indicator of physical growth.

### CHANGES IN BODY WEIGHT

The average weight of the new born baby is between 6 to 8 pounds. Baby weight is also an index of growth. It is also an index of nutritional status. Body weight depends upon age, sex, physical and pubescent status. Trend of growth curve of weight parallels that for height but the rate is rapid in case weight. The child ordinarily doubles his birth weight in six months or less but requires four years to double his height.

Boys weigh more than girls during infancy and childhood. A reversal occurs at the ages of ten and thirteen during the female growth spurt and another reversal again favouring boys at age 13. Weight is a normally distributed trait but is less affected by genetic factors compared to height. Weight is much more influenced by exercise, disease, socio-emotional adjustment, and nutrition. Certain anatomical changes are seen as the child advances in age from birth *i.e.* changes in number of teeth, position, pigmentation, texture, ossification or hardening of bones.

For example, the teeth begin to form in the jaw from the 3rd prenatal month. The last tooth appears between 21 to 25 years of age. During this period two sets of teeth appear : the baby teeth and the permanent teeth. Appearance time of the baby teeth depends upon health, nutrition, race, sex, and related factors. By age 9 months children have generally 2 to 3 teeth. Girls get their teeth earlier than do boys. But eventually boys are ahead of girls. Around 6 years of age the child has 1 to 2 permanent teeth. He has 10 or 11 teeth by age 8 years, 14 to 16 age 10 years, 24 to 26 by age 12 years, 27 to 28 by age 13 years. Last 4 teeth appear by 25 years of age. Girls shed their temporary teeth and get permanent teeth earlier than boys.

Skeletal and muscular growth provide the substrata for the development of strength and motor skill. A correlation exists between height, weight and complex motor skills.

### NERVOUS SYSTEM

The nervous system grows very rapidly before birth and in the first 3 to 4 years after birth. After this, the rate of growth is relatively slow. At birth brain weight is about 1/8th of the body weight, at 10 years 1/18th, at 15 years 1/30th and at maturity 1/40th. It grows more during the first 2 years of life. The growth of the brain affects all aspects of child's development. Physical growth occurs in orderly and predictable cycles for different age groups and different parts of the body.

### MOTOR DEVELOPMENT

A child's motor development, his development of strength, coordination, speed, precision in the use of his arms, legs and other body muscles in an important feature in his total development. The child satisfies most of his aspiration with the help of motor development. It does influence his social and emotional adjustment.

The new born baby is helpless and lacks volitional control. Motor ability of a child helps him to cope with the environment. It helps the child to get a status in the home, school, peer group and helps him to attain volitional independence. Motor activity is an important outlet for emotional expression *e.g.* fear, fright, rage, etc. as well as a source of self expression and satisfaction, social participation, and adjustment. Boys with fewer physical abilities tend to enjoy low social prestige in the group.



The child passes through various relatively uniform developmental sequences in the acquisition of postural, locomotor and prehensile functions following the cephalo-caudal and proximodistal sequences. For example, the development of cortical control over eye limb co-ordination precedes in a cephalo-caudal trend. Proximodistal development is illustrated by earlier development of eye-palm co-ordination as compared to eye-finger co-ordination.



The sequence of motor development from birth to 15 months  
The Average child develops his motor skills on this schedule.

### POSTURAL-LOCOMOTOR DEVELOPMENT

This is relatively uniform for all children despite individual difference in age of occurrence. The following is a brief time table of the more salient landmarks and their median age of occurrence.

Lifting the chin from prone position	3 weeks
Raising the head and chest from the prone position	9 weeks
Sitting alone for 1 minute	31 weeks
Crawling	37 weeks
Standing, holding on	42 weeks
Creeping	44 weeks
Standing alone	62 weeks
Walking alone	64 weeks

Overall physical growth occurs at their maximum during the first 3 years of life. As brain cells develop children reach a state of readiness. Motor functions also develop accordingly.

### DEVELOPMENT OF PREHENSION

Prehension is the ability to group objects the fingers and thumb. The neonate is born with a grasp reflex but this grasping is different from the cortically controlled individual movements of fingers and thumbs that produce prehension. Grasping as a reflex disappears by the 4th month and only after that prehension appears following a sequential pattern (White, 1971). The eye-hand co-ordination increase after that. Prehension abilities actually develop after one year.

Prehension involves co-ordination of relatively distinct sensorimotor systems such as eye, arm, hand, and the tactual motor systems of the hands. They occur at various times before final co-ordination. At 2 months of age object-oriented movements are observed by babies. During the third and 4th months of age bilateral arm approaches increase. Grasping appears at 4 months of age. At about 6 months of age, the infant uses palm and fingers to grasp objects but co-ordinated grasping occurs at age 36 weeks. This development is discontinuous functionally but one can notice progressive improvement in aim, precision, and smoothness of an activity.

Consistent preference for a particular hand develops slowly. By the end of second year about 85 per cent of all children are predominantly right handed. Males show a slightly higher percentage of left handedness than females.



### **PRESCHOOL PERIOD**

After rudimentary locomotion and prehension are established the child acquires a repertoire of other motor skills. During late infancy and preschool years he learns to walk backwards and jump, hit, skip etc. Two and three year old children also button and unbutton and begin to undress themselves and a year later they are capable of dressing themselves. Between 21 to 24 months the child merely pushes and pulls object repeatedly. Shortly thereafter he can concentrate on separate part and acquires muscular control. Between 24 to 48 months complex skills are practised and integrated. Writing skills are also developed gradually. At age 5 to 6 year he is able to make recognisable letters.

Individual difference in the rate of development are largely determined by genetic factors. Extreme emotional deprivation has been found to retard the rate of early motor development. Motor skills are also influenced by practice and motive incentive conditions. Provision for environmental stimulation encourage acceleration of motor behaviour. Maturation, however, plays an important part in the learning of ontogenetic skills. The child will not gain anything unless the neuromuscular growth is equal to the demands of the task.

Individual differences in the acquisition of ontogenetic motor skills are determined by genetic factors, by motivational emotional, and personality factors and opportunities for practice. First borns have higher motor performance than subsequent children, possibly because of more maternal care and time spent with the first child.

### **ELEMENTARY SCHOOL YEARS**

During school years changes are generally seen in strength, speed, versatility, precision and smoothness of execution. Progressive gains are registered in the speed of running, accuracy and distance throwing, height and distance of jumping, and balance. Motor reaction decrease with age. Fine motor skills and sensory skills improve during this period. Improvement in writing occurs with good slant alignment and proportion before the age of nine.

Motor ability tends to be relatively specific in nature. Speed and strength are independent factors. Wherever there is any relationship, it tends to decrease with increasing age. Boys are stronger than girls at all ages but the difference in strength first becomes significant for practical purposes during adolescence. Throughout childhood boys are superior to girls in most gross motor skills but in elementary schools girls have better balance but this is reversed in later years. Boy's reaction time is faster than girl's and they are a year in advance. Sex difference in motor skills reflect cultural expectations

and sex typing of games. During adolescence there exists a greater sex difference. Children from overprotecting homes tend to be physically apprehensive and relatively retarded in gross motor development. Difficulties in motor functioning are also associated with low frustration tolerance and anxiety.

From the above discussions a few generalisations can be made. Motor development depends upon both maturation and learning. In fact, learning skills cannot occur if the child is not maturationally ready. Of course, maturation itself does not produce learning of skills to occur. Motor development follows a predictable pattern. This predictability is explained in terms of Cephalo-caudal and proximodistal sequence. And finally there is individual difference in the rate of motor development. Skills or motor development occur by using trial and error learning, imitation and training. Sex difference in motor development is reduced to minimum if boys and girls are given same training, scope for practice, incentives and encouragement.

#### **FACTORS ASSOCIATED WITH PHYSICAL AND MOTOR DEVELOPMENT**

The sex glands in the body influence physical and motor development. Sex glands produce hormones called androgen and oestrogen. Androgen is responsible for male characteristics and oestrogen is responsible for female characteristics. Physical development in boys and girls are affected by the hormones.

Physical characteristics are more striking in identical twins than in fraternal twins. In other words, heredity has a greater effect on the physical and motor development *e.g.* size, strength, appearance, metabolism etc.

There are also certain prenatal conditions such as maternal malnutrition, infections of the mother, disease, birth injury, intoxication, X-rays, and emotional trauma during pregnancy including low SES which vitally affect the development. For example, deficiency and over dose vitamin A in mother during pregnancy leads to congenital blindness in children. Defects are seen in children if the mother suffers from infectious diseases *e.g.* German Measles at the early stage of pregnancy. There are physical as well as mental abnormalities and deficiencies in children born from such mothers. Birth injury, too frequent X-ray exposure of the mother during pregnancy, and emotional tensions damage physical as well as mental development of fetus.

SES or Socio-economic status is a general factor whose effects are seen in development of children, physical or mental because these are directly related to nutrition, health and early stimulation.

Nutrition in early childhood directly influences, body growth, static control and physical ability. Children who suffer from protein deficiency are

stunted and are retarded in development. Proper nourishment is necessary for good development. Sex of the child is related to physical and motor development. Boys are superior to girls in most of the motor skills but girls are superior in fine muscular co-ordination. This appears more due to cultural training and labelling than due to basic genetic differences. Practice and motivation to undertake physical and motor activities or exercises do constitute salient factors influencing development of the skills. More stimulating environments, therefore becomes a part of physical and motor skill development.

### IMPLICATIONS

There are certain Psychological and Educational implications of physical and motor development. Physical growth has effects on the self-image of the child. It helps to satisfy his needs. Stunted growth sometimes creates feeling of organic inferiority. Any physical inadequacy has similar adverse effects. It is for the teacher to lead all other toward increased self-acceptance. Self-acceptance is related to acceptance of others. Social and emotional development are greatly facilitated by physical growth, attractiveness, size and strength. It has a total effect on personality development.

The elementary school teacher is concerned with motor co-ordination of children to start with. The relationships between gross motor co-ordination and height, weight etc. are low but positive. Certain skills *e.g.* running, jumping, throwing, catching, striking and kicking are basic to performance in many motor activities for grade four, five and six.

It is for the teachers to know that simple skills and gross motor development depend upon maturation and general practice but for fine muscular co-ordination direct training is required *e.g.* embroidery, drawing, precision, movement. Lilly (1909) did develop some 60 lessons to increase the motor development of low SES children and found quite impressive findings. Psychomotor ability can vary in the following way with regard to specific skills. This is concerned with manipulative skills involving muscular or motor responses requiring neuromuscular co-ordination. The five levels of the Psychomotor Domain from the simplest to the most complex are as follows :

1. **Imitation.** Copy of an observed act but lacking neuromuscular co-ordination.

2. **Manipulation.** Copy of an observed act usually following instruction, displaying some neuromuscular co-ordination.

3. **Articulation.** Competent performance of a physical act involving co-ordination of a series of other acts.

**4. Precision.** Performance of a physical act with accuracy, proportion and exactness.

**5. Naturalization.** Routinisation of physical act to the extent that it becomes an automatic, spontaneous and ultimately a subconscious response.

This system of classification provides a basis for checking that a given set of objectives cover an appropriate breadth of categories at suitable levels of achievement.

Motor abilities are specific in nature. A student who is a good runner may not be a good jumper and vice versa. The co-ordination between various motor abilities are less. The child's interest and experience contribute highly to the development of motor abilities. Slow learners and low SES children are alright in gross motor development but they are slow and retarded in finer skills of speed, movement, static and dynamic precision, flexibility, and co-ordination. However, they do profit considerably from training of these skills. Like physical growth, it has also adverse affect on self-concept if the child lacks in adequate motor control and proficiency. The child's play interests are also contingent upon motor development. Children should be encouraged to develop interest in motor development. Unfortunately in school, the contrary things happen. Only those who are proficient in games and sports are encouraged to undertake such activities whereas those who need to participate in athletic activities for their development are ignored.

### REVIEW EXERCISES

*Answer the following questions within 500 words each :*

1. What are the principles of physical growth and motor development ?
2. Describe the milestones of physical growth ?
3. Describe the motor development during elementary school years. What can be done to accelerate development ?
4. What are the various types of physical growth ? What are their characteristics ?
5. What factors are associated with physical growth and motor development ?
6. What factors are associated with physical motor development ?

*Write notes on the following questions in 50 words each :*

1. Development of prehension
2. Locomotor functions
3. Height
4. Weight
5. Prehension
6. Factors associated with physical growth
7. Factors associated with mental growth
8. Psychomotor skills
9. Preschool period

## 10. Postural development.

**Write whether the following statements are True or False :**

1. Prehension is the ability to group objects between the fingers and thumb.
2. Cephalo-caudal indicates progression from general to specific.
3. Proximodistal development proceeds from axis of the body outward to the periphery.
4. Growth is very rapid with first three years of life.
5. Growth continues at a diminishing rate until about two years before the beginning of pubescence.

**Fill in the blanks :**

1. The shape of growth curve for both sexes is very.....
2. The timings of adolescent growth.....tends to disturb the growth curves of boys and girls.
3. There are.....types of growth.
4. The rate of increase in head circumference is.....in males from birth to 15 months.
5. The girls get their teeth.....than boys.
6. The nervous system growth very rapidly before birth and in the.....month after birth.
7. Before the advent of.....a significant increase in growth appears.
8. Sex difference is seen more during.....period.
9. Boy's reaction time is.....than girls.
10. Learning skills do occur in children unless they are.....

# 9

## Emotional Development

Emotions add zest to life and living and at times sorrow and grief. Emotions are of special importance because they organise behaviour, energize behaviour but when acute they also disrupt behaviour. They are responsible for self-actualisation and are integral part of the personality. Emotions are generally defined as a stirredup state of the organism, involving the organism as a whole. They are conscious processes involving bodily changes and they arise out of variety of causes. Neurophysiologically emotions are under the control of the autonomic nervous system which is relatively independent of voluntary control.

Emotions play an important role in the life of children. It adds to the pleasure of everyday experience, serves as a motive to action and determines finally the characteristic pattern of adjustment to life. Every child is born with potentialities for both pleasant and unpleasant emotions. Parents and teachers ought to be aware of these properties and provide happy living at least during the early years of life.

### DEVELOPMENT OF EMOTION

Each child has the ability to respond emotionally. The first sign of emotional behaviour in the new born infant is general excitement due to intense stimulation. Further, child's emotions are first diffused and not very clearcut. As such, for a few months, specific emotional patterns are not recognised and identified. .

Bridges (1932) has made the most systematic investigation about the development of emotional pattern following the state of general excitement. By 3 months of age the general excitement becomes differentiated into distress and delight. Distress further becomes more specific and three basic emotions appear : fear, anger, disgust. This happens around the age of 6 months. Around one year, delight gives rise to elation and affection. Joy appears a little after 1.5 years of development. Affection becomes further

differentiated to children and adults from the age of 1.5 year. Jealousy is seen around 15 months. In short, even before the child becomes one year old, his emotional expressions are recognizably similar to that of adults with regard to general pattern. However, the age at which differentiation of the various emotions takes place, varies somewhat from child to child.

Birth	3 months	6 months	12 months	18 months	24 months
			For children		
		Affection		For adults	
		Elation		Joy	
Excitement	Delight				
	Distress				
	Anger		Jealousy		
	Disgust				
		Fear			

With age emotional responses become less diffuse and random. For example, at first the child expresses displeasure by screaming, crying but later his reactions include resisting, throwing objects, stiffening of the body, turning away, riding himself using verbal expressions etc. As the child becomes older and older linguistic responses increase and motor responses decrease especially in fear and anger provoking situation. Besides, the course of development of different types of emotion is also different.



Robert Bridges

Differences in health and environment produce individual variations in the frequency, intensity, and duration of emotions. For example, a baby who is kept in calm atmosphere and whose needs are solved most promptly and consistently is less likely to suffer from nervous tension as he grows older than the one who lives in a noisy and exciting environment and who must cry before any of his needs are fulfilled.

## MATURATION AND LEARNING

Although emotional expressions are seen right from birth, yet emotional development is a joint functions of maturation and learning.

Experimental studies regarding removal of the cortex show that maturation of the frontal lobe is responsible for matured emotional behaviours. With age there is increase in intellectual development which enables the child to perceive meaning and become responsive to various stimuli. Development of endocrine glands is likewise essential to the development of a mature level of emotional behaviour. In case of adrenal gland which plays a dominant role in emotion, it has been found that there is a rapid decrease in size after birth. Upto 5 years it is rapid, slow from 5 to 11 and more upto the age of 16. Until the growth in size has increased, there is less adrenalin. This has a marked influence on the emotional states in childhood.

From the study of Goodenough (1932) the role of maturation becomes more clear. She found a blind and a deaf girl display the same emotions as normal children despite the restrictions on their ability to learn.

Conditioning and imitation do influence the development of emotional patterns in childhood. The famous experiment of Watson on Albert showed how a baby learns fear. When Albert, was nine months old, he was shown various objects namely, rabbit, dog, cotton wool and white rats. In no instance he displayed fear. Later he was conditioned to develop fear to words the white rat in the following manner. The rat was presented to him and the moment he reached for it, a loud noise was sounded behind his head. This resulted in a startled response on Albert's part and he fell forward on his face. After 5 more continuous presentations of noise and the rat, the rat was presented alone. Albert cried, withdrew and showed typical fear response.

Children acquire many irrational fears in this way. Conditioning of fears occurs easily and quickly during the early years of life because the young child lacks reasoning ability and experience. Conditional fears or emotion also spread to similar people, objects, situations with which it was originally associated. Albert's fear for the rat has also spread to the rabbit, the dog, the cotton wool etc., for which he was not at all afraid. A child's preference for the mother rather than the father is often due to the fact that the mother is more warm and understanding than the father. Similarly he may actually dislike a sibling who teases or ignores him.

The child also demonstrates a kind of emotional response just by imitating others. Babies less than 4 weeks old have been found to refuse breast if the mother was tense. Older babies the sometimes resist food from a mother who is tense but eat well if fed by a relaxed person. Babies who are



in close contact with some persons can imitate their emotional responses quite easily. Imitation also permits development of healthy emotions.

### **CHARACTERISTICS OF CHILDHOOD EMOTION**

Individual differences are inevitable because of differences in maturational level and learning opportunities. However, there are certain characteristic features of children's emotions.

1. **Children's emotions are brief.** The young child's emotion lasts only a few minutes and then end abruptly. He expresses his emotion in overt actions.

2. **Children's emotions are intense.** The child reacts very strongly to even minor emotional situations. There is no gradation of emotion with regard to intensity. When they feel happy they feel it to their maximum and we can observe it from the various facial changes.

3. **Children's emotions are transitory.** The child shifts his emotion from one type to another vary quickly *i.e.* from smile to anger, jealousy to affection etc. This happens because he has a short attention span. When he becomes adult his emotions do not change that often.

4. **Children's emotions appear frequently but as the child grows older he learns to adjust to emotion arousing situations and react to them in socially accepted ways.** It happens because the children do not have a sense of disapproval or punishment. They feel very delicate to show particular type of emotion quite frequently.

5. **Children's emotional responses are different.** For example, one child will turn out of the room when he is frightened, another will hide behind his mother, another may stand and cry. This happens because of the influences of learning and environment. From facial expressions and visceral changes we can observe what a child has experienced.

6. **Emotions can be identified from symptoms of behaviour.** Children express their emotions so overtly that it is easy to know whether a child is angry, afraid or happy. Adult emotions are disguised.

7. **Emotions change in strength.** Some emotions are strong in early childhood. Later on they disappear. Others are very mild in early childhood but increase in strength in late childhood. For example, timidity decreases with age, so also does temper tantrum.

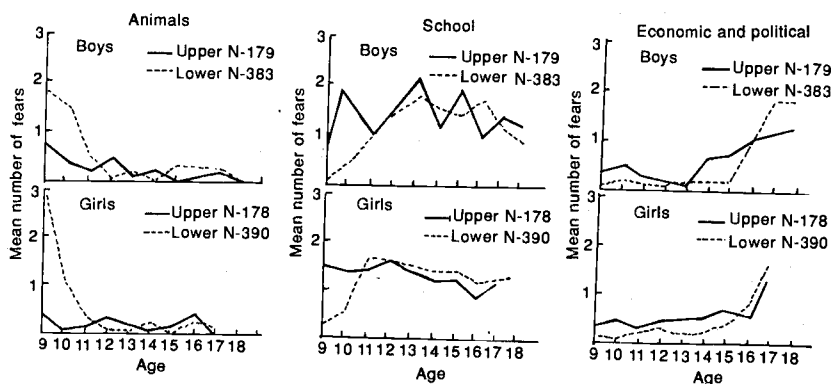
8. **Patterns of emotional expressions change.** In early childhood the child does whatever he wants but as he grows older he controls the emotional expressions due to parental instructions or social pressures. Earlier he does not consider whether this will be harmful to himself or to others.

## COMMON EMOTIONAL PATTERNS

### FEAR

Before the end of 1st year of life fear producing situations begin to affect him. Fears are learned. Some are learned by direct associations or experiences with stimuli that naturally arouse fear *i.e.* loud or harsh noise. Few fears are learned by imitation of the behaviour of parents, siblings and at other times they develop as after effects of certain experiences such as fear for doctors, dentists, hospitals, large animals. Fears also arise out of imagined experiences.

Fears depend upon certain ecological factors as well as causative factors. The sex of the child, age, social status, intellectual development all effect the development or occurrence of fear. It reaches a peak at the age of and again at the age of 11. During early peak period they arise mainly due to situationally determined factors namely people, animals, objects, fear for darkness, etc. During the second peak, the cause is purely anxiety or worry. There is rather gradual change from specific to general fears. And as the children grow older, there are sex differences in fears.



Fears and worries as related to chronological age, sex, and socio-economic status.

Most common fears of babyhood are because of loud noises, animals, strange persons, places and objects, dark rooms, high places; sudden displacement, being alone, and pain. Young children are afraid of more things than either the babies or the older children. A few types of fear

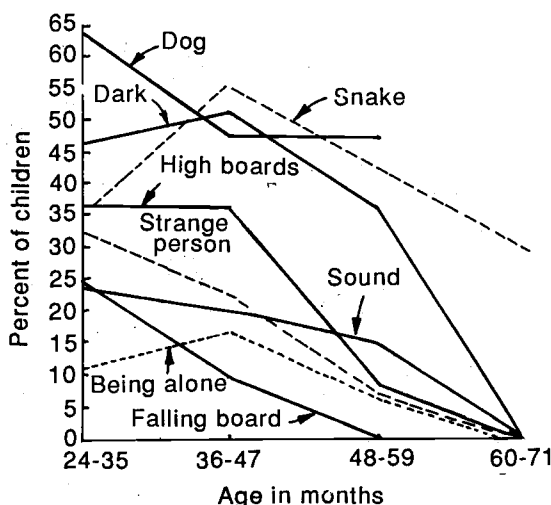
decrease with age but imaginary fears increase with age *i.e.* fear for ghosts, robbers, skeletons and being alone etc. There is a definite and consistent decrease in fear emotions after the pre-school period. For example for 3 years old the mean is 5.5 as against 3.2 for the six years old. When children enter schools, the fears are due to characters recalled from stories, movies, comics, ridicules etc. On the whole girls show more fears than the boys.

Fears also arise in early infancy because of organic pain, loss of support, sudden change in visual presentations, deep voices, masked faces, and strange faces, irritated voice of animals, barking of dogs and fear for darkness, fear for strange persons, sight of dogs, sight of snakes appear after age 11-2 to 2 years. Imagined fear appears later on in life.

The very idea of fear infant implies incompetence and fear become more if feeling of incompetence is greater. Over protected and insecure children are more afraid. Overt expression of fear become subdued with age especially in boys.

The causes arousing fear also change with age. The infant is apparently afraid of any intense and sudden stimuli. In later childhood cause of fear becomes imaginary, guilt conscience, fear of examinations, loss of security etc.

This figure indicates the percentage of children at various age levels who should fear response to several situations originally observed by Jersild, well known for the contributions to emotion.



The percentage of children at various age levels

The child's fears are many and varied, most of these the child has learned. Many fears arise out of stimulus generalisation. These are also

disruptive fears which cause people to faint or to stand frozen in horror. Fear promotes later failure. The child in the classroom avoids showing his ignorance in not reciting becomes as a result progressively more inadequate. Teachers need to be alert for these situations which progressively become disgusting and self destructive. Kingsley and Garry (1957) have stated that "The great bulk of the fears that torment children and adults are needless and detrimental. Fear is the enemy of the mental and bodily health. It destroys courage and self-confidence, and undermines morale. It weakens and suppresses purposive action, distorts perspective, and inhibits clear thinking. It lessens the chances for success, and is often the cause of mediocrity and failure.

Adults very often use fear as a means of securing child's good behaviour. Such a step is definitely harmful. Childrens are often disciplined through fear. But the positive approach of inculcating respects for parents, policemen, teachers would benefit all concerned.

For many children school itself is a fear producing situation *i.e.*, fear of criticism, fear of rejection by the teacher and/or the fear of the group, fear of punishment, fear of embarashment and fear of examinations, fear of ridicule. Because of fear many children cease to do homework.

The best way is to build security and confidence so that child feels secure. Removing fear is generally slow and difficult. Verbal reassurance and explanation may be helpful but emotions are not matter of logic. Imitation is a better process of learning. Parents and teachers therefore are to be calm and confident. Social facilitation are more effective than any of the techniques.

Fear can be eliminated by using certain techniques. In school, a child's competence can be enhances by using a graded approach. For example, if the child is afraid of reciting let him first respond with unison with others, or be called upon to speak only when the teacher is sure that he has the answer. Success experience can be built through gradual shaping and successive approximations in the words of Skinner.

**Table 1. Situations which Cause Fear**

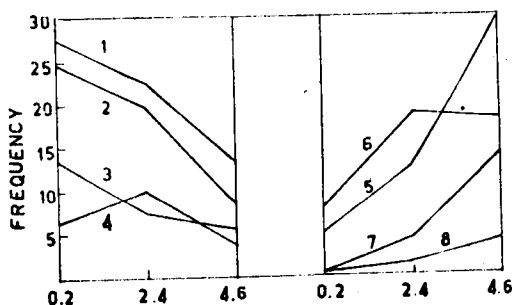
<i>Situations</i>	<i>First Appearance</i>
1. Organic pain	From the time of birth
2. Loss of support	-do-
3. Sudden loud noise	-do-
4. Sudden changes in the visual presentation	End of second month
5. Deep voices, masked faces and strange faces	Seventh month

- |  |                                   |
|--|-----------------------------------|
| 6. New and odd sounds like the imitations of the voices of animals | Eighth month                      |
| 7. Barking dogs  | Ninth month                       |
| 8. Fear of persons in black dress even when they are friendly      | Seventeenth and eighteenth months |
| 9. Carried close by sea  | Twenty first month                |
| 10. Sight of dogs  | Second year                       |
| 11. Sight of snakes  | above two years (Jones)           |

**Source :** Child Development (NCERT)

A characteristic of all fear stimuli is their suddenness and unexpected occurrences as well as unfamiliar or novel objects. Fear is more harmful to a child. Hence, it should be prevented.

CAUSES & FREQUENCY OF FEAR AT DIFFERENT AGES (JERSILD, 1960)



- |                            |                     |
|----------------------------|---------------------|
| 1. Noise                   | 5. Imaginary cause  |
| 2. Strange objects         | 6. Animals          |
| 3. Falling from high place | 7. Threat of danger |
| 4. Sudden movement         | 8. Fear in others   |

Some common techniques applied to reduce and or prevent occurrence of fear among children are :

1. Diverting the attention of the child from something he might fear.
2. Reconditioning the child from fearful object.
3. Helping the child or creating an opportunity for the child to be acquainted with unfamiliar objects.
4. The acquaintance must be gradual and free from coercion or compulsion.
5. Explaining and assuring the child about the harmlessness of the objects or the individual.
6. Teaching some reactions to actual fearful situations.

## ANXIETY

Anxiety is a painful uneasiness of mind concerning apprehended ill or

danger. Anxiety is an internal fear. There are many theories of anxiety and many concepts of anxiety as well. Our concern is anxiety as a painful state in the child's mind arising out of either imagined danger or out of chronic frustrations for which he does not do well in school and social activities. Anxiety may arise out of conflicts, criticisms, denial, or any such factor, but it is a kind of fear that is often aroused and gradually it is learned and sustained to form a trait in the child or it may refer to a particular state and disappear often. In any case, a mild anxiety is desirable for healthy adjustment, in learning, in problem solving etc. but acute anxiety will have disruptive effects on behaviour. Hence, it has been repeatedly discussed that the classroom atmosphere should not create anxiety or anxiety proneness in the individual pupils considered both from the broader aim and specific aim of educational experiences and anxiety appear quite frequently for loss of affection and security in early childhood and during adolescent period various other anxiety and worries relating to sex activities appear. It is for the school to monitor such worries and help to reduce their occurrence by substitute forms, in cultural activities, in games and in social activities of any sort. Anxiety can be reduced greatly by discussion, self analysis and relaxation therapy.

### ANGER

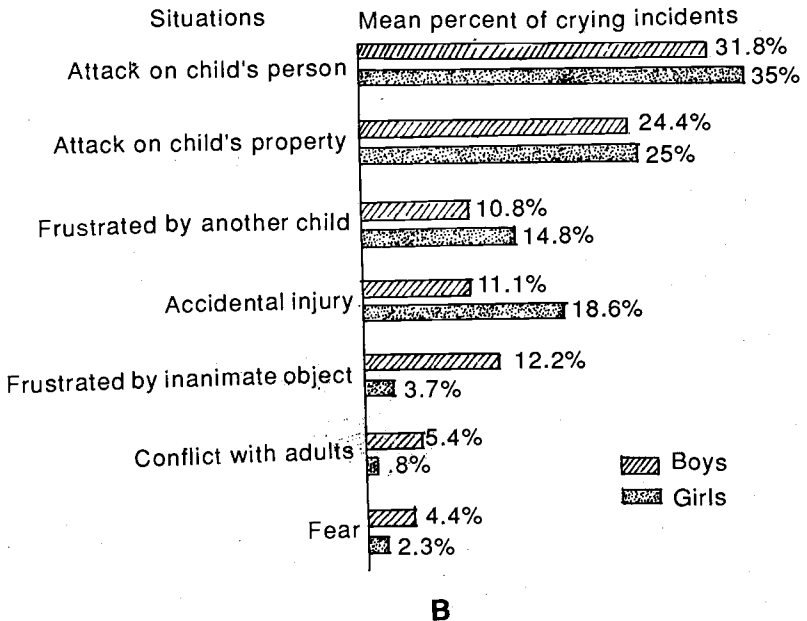
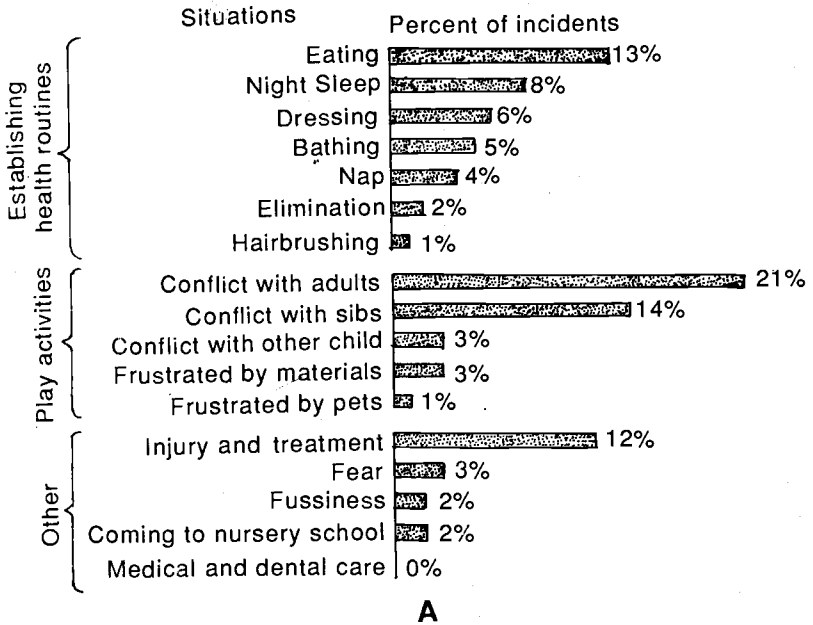
Anger is a more frequent emotional response in childhood than fear. Anger reactions increase with age whereas fear decreases. The child gradually realizes that there is no need for fear, whereas anger is the best way to fulfil his desires and get the attention of others.

The environments of home and that of the school play an important role in determining the intensity and frequency of a child's anger. Temper tantrums are frequent in the presence of guests. Boys at every age are more angry than girls. Children who are more subjected to an autocratic child rearing practice tend to show more of anger than do the children who are brought up in a permissive atmosphere.

Robert Bridges has developed the trends in expression of anger. The Diagrams which are based on situation causing crying among nursery school children at home and at school.

In general, situations which rise to give anger are those involving body restraint, interference with the child's movement : blocking of activities already in progress; denial of wishes, plans, and purposes; the child's thwarting wants to carry out intentions.

Children may become angry for various reasons. From the point of view of development, children under one year become angry when there are disturbing movements, minor physical discomforts, delayed feeding, or they are being put to bed forcibly. They seek attention drawing behaviour, or they



The immediate situations causing crying among preschool-aged children (A) in the home and (B) in the nursery.

are not given food whenever they want. Between the first and second year, the causes of anger include : not permitted to do certain activities as desired, adults try to help children forcibly, inability to express desire followed by asking the child to eat when he is to play, strict toilet training, punishment, frustration during the 3rd year of development. During 4th year and onwards when the child's activities are prevented by others, the child is unable to share possession, desires to possess someone by else's things, disagreement with play-mates, refusal of help adults, refusal to do small tasks, objections to some particular way of dressing etc. the child expresses anger. Later on criticisms or denial of ego by others, insult to self or conscience becomes the causes of anger.

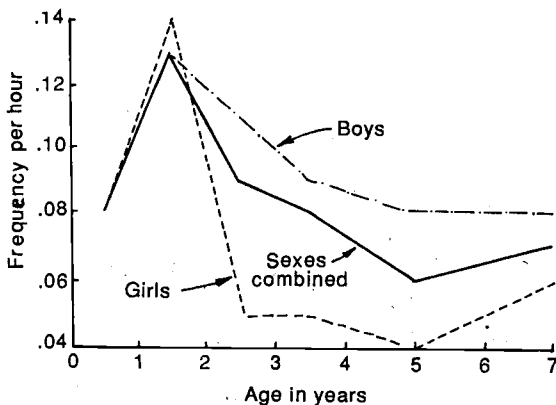
**Table 2. Situations Provocative of Anger**

<i>Sl. No.</i>	<i>Situations</i>	<i>First Appearance</i>	<i>Peak Frequency</i>
1.	Hampering movements	Form the moment of birth	Under one year
2.	Minor physical discomforts (wet clothes etc.)	Under one year	-do-
3.	Impatience at having to wait for feeding	-do-	-do-
4.	Thwarting of movements of withdrawal	Under one year	Under one year
5.	Being put to bed forcibly	-do-	-do-
6.	Objections to specific kinds of food	-do-	-do-
7.	A general desire for attention	-do-	-do-
8.	Desire for food between meals	-do-	-do-
9.	Not permitted to carry out desired activity	One year one year 11 months	One year-one year 11 months
10.	Adult assistance forced upon the child	-do-	-do-
11.	Inability to make desires understood	-do-	-do-
12.	Forcibly taken to meals when the child wished to play	One year-one year 11 months	Two years-two years 11 months
13.	Routine physical habits interfered with	-do-	-do-
14.	Resentment at punishment	-do-	-do-
15.	Resentment at having to take logical consequences of one's own act	One year-one year 11 months	-do-
16.	Unsuccessful attempt to manipulate some object	-do-	Two-years-Two years 11 months
17.	Mother's impatience at child's slowness	Two years-Two years 11 months	-do-
18.	Desire to share in the activity of others prevented	One year-one	Three years-three years 11 months
19.	Unwillingness to share possessions	One year-one year 11 months	-do-
20.	Desire for someone else's possessions	-do-	-do-
21.	Disagreements with playmates	Under one year	Three years and above
22.	Refusal of adult help to perform activities	One year-one year 11 months	Four years and above
23.	Refusal to perform some small task	Two years-Two year 11 months	Four years and above
24.	Objection to some particular article of clothing	One year-one year 11 months	-do-



Very young babies respond with anger to mild discomforts, interferences with physical activities, activities connected with physical care and dressing. If his possessions are interfered with or he does not get as much attention as he wants to get, has gets irritated and angry. Preschool children get angry when their toys do not work. Older children get angry when teased or ridiculed for no fault of theirs.

The general reaction in such a situation is anger or temper tantrum, which decreases with age and at first 3 years it remains at 68 percent level for boys and at 62 percent for girls. In anger, the baby cries, screams, kicks, arches his back, struggles and twists his whole body. The peak in these responses come around age 3 but the decline in frequency and intensity is slower for boys than for girls. Older children use verbal attacks when they get angry and replace bodily attacks. He may refuse doing some tasks, or does these as badly as possible when he is angry. In general, boys are more aggressive than girls in early childhood.



The frequency of anger outbursts at various levels.

Anger ranges from mild stage to annoyance, irritation, hatred, resentment and jealousy. It results out of a blow to one's self esteem or interferences with its purposes, threat to one's sense of values. Whether an individual child will be angry or not depends upon his past experiences nature of situations, his sense of security, his capabilities, his competence etc. There are some children who are anger prone. They have faced cumulative frustrations since quite early in life. In some cases teachers might project their own behaviour on children and induce anger.

There is a change in the causation of anger with age and as well as change in the reaction to angry situations. Goodenough (1931) found that

temper tantrum reached a peak around the third year after which it declined in frequency and intensity. The use of language provides the child with a new tool to express his anger more subtly. In school the child expresses his anger by being noisy, disrupting the class, engaging in passive sabotage, asking questions just to embarrass teachers and annoying him. Sears has shown if the teachers try to suppress aggression through counter aggression or threat or using punitive measures, it leads to increase of anger in children. The ways the children under these circumstances use are dubious and hard to understand. The anger is displaced *i.e.*, cruelty to animals, meanness, prejudice formation.

There are of course, situations where a little anger is necessary for self actualisation. A person becomes aggressive to himself because he failed, and then laboured hard to succeed. Aggressiveness as a trait for a masculine personality. Hence, anger as such is not bad per se. Its worth depends upon its orientation. Guiding anger to success behaviour is more desirable than suppressing it. Punishment for anger leads to more of anger.

Instead, if it is possible to build sense of security in the children, channelise his competencies in a way that it would achieve the goal by reducing a too high aspiration. These are two of the constructive approaches to reduce anger. Criticisms of behaviour can be made even without insulting the child or hurting the child in the classroom instead of using bulldozer type of criticism which aggravate the situation. Criticism should be constructive and be directed at the behaviour but not to the child followed by creating a sense of confidence in him that he will do well.

When children become too angry and too frequently, there is a need to analyse it more carefully. Diagnostic approach is necessary than retaliation. Sometimes a child does poor in school to express his hostility towards his parents. Therefore, it is not necessary to have too many restraints in home and in school. Many times anger is reinforced because parents encourage children to get what they want by becoming angry. Similarly Crow and Crow (1956) stated a teacher who meets temper with temper, besides giving public proof of his lack of self-confidence and self-control is not going to be effective in dealing with either offense or offender.

Anger can be reduced by using the following devices :

1. Aggressive responses can be eliminated by using social reinforcement *i.e.*, praise, patting for positive reactions.
2. Aggressive behaviour can be extinguished by discontinuing reinforcement *i.e.* extinction procedure.
3. Rechannelising his responses to constructive activities.

4. Ignore the behaviour when it appears.
5. Building a sense of security and positive self concept among children.
6. Accepting their feelings in early childhood.

Anger can be turned to useful purpose if a teacher can ask himself and encourage pupils to ask themselves, soon after anger, 'why did I go mad?' 'Why did make me angry?' Such a self enquiry makes valuable contributions for dissipating anger.

### JEALOUSY

Jealousy is a normal response to loss of affection. It is an outgrowth of anger or attitude of resentment. Jealousy is expressed in an outburst similar to anger or temper tantrum.

In young children jealousy is seen when there is the birth of a sibling. Because the older child thinks he can no longer get the affection and attention from the parents any more and he feels neglected. Hence he becomes resentful toward both mother and the new baby. Similarly the young child is jealous of the older one because of the privileges given to older ones.

Jealousy arises out of a social cause. It involves people especially for whom the child has some liking or affection. In young children jealousy is seen when there is birth of a sibling. The older child thinks that he can no longer get the affection and attention from the parents any more and he feels neglected. Hence, he becomes resentful towards both mother and the new baby. Similarly, the young child is jealous of the older one because of the privileges given to older ones.

Parental favouritism for the attractive, affectionate or gifted child creates jealousy behaviour in children. According to Jersild competitive attitude of parents *i.e.* comparing one child's performance with another, is responsible for developing jealousy in children. When the child enters the school he becomes jealous of classmates, and jealousy becomes flared up when teachers compare pupils with each other. On the other hand, one is jealous of another if he excels in athletics; if some one is more popular than himself. Girls are often jealous of boys in their classes. The child is also jealous of other children if they have greater material possession *i.e.*, more toys, more clothes etc.

Jealousy is expressed in mild annoyance and as well as in extreme hostility.

Reactions of very young children including active attention seeking from parents, finger sucking, verbal aggression towards the baby and parents. These reactions may be direct and indirect. Direct reactions include hitting, kicking, biting, pushing, punching, or scratching the person whose

attention he craves or the child about whom he is jealous. Indirect responses include infantile behaviour like bedwetting, thumbsucking, general naughtiness, destructiveness, name calling, venting feeling on toys or animals. Among older children jealousy responses are more varied and indirect than those among younger children.

Two out of three jealous children are girls. There are also age differences in jealousy *i.e.* peak occurs at age 3 and another peak at eleven. More girls show jealousy at an early age and more boys at a later age. There is more jealousy in higher intellectual levels than the lower. Jealousy is more in girl-girl combination than in boy-boy or boy-girl combination in the family. Inconsistency in the application of discipline tends to increase jealousy. But if the mother pays less attention to children her children are less likely to show jealousy.

### JOY, PLEASURE, AND DELIGHT

It is satisfactory expression of drives within the children, undifferentiated at the beginning. Boys on the whole, tend to be more overtly happy than the girls. Mainly pleasant emotions appear from physical wellbeing, cooing, babbling, standing, walking, running, overcoming an obstacle, comics etc.

**Table 3. Situations in relation to the first appearance of laughter and smiling**

<i>Sl. No.</i>	<i>Situations</i>	<i>Laughter</i>	<i>First appearance of smiling</i>
<i>I. Laughter or Pleasure</i>			
1.	Satisfaction after hunger has been fully appeared		26th day
2.	Bright coloured objects (as moving tassels of bright colours hung over the cradle)	5th week	23rd day
3.	Hearing musical sounds (as the piano)	Eighth week	
4.	Joy at familiar and pleasing impressions (as the face of mother)	Six to nine weeks	
5.	Sight of toys	End of eight month (Hatzer)	
6.	Awakening from sleep	End of eight month (Hatzer)	
<i>II. The Social Smile</i>			
7.	Smile of the familiar adult		26th day
8.	Sight of a friendly person	End of second month	
9.	Chirruping and talking to the child	Three months	Two Months (Washburn)

10. Friendly nodding of adult		Sixth Month
11. Laughter at mirror image of oneself	8 month	
<i>III. Laughter of Defeat or Mild Thwarting</i>		
12. Peak-a-boo (cloth between examiner and child)	4-6 months	2-4 months
13. Rhythmical kneedrop	5 month	2-4 months
14. Threatening head (sudden booing near face of child)	4 months	4 months
15. Elevator play (sudden rising and lowering of child)	6 months	4 months
16. Tickling	6 months	4 months
17. Rhythmical hand clapping	5 months	5 months
18. Sudden appearance	6-11 months	5 months
19. Sumbling on the floor, while sitting	8 months	
20. Unexpected sound (adult imitating birds and animals)	9 months	
21. Effort to stand with support	9-12 months	
22. Strange, masked faces	10-11 months	
23. Playful disobedience or defiance of adults	10-11 months	
24. Nervous, self-conscious laughter at being noticed	10-11 months	

Understanding of emotion, and its dynamics are very crucial for a classroom teacher. Especially, if there is emotionally disturbed child in a classroom much of the teacher's time is spent to control him than to manage the classroom problems. A teacher must not only know what and why of emotion but how to handle such critical cases. Details of emotional problems are described below.

#### FACTORS ASSOCIATED WITH EMOTION

Factors which are responsible for development of emotion are many and varied. It ranges from secretion of glands to parental child rearing practices as well to effects of peers, school, cultural and health of the children and his experiences etc. Continued frustrations in school, in life situations, rejection by parents, double discipline, broken homes, sibling rivalry do constitute significant dimensions which have been already discussed in the text. Deprivation of psychological activities and negative emotional reactions in emotional situations are common. Parental directions or training to children's as to how to handle emotions are lacking in our country. Hence, there are many emotional outbursts.

First born children, and children who are single are noted for constant affection and as such suffer from overprotection. Children in large families

are neglected and have feelings of depression, inferiority and insecurity. Sibling jealousy, parental negligence, and discrimination contribute significantly to emotional development. At the same time, there are sex roles, and cultural imperatives which help children to show emotional behaviours in order to conform to role expectations. The male child behaves as a male and the female as a female.

**Maturation** plays a dominant role in emotion. With increase in age memory improves and ability to imagine increases. These lead to new dimensions in emotional response. The endocrine system also helps to regulate bodily functions and soon after birth the adrenal gland increase in size rapidly upto 5 and from age 10 to 12 it becomes slow. These influence mood states.

**Environment** such as a healthy emotional climate is a physical and psychological setting in which, the child feels safe, develops trust in others, and build a sense of confidence and trust. Childhood experiences both in family and community with genuine affection and happiness set the tone for healthy emotional development.

## COGNITION

Every emotion has a cognitive component and every thought is influenced by emotional factors. Both emotion and thought are intimately in dialectical unity. Feelings reinforce ideas and ideas in turn reinforce feelings. Emotions are characterised by specific cognitive meanings supplemented by facial expressions, voice tone, and body gestures. It is not possible to learn to control emotion. A person who experiences fear cannot eliminate fear itself. He knows how to cope with it. I am afraid, what should I do ?

## LANGUAGE AND COMMUNICATION SKILLS

Children learn variety of ways to let their feelings be known. With language and verbal skills they talk more about their feelings. Until age 7 or 8 most children are frank to talk about their feelings. As they grow they learn to control their feelings and to be more discreet about expressing them.

## SOCIALISATION

Children's emotion through spontaneous are influenced by their social interaction. Child expresses emotion freely when there is some one who is to listen to him. Models help them to learn emotion and express in socially accepted ways. Children who are forced to suppress their emotion are usually emotionally disturbed. Emotional deprivation suppress the child's overall development. Children who are deprived of positive emotional interactions

seldom develop self esteem and are self centred and are demanding and apathetic. These deprivations lead to hostility and aggression.

### **PERSONALITY AND TEMPERAMENT**

She is an angry child, he is a hostile boy, she is a happy girl. These statements reflected that children's emotions are a reflection of their personality. They are also a reflection of internal states. Hence, emotional expressions differ according to personality characteristics and temperament which vary with time, place and circumstances.

### **MOTIVATION**

Emotion and motivation one intimately related. With emotion there is usually an impulse to work or act. Feelings are also essential which act as motions for action. They are bound together in human interaction.

### **BEHAVIOUR PROBLEMS IN CHILDHOOD**

As children grow their behaviour changes. Child's behaviour in each stage is marked and changed by his own personality. At the age of two, for every thing the child says "No". This is a healthy sign because the child is beginning to act as an individual.

A behaviour problem is some form of behaviour that is not appropriate to the child's age and development. Thumb sucking is not a problem for a child of 12 months but certainly it is, if seen at the age of five years. It usually indicates that something is wrong.

Sometimes the reasons for the child's behaviour problems can be easily understood. A three years old who refuses to eat solid food after the arrival of a new baby is using this to attract the attention. But in many instances the reasons lie in deepseated emotions and the child's behaviour is baffling to his parents. A child who feels that his older brother outshines him may wet his bed in the unconscious hope that he will again be treated with the special attention a baby receives, or as a way of showing anger at not having his parent's esteem. That's why it is always desirable to know what underlies behaviour problem than treating the problem only. It is as if treating scarlet fever by putting make-up over the rash.

There are various problems which parents might face and which require special attention for a healthy personality development.

Eating problems are seen at about age two. At this point it is better to keep the child in humour and see that he eats, rather than forcing him to eat something. This latter instance may be associated with punishment and become more severe to deal with. Sleep problems are seen because of reluctance to leave the family, fear of darkness, nightmares etc. A provision

of a night high takes care of many of the minor sleep problem, but if it is a sign of negativism, then it has to be dealt with care.

Discipline problems are common to all children in some degree. The children beginning from age 2 test their parents to see how much they can do away with. But a child who is defiant, disobedient, and even aggressive poses a serious problem. These appear as a reaction against overstrict discipline.

Bedwetting may be seen as sign of emotional disturbance but it can be reduced by not making this an important issue. A relaxed home atmosphere, providing the child with plenty of normal interests and activities, the problem is gradually reduced. Undue over praise for not wetting the bed should also be avoided. Leaving aside the medical reasons, the emotional problems responsible for bedwetting can be taken care of parents. Scolding or spanking him will make him only more upset and less able to regain bladder control. Most children take the natural pride in acquiring grown-up habits and are likely to be just as concerned as their parents about the problem of bed wetting.

Irrational fears are seen in all children. Temper-tantrums are quite common in between 11-2 and 3 years. Nervous habits such as thumb sucking and nail biting after the age of five are seen because of emotional problems. These can be removed by using reconditioning technique. The child who always day-dreams needs serious help.

Sex problems depend upon the attitude of parents. If they strongly disapprove the normal curiosity of the child, they may both increase his curiosity and drive underground. Therefore, many of the problems arise due to wrong understanding of the problem by the parents. The chapter on Social Development will specify besides the measures described above, the attitudes and behaviours of parents to words rearing children.

### IMPLICATIONS

Among the instances of infantile emotional behaviour the most common problems are temper tantrums, jealousy, resentment, dependency, over dependence, not only among infants but among grown up children. Perhaps this is due to the fact that our schools emphasize intellectual growth at the cost of affective growth. The teacher should be acquainted with the emotional growth of children. They should build up atmosphere for security and self-acceptance.

Education aims at balanced development of personality where emotions occupy a significant place. Further, child's learning is directly related to the emotional life of the pupils. Continued tensions upset the individual and distract the children from the learning task.



Children many times imitate aggressive models and become aggressive. They feel inferior because of imagined frustrations or failures. They become insecure when they do not get enough parental affection in home. But if the child has experienced security in early years of life in home and school he can face the world with confidence and can tolerate frustrations.

School is very important, because many children come from home without any security and it is the teacher's responsibility therefore, to give him security and make him free from emotional stress. It is the responsibility of the teachers to see that no student is faced with a steady diet of fear, failure, and frustration as a result of school activity.

School and teachers should also promote emotional maturity. This is done through (a) by giving security (b) by helping him to sublimate emotional tension and (c) by making the classroom atmosphere free where child's feelings are accepted, tolerated and respected. A sense of human, a little sympathetic understanding will help the children in a long way in developing within him a sense of belongingness to the class, institution and learning. He therefore never entertains any feeling of retaliation and rejection. This child can also develop frustration tolerance.

School and teachers should encourage emotional expression rather than repression. A sense of school spirit, sport, cultural activities are the mediums through which many emotional feelings can be expressed well under control rather than being repressed and forming a body of aggrieved feelings which might burst later on.

In order to help children to behave in a matured manner it is necessary for the teachers to be matured also. The teachers should not show signs of emotional immaturity, otherwise the children will imitate. If the teachers are respected, ideal, sound, they act as good models for imitation.

What is obvious here is that teachers should handle the emotion of the children with utmost care so that they develop healthy adjustments in life, learn from instruction, and become socio-emotionally adjusted. Teasing, reprimanding and annoying children result in negative consequences.

Moreover if the school programme is suitable to the pupils they derive joy and feeling of achievement. If the programme is not stimulating and upto this level they certainly face failure and that becomes a cause of annoyance and displeasure. Emotions are constantly involved in the teacher pupil relations at school. There may be under current of anxiety and resentment among competing students. Hence, to do an effective teaching the teacher must be sensitive to the emotions of the children in school as well as his own. He must appreciate the feelings of pupils and save themselves from unnecessary ridicule and embarrassment. The teacher must help the individual child to

realise his potentialities as a person, learn to face reality, accept himself and live comfortably with his thoughts and emotions.

School has significant contribution for emotional development especially through the encounters of success and failure, through self-acceptance and self rejection. Teacher's discriminative attitude contributes to emotional bickerings. Under-achievement sometimes results out of this subjective emotional experiences, that I am not liked, the teacher hates me'. Positive emotions on the hand are so much inspiring that students achieved very high success. There are discrepancies in achievement depending upon the emotional issues. Hence, one has to give a great deal of attention to emotion.

Much that influences child's emotional life comes before he goes to school. But we must not assume that his attitudes are completely impervious to any influence. Past emotional experience can be modified to a considerable degree.

Probably the most important factor in a child's life is the affection he receives from others, and the affection he develops for others. The love of parents, the love of a teacher, the love of peers all leave a mark on everything that goes on every day in his life. The child who is accepted will have lot a freedom to try things out, to explore, to make mistakes and learn by that. He will not be fearful. Where there is mutual acceptance there is much room for spontaneous expression. A teacher therefore refrains from displaying obvious favouritism which hurts the feelings of others.

If parents and teachers do not show affection from eary age, the children become quite defensive. As he grows older, the restrictions and restraints, the do's and don'ts seem quite arbitrary and exaggerating to him. He becomes suspicious. He begins to doubt his own worth. He may resort to do all kinds of devices to bolster his self esteem. Responses to lack of affection may take a turn of aggression or very compliant and self-effacing turn. As he grows older such a child may go to great length in his efforts to be all things to all men.

If a child gives much energy to protect himself or vindicate himself, there is very little thing that he can do either at home or in school. Reaction to rejection in school may lead to many behaviours : unwillingness to learn, restlessness, destruction of property, tardiness, absenteeism, and the like. A pupil's feeling are bound to be affected. No matter what the teachers do at school or how good they are. Certainly the child will be reminded of his limitations no matter how unpleasant it is. Still if schools attempt to eliminate unwanted frustrations, uncalled for rejection and make the school climate free from tension much of the problem behaviour can be saved and a new attraction will develop between pupils and school. I have on many

occasions said that school drop-out has the major cause in rejection and discriminations by teachers of pupils.

Classroom atmosphere should be meaningful, challenging and realistic. The child must set his goals. For the dull child school work is often a source of frustration rather than challenge. This gifted do suffer because for them there is no challenge. Some teachers are competent in organising the work of the school so that experiences are educationally satisfying. Fear will be reduced with increased security. Learning can occur in an affective climate.

### REVIEW EXERCISES

*Answer the following questions within 500 words each :*

1. Outline the development of emotion in children. What are the effects of maturation and learning on emotion ?
2. "Children emotions are characteristically different from adult emotions". Explain.
3. What are the common emotional patterns in childhood ? Explain.
4. What is fear ? How can you reduce fear children ?
5. What is anger ? How can you reduce anger in children ?
6. Write a note on the characteristics of childhood emotion.
7. Write a note on joy, pleasure, delight.

*Answer the following questions in 50 words each :*

1. Bridges and classification of emotion.
2. Watson and conditioning of fear.
3. Role of school in emotional development.
4. Role of parents in emotional development.
5. Stranger anxiety and separation anxiety.
6. How is jealousy created in children ?
7. What is temper tantrum ?
8. Causes of anger.
9. Contribution of Robert Bridges to emotion.
10. Method to reducing fear in children.
11. Role of maturation in emotion.
12. Anxiety in children.
13. Method for reducing anger.
14. Social smile.
15. Behaviour problems in children.

*Write whether the statements are True or False :*

1. Child's emotional states are intense.
2. Child's emotions are inherited.
3. Watson's experiment on Albert to show fear emotion is a failure.
4. There is no relation between mental development and emotional development.
5. Anxiety is an internal fear.
6. Jealousy appear at one year of age.

**Fill in the blanks :**

1. Children emotions in term of duration one.....
2. Children emotions in term of degree one.....
3. Emotions change in.....
4. Pattern of emotions are.....for different types of emotions.
5. *Anger* reactions increase with age whereas fear.....
6. After preschool period fear emotions.....
7. Anger can be reduced by.....their feelings during early childhood.
8. Emotions can be identified from.....expressions.
9. Emotions appear quite.....
10. The first emotional expression is.....excitement.

## Social Development

The child is not born social. He learns to be social. The process of socialisation continues throughout life beginning from infancy. The child at first is egocentric and only after language and social activities through play etc. are developed he becomes socialised. In the process of making him socialised the family, the school, society, neighbourhood, the culture, the peer group and many other interacting factors play their significant role. Because of these factors or forces, the young child moves from individualisation towards socialisation.

What is understood by the term 'Social development' or its synonym 'Socialisation' ? Mc Guire and Havighurst (1947) defined, 'Socialisation is the process of presenting alternate channels for individual behaviour together with positive and negative sanctions which will lead to acceptance of some and rejection of others. It emphasizes the influence social groups, formal and informal upon the personality of the individual.' This definition although quite comprehensive yet does not make the meaning clear. Socialisation simply refers to a process through which an individual child acquires traits, values and attitudes, beliefs, behaviour in conformity with social norms or standards. In other words, his behaviour is accepted by others as well as appreciated. It is acquired through social cultural conditioning and personal conditioning.

It involves three kinds of processes :

- (a) The individual behaves according to the norms of his own group.
- (b) The individual plays appropriate sex roles and other roles and defined by the group, parents, and children etc.
- (c) He develops proper social attitudes.

A child or pupil who is social in one who behaves in an approved manner, plays the role that society defines for him and has favourable attitudes towards people and social activities. A nonsocial child on the other hand, fails to behave in the above manner in one or more areas of behaviour.

An antisocial on the other hand does just the opposite of what the society expects him to do. He is disobedient, quarrelsome, and destructive.

**Social behaviour is learned.** This takes from early childhood experiences, and the opportunities given to the child in early childhood for social interaction, the motivation of the child, the willingness to learn from parents, elders, teachers, the methods of making best social contacts. When all these conditions are favourable the child develops socially accepted behaviour patterns. If the child from the beginning of his life is not given opportunities for social contacts then he would face later problems in interpersonal relationships. Infact, children who remain in foster homes have restrictions in social participation. In other cases, the interacting group must be selected, otherwise the child may learn some undersirable traits.

Social development or social learning is a slow process. There are periods of development. It is quite rapid at first. Hence, early experiences are important.

**Social development follows a pattern.** In the infancy the young child lacks group feeling. He is possessive and egocentric. Then it is followed by sharing and co-operating with others in play. Only in late childhood the child enjoys a group life. Interest in group activities and participation increases in adulthood.

**Social development is predictable.** The two year old is solitary in his play. He of course imitates others. At 21-2 year of age the child grabs from others and rarely shares them with others. By the time the child reaches third year of development, he engages himself in group play or team spirit is developed. By age 4, he listens to the group influences and respects for group develops, true socialisation begins in school. There may be little variation but it follows this sequence.

In the stage of infancy beginning from birth, the infant has no interest in people. His activities are directed towards satisfaction of the physiological needs. The child at the first 2 months of life does not even distinguish the human voice and other noises. Form the 3rd month, the baby likes the company of others and feels discontented when left alone in the crib or bed.

Smiling is the first social behaviour that appears at the third month. Kicking the bed and waving the hand at the sight of mother or adult figure who is nursing the baby are also seen. They show fear responses to strange persons at around third month.

Around fourth month the baby makes anticipatory responses pays selective attention, discriminates between familiar and unfamiliar persons. At sixth month he grabs his nose, pull's the adult's hair. He imitates the speech sound of others at the 9th month. He responds to adult's no-no sound

or directions. From the fifteenth month the baby shows increasing interest in adults and a desire to be with them. Around second year the child becomes an active member of the family.

With regard to other children in the family the child shows interest in looking, smiling, and reaching out and touching other children. They fight among themselves and become when a toy is taken away by one child. But they start imitating each other during the second year. They adjust and cooperate in play by the time they become three years olds.

But the end of second year and beginning of third year is a strange age. The child hides the face in the lap of the mother when some one offers him something. He refuses to speak. He is self conscious and shy. In case of children suffering from insecurity such behaviours are seen even at later stages. Rivalry and resistant behaviour appear during this period and they dissipate by the third year.

The early socialisation that develops between the infant and the mother is called attachment. Social development is affected by this infant attachment and affiliative experiences. This helps in the development of feeling of security. Attachment is a security blanket in the words of Harlow. In the absence of the mother the child feels separation anxiety. Even the child looks for a mother surrogate.

### EARLY CHILDHOOD

From third year the child develops into a distinctly socialised individual. These years *i.e.* 3 to six are called pre-gang age. Social behaviour developed during the preschool stage persist with very little change. At this stage the kind of social experience that the child has is more important than the number of experiences. Nursery school experiences are more beneficial for the social development of children, under the guidance of trained teachers, because in our society younger children are quite often teased by grown up children. As such they develop negative attitudes towards adults which might influence his future adjustment.

With increasing age the total time that the child spends with his peers are more than that he spends with adults. The three year old resists adult influence and wants to be independent. The four and five year old gradually becomes more friendly and cooperative and wants to avoid the displeasure of others. However, children's social attitudes are greatly shaped by the attitudes of teachers.

After age three, the size of the play group increases with age. Children become selective in play. There is an increase of friendly relation with increasing age and there is frequent interactions between them. But through out the years of early childhood, the child is selfcentred in his social

behaviour, although the change takes place from solitary to cooperative play systematically. He soon learns to share and adjust. Negativism or resistant behaviour results out of aggressive discipline and frustrations in early childhood arising out of adult interference and inconsistent discipline. Negativism becomes high at about 1.5 years. Another peak occurs between three to six years and after that it declines rapidly. For boys, another peak occurs at age eleven.

Negativism is a common behaviour but if it occurs repeatedly or quite often it becomes an antisocial character. Children having these traits fail to carry out orders, pretend that they are not listening, quite stubborn in connection with all routine activities, demanding, destructive, and moody. The socially adjusted child expresses negative reaction directly but less adjusted children express it in a diffused and generalised way. Verbal expressions increase replacing physical expressions with increase in age. Negativism as such is not desirable but they certainly contribute to vitality and strong motivation for later adjustment.

Aggression is another such behaviour which is seen during childhood. It reaches its peak between 41-2 and 51-2 years. It is a reaction to frustrating experiences : Physical punishment, discrimination by parents and teachers, unnecessary blame, rejection etc. Verbal reactions to aggression increase with age and physical reactions decrease. Quarrelling is a common characteristic which is seen among children. It is an educational experience for the child. It teaches him what others will and will not tolerate. He soon realises that picking fights makes him unpopular and can lead to physical discomfort and pain. With guidance, he learns that his ends can be achieved by using-pleasant ways *i.e.* co-operation than quarrelling.

At the age of two, children do not display rivalry. At age three some competition appears. By age six most children have a well developed competitive spirit. Rivalry is more common when the children want to draw the attention of a common man or figure. Rivalry exists in all homes due to sibling jealousy. In nursery school all children want to get the attention of the teacher. Teacher's pet or mother's pet is a cause of jealousy. Children brought up by more democratic child training methods becomes more cooperative.

With increase in age the child becomes increasingly anxious to win the approval of others, first of adults and later of individuals his own age. In this process, he often comes in conflict with adult regulations and the codes of the social group. Since his desire is to get attention from others, he tries even the unacceptable ways.

During this period children emerge as individual's by developing their personality traits and self concept. They learn certain values in the Nursery



school. Cultural values are also learnt. At the same time negative self image may be learnt if the child identifies with a model who possesses undesirable traits (Kagan, 1971). The peer group has a significant effect at this stage.

### LATE CHILDHOOD

During late childhood the child enters into the school. The individual games gives way to group games. The child's circle of friendship widens. This stage is known as the gang age during which conscience develops rapidly. This is one of the major developmental tasks. Which the children of same age feel and act together. There is a gradual increase in group play from the sixth to the eighth year. There is a gradual change in socialisation also. The child becomes less selfish, less self centered, and less aggressive. Instead, he becomes more cooperative, outgoing, and group conscious. The typical child's gang is a play group which sometimes may lead to mischief making.

The children at six and after have their own sex groups, normally small ones. This group begins to dominate their life. They develop their own mores which protects their own identity as in groups. Boys as a rule form gangs earlier than girls and both as a rule form gangs earlier than girls and both loose a interest in gangs at puberty. The boys and girls crave approval of the group, for their speech, dress and behaviour. Craving for attention stems from insecurity, and is associated with such traits as timidity, jealousy, moodiness, and over dependency. First born girls demand more attention like the only children. At this age level they become oversensitive. This is a common could which every one has it. For boys oversensitiveness reaches the peak at eleven years of age and then drops abruptly. For girls it continues upto puberty.

The children at school age *i.e.* six and seven years, are highly suggestible. They are more loyal to the group and the leader. They engage themselves occasionally in destructive activities. Rivalry and competition are also observed in them. But child soon learns to play the rules of the game. Cooperation and sharing mentality is well developed around 9 to 10 years. They develop also sense of responsibility. Dependency decreases giving rise to increased motor and speech development. Children at this stage should be given responsibility to acquire self confidence and be independent. They develop social insight. This insight also increases with age. The children discover things for themselves and perceive the meaning of the behaviour shown by others. Social insight is a requirement for social adjustment.

Prejudice and negative attitudes are also learned at this stage from home and school. A democratic child rearing practice reduces this prejudice formation to a considerable degree. Sex antagonism continues. They be little

each other's interests, skills, and activities. Strong sex antagonism is seen around fifth to seventh grade *i.e.* 10 to 13 years, which is at the peak. The reasons for this may be cultural as well as maturational. School text books sometimes promote this antagonism by stating that males are superior to female in different mental abilities etc. which influence the interpersonal attitudes. Children from low SES show more of these antagonistic feelings than the high SES. This arises out of social inadequacy or insecurity. Sex antagonism has adverse effects on social skills and social adjustments.

It can be said that gang life of children helps children to be sociable, to develop a conscience, to learn appropriate social attitudes, to acquire personal independence. It develops self control, fair play, courage and many other social traits. Although gang activities are occasionally mischievous, it depends upon how learning experiences in the gang are planned.

### ADOLESCENCE

With puberty there is a change in social attitudes, a decline in interest of group activities, and a tendency to prefer solitude. This stage may rightly be called antisocial stage or a period of disequilibrium. There is marked individual difference in the age of sexual maturing and as such it is difficult to state the characteristic age-specific changes. The children develop a definite self concept, a set of social attitudes, which vary both in positive and negative ways. There is a decrease of sociability, co-operativeness, generosity, popularity etc. There is antagonistic attitude towards everyone. Social insight disappears abruptly. There is more of day dreaming, high sex antagonism, withdrawal from group, resistance to authority, lack of proper communication with teachers and others which are necessary for social development. These are again changed in the positive direction once children enter adulthood and pass away from puberty a adolescence. The early maturity brings with it exaggerated forms of antisocial behaviour. The child becomes overtly aggressive, demanding attention and privileges, rebels against authority, quarrelling type argumentative, and hypersensitive. But gradually with emergence of adulthood such behavioural characteristics are replaced by more positive and stable pattern of behaviour. But it all depends upon how the individual child passes through the stages of socialisation.

### An Abstract of Social Development

Stage Infance 0-3 yrs.	Characteristics strong attachment to mother anxiety for strange persons. Separation anxiety if the mother is absent. Beginning of peer interaction. Dependency on parental figures. Immature socialisation skills. Highly egocentric and self centred obedience, and attachment.
------------------------	--

Early Childhood 3-6 yrs.	Egocentrism continues. Same sex friendships. Nursery school experience and extended friendships. More peer contact and less parent contact. Conformity to peer group norms. Early sex typed behaviour Aggression, Rivalry, Negativism.
Middle Childhood 6-12 yrs.	Sensitiveness, Self-consciousness, Continued separation of the sexes, Co-operation and empathy increase structured social activities, Social communication, Sex typing behaviour, Respect for authority.
Adolescence 13-16 yrs.	Identity formation, Independence and autonomy. Peer group as agent of socialisation, Conformity to norms, Heterosexual relationships, Development of conscience. Antisocial behaviour due to early pubertal changes.

According to Erickson (1956) socialisation consists of eight stages commonly known as "The Eight stages of Man". Each stage is a psychological crisis which arises and demands resolution before the next stage is reached. The eight stages are :

1. Learning trust vs. distrust (0-1 or 2 years infancy)      The child well handled, nurtured, loved develops trust, security. Badly handled, he becomes insecure and mistrustful.
2. Learning autonomy vs. shame (1 Yr. to 3 yrs. infancy)      The well parented child emerges as sure of himself, elated and proud rather than ashamed. The child develops a self will, stubbornness, negativism.
3. Learning initiative vs. guilt (3 yrs to six year)      This the play age or pre-school years corresponding to early childhood. The child imagines through active play, fantasy, co-operation. He is also fearful, depends upon group.
4. Learning Industry vs. inferiority 6 yr-12 yrs. (Middle Childhood)      School age as is commonly called the child learns to master formal skills of life, relating with peers according to rules, progressing from freeplay to play that is elaborately structured by rules and formal team works. He learns self discipline.
5. Learning identity vs. identity diffusion (adolescence) 13 to 20 years      This is a stage of who am I ? There are minor delinquent problems, oscillations self doubts, antisocial thoughts.

- |  |   |
|--|---|
| 6. Learning intimacy<br>vs. isolation<br>(adulthood) | The adults experience true intimacy, genuine and enduring friendship.   |
| 7. Learning generativity<br>vs. self absorption      | This stage is characterised by marriage, parenthood and creative production.  |
| 8. Learning integrity<br>vs. despair                 | Peak of adjustment, integrity, well defined role in life. The individual feels happy without strain, guilt, regret, or lack of realism. He is proud of his hobbies. If one of the earlier stages is not properly developed, then he may view life with disgust and despair. |

Socialisation then is a learning to learn process. It enables human beings to move from the infant state of helplessness to a state of conformity and independent creativity.

#### FACTORS INFLUENCING SOCIAL DEVELOPMENT

It has been stated earlier that the child becomes socialised because of the influence of a host of factors. Home is the first and foremost influence on the socialisation of the child. Early infantile and emotional relationships between parents and children are responsible for later characteristics. Children identify with parents, interrogate their qualities and display sex appropriate behaviour. Children who are hated, rejected, and illtreated developed antisocial characteristics. Children who are over protected develop traits of dependancy and are completely insecure. The culture of the home, the language spoken in the home, the behaviours displayed by parents and elders slowly but surely become a part of the child's personality and socialisation. Hence, what the child is, depends mostly upon how he is brought up in home. How emotion are reacted to ? How are his physiological needs satisfied ? What models he sees to imitate ? All these have significant influence in the process of Socialisation. Effects of maternal care in development of desirable traits have already been discussed.

It has also been found that father contributes significantly to early stimulation and this influences the child's overall emotion, social, and intellectual development. Academic achievement and IQ are affected by the absence of a positive father-son relationship.

The socio-economic status of the home, the language codes used by parents, the nature of the family interaction *i.e.*, broken home, home with double discipline, etc. have contributory effects. Delinquency is more prevalent in areas that are declining and where family life is not stable. The child's ordinal position *i.e.*, whether he is eldest, only, youngest, middle all

these affect his adjustment process. Children from democratic homes usually make the best of social adjustments.

Childhood is quite plastic. There is also a predictable pattern of development. As child grows he becomes more susceptible to group pressure, cultural values than when they were very young. The child spends more time outward than in home. He has the needs to be accepted by others. Hence, when he is rejected by parents, teachers adults he falls on the peer groups and learns their standards of behaviour. The child feels secured when he is accepted by the group.

Culture is one of the powerful socialising agent in the life of an individual. Examples of ancient or tribal societies as well as modern societies substantiate its impact. Margaret Mead, one of the famous cultural anthropologist cites the patterns of culture in three tribes : Arapesh, Mundugumor, and Tchambuli. The Arapesh society is one which is not organised. There is loose kinship. There is no feeling of status. People are co-operative. No rigid child rearing system is followed. Any nursing mother can feed the child. The child is weaned by 3rd of 4th year. In such a society children become docile, less aggressive. They love and trust others. There is strong father-son affection and no threat of punishment. The children therefore develop respect for elders and have a sense of guilt. They imitate and develop these qualities. Girls marry at age 10 and stay with their husband. The children in general have no tendency for self assertion, no ego, no striving for achievement.

On the other hand, in the Mundugumor society there is severe sex segregation. No co-operation exists among member of the society. Parents are indifferent and rejecting type towards their children. There is very little breast feeding, irregular feeding, and severe training in discipline. Punishment is used for toilet training. There is strong sibling rivalry. Older children are aggressive towards young. There is father-son hostility. This is a society full of conflicts, competition, jealousy and envy including intense husband-wife conflict. There is little or no parent child relationship. Head hunting and cannibalism are in vogue including severe punishment of children but there is no orderly training of children. It is a highly individualistic society. Boys help the mother and girls help the father. Hence, children develop strong self assertion, ambivalent feelings, split personality, sense of egocentrism or possessiveness, leadership, aggressiveness.

The Tchambuli society is quite different. It is a patriarchal society with a strong organisation. There is sex difference in occupation. There is high stress on ceremony. Woman are important in economics. No rigid discipline is followed. There is casual protection of children mother, but she is quite

generous with regard to breast feeding. There is normal weaning and no rigid toilet training. Women are more aggressive than men. There is sex rivalry between older and younger men. Mother is affectionate to sons a little more than to daughters. Severe discipline in late childhood are followed. Till age 6 or 7 years. Same training is given to both sexes. Afterwards, girls are taught to be sexually aggressive. Men are ceremonial. They stay in home, use make ups to attract women. Women work in the fields. In such a society male children become docile, shy, artistic, feminine, insecure. Aggressive men are considered deviants, neurotics, and hysterical. Hence, it is quite clear from the tribal societies as to how social development of children are patterned by the culture in which the child lives.

Contemporary society also tells the same story. The Japanese society is a mixture of medieval and industrialised culture with a rigid class system. The economy of the state is under state control. The family system is patriarchal. There is rigid toilet training, maternal indulgence, overfeeding of children, and weaning at 2-3 years. From third year the male child is exposed to aggressive training. Girls are trained in docility. There is strong family identification and child care. As a result, the children develop complete obedience to authority, they are polite; they show difference to authority and power. They are secured and selfassertive. The females develop docility and passivity.

On the other hand, in America we find a strong individualistic society with open class system, competition, high moral and legal code. Maternal authority and influence care quite strong. Aggression and competitions are encouraged. Weaning takes place in the first year. Sibling rivalry is strong. Love and indulgence of parents for children are seen in early years. Father dominates in theory, but mother works in reality. The children in this society become more success oriented with a strong status drive, sense of authority, status, and pride. There is strong sense of personal drive for power, sense of *shame and belief in fair mindedness*.

In Germany, the social structure is in between. It is an industrialised society. It is authoritarian and patriarchal. There is much stress on masculinity, aggression, rigid and regularised training and habits. Regular toilet training and punishment for wrong actions are emphasized by parents. Sibling rivalry is quite common. Boys are aggressive and girls are docile. Maternal love and paternal discipline are existent. The children develop strong sense authority, sense of guilt, dual identification with parents, are ambivalent, and possess an intense drive for power. Ego and security develop in strong discipline.

In our culture child rearing system varies from state to state, and class to class. As such, it is difficult to draw a distinct line regarding the

influence of child rearing practice and effect of culture. But on the whole children in our culture become docile, submissive, less aggressive, more external *i.e.*, having faith in luck, chance, fate etc. than on themselves, have a lower level of aspiration, are more dependent and have less striving for success. In case of poor families, children become insecure and aggressive due to severe frustrations : social economic etc. Further, the family life is often characterised by a mixture of discipline system to permit any clear model for the child. Socialisation and personality development are negatively affected because of inconsistent values which are fast emerging in a transitional phase of agrarian culture to industrialisation. Social development in short is the subjective aspect of culture which are integrated the behaviour pattern of the child.

### PEERS AND ADULTS

Child's social behaviour are affected and influenced by the peers and adults in the school, in the neighbourhood. Even pre-school children imitate the pattern of social behaviour of their peers to get social acceptance. They become more mature by imitating the behaviour of adults. Attitudes which are learned in the group are sometimes slightly changed in the peer contact. Social behaviour is quite consistent unless there is very adverse situations in life. By the end of childhood the child has acquired many social attitudes from his parents, teachers, and peer groups from his personal experiences, and from books, and other medias of communication and contact. Negative attitudes are also learned the same way when the child enters school. He begins to reap the rewards or suffer the ills which flow from the first six years of life.

Peers have significant effect on child's learning because they give approval and attention, they show affection, they provide model. But the amount of effect depends upon the degree of intimacy between them, the tendency to submit or dominate, the ability to cooperate etc. Imitation is easy in the peer group which can be used in either way.

Twins spend more time together, have more interests in common in outside companionship as compared to other siblings. They also imitate each other and show similar feelings toward each other.

Family size also affects the social and personality development of children. While small families secure greater economic advantage they do produce problems of over protection and occasional tensions in the child. Joint or large families provide less economic advantage, but ensure greater ease of weaning from parental influence. Social adjustment as well as independence are greater because the child develops greater degree of co-operation. At the same time, due to inconsistent relationships there may be

rejection, hostility, and unhealthy traits.

Education and occupation of parents have significant effects on social development of children in so far as they provide models for observation and imitation. Working mothers have different effects on the child's development than non-working mothers because of the time spent on childcare.

Urbanisation and modernisation can have a desirable as well as undesirable influence. It provides greater stimulation at the same time greater diversion for undesirable habits, insecurity, loss of identity etc. Malnutrition of the child influences his social development. Malnourished children are apathetically listless, inactive, withdrawing type, who generally avoid group activities. They lack confidence and optimism. There is a high incidence of feeling of inferiority in these children.

Intelligence as a factor of social development has significant influence. Children whose intellectual development is rapid are socially well adjusted too. They develop social insight which enables them to interact more appropriately in social situations as well as in self-adjustment. High intelligent and high active children are normally more popular in school and respected. Low intelligent children carry a stigma with them and are hated. Consequently they develop negative self concepts and traits.

Although by adult standards young children's behaviour in social situation appear to be unsocial, but it is often not so. Parents and teachers overlook the social and only attend to the unsocial.

Secondly adults must show right kinds of attitudes, tolerance and understanding of the unsocial behaviour of young children. The child has to be taught social behaviour. Mere tolerance is not enough.

The child needs guidance and help to learn how to act in a socially approved manner. He should be given demonstrations in real life situations. All the needs of children are to be simultaneously satisfied with proper guidance.

Socialisation begins at home but is taught in schools. Habits and character are crystallised in school. Character education or socialisation is very much emphasized in our schools. It should be a part of school curriculum. The teachers and parents occupy crucial finger posts at the cross road of socialisation of the child. The schools should therefore be a playhouse for such development in addition to its knowledge giving function.

### REVIEW EXERCISES

*Answer the following questions within 500 words each :*

1. Describe the social development of the child during early childhood.



2. Describe the social development of the child during late childhood.
3. What factors are associated with social development ?
4. What are the role of peers and adults in social development ?

**Write whether the statements are True or False :**

1. The child is born social.
2. Social behaviour is learned.
3. Social learning is a slow process.
4. Social development is predictable.
5. Smiling is the first social behaviour that appear in the third month.
6. Age 3 to 6 are called progress age.
7. After age 3, the size of the play group increases.
8. Negativism is antisocial in character.
9. Rivalry appears at ages five to six.
10. With increase in age the child becomes extremely anxious.

**Fill in the blanks :**

1. The children at age 6/7 are highly.....
2. Learning Trust vs. Distrust appears between.....years.
3. Learning autonomy vs. shame appears between.....years.
4. Initiative vs. guilt appear for.....years.
5. Industry vs. uniformity appear from.....years.
6. Children are quite.....
7. There is a predictable.....in development.
8. Socialisations begins at home but taught in.....
9. Egocentrism is not an index of.....
10. Foundation of socialisation is laid in.....childhood.

# 11

## Play in Childhood

The UN Declaration of the rights of the child has stated that "The child shall have full opportunity for play and recreation, which should be directed to the same purpose as education; society and the public authorities shall endeavour to promote the enjoyment of this Right".

Play is a natural occupation of childhood and an instrument of learning. It is carried out for its own sake. It is spontaneous and innate in all human beings. People say it is a safety valve against all frustration and a window to the child's mind. Play is a natural occupation of childhood and an instrument of learning.

Play is a very curious activity. Practically every form of psychological activity is initially enacted in play (Piaget, 1968b). Erickson (1950) has written that he considers play to be the most self-healing activity engaged in by children.

Play is an agency for socialization. Piaget believes that the child during the preoperational stage remains engaged in various forms of play and imitational activities. Through the medium of these activities he becomes socialised in his speech and action, children do play with a free will. In this context, Gullick's concept of play is very appropriate. He defined, "play is what we do, when we are free to do, what we will". Free play, of course, decreases with age.

### THEORIES OF PLAY

#### Surplus energy theory

There are various theoretical formulations regarding the concept and value of play. Regardless of the origin of the theory, it is true that babies squeal and kick, children skip and jump, run and play balls for no other reason but to work off surplus energy. Both Schiller and Spencer, are associated with this theory. It is true that children spend their surplus energy

through play but this theory does not explain why play interests from age in the growing child.

Children continue to play even after exhaustion. Sick children who donot have surplus energy also play. It therefore seems unwarranted to accept that play has a surplus energy component which does not have experimental support.

### **The recreational theory of play**

Lazaraus and Sthainthel formulated the recreation theory of play. Play is a recreation after hard days labour which freshes the individual. What about young children ? They play in school in their recreation period which has a significant value derived from the word recreate *i.e.*, come with a fresh mind to take up creative work. This is basically related to adult life although children enjoy recreation time as fun.

### **Preparatory for life theory**

Gross regarded play as a preparation for future life. This concept of play is very popular. He considered further that it is an instinctive desire on the part of every child to prepare for the arduous tasks in adult life. For example, the little girl is playing with the doll is preparing how to care for the baby. It is true the child learns much through play but he does play to learn either consciously or unconsciously. Hence, the instinctive preparation theory of play does not seem warranted at present. Me Dougall called this is instinctive theory of play.

### **Recapitulation theory**

Stanley Hall, the father of child psychology was the proponent of the recapitulation theory of play. According to the interpretation, the child learns the racial experiences of the past which is alluring and attractive. He believes, that through play one develops the motor capacities, impulses, and fundamental forms of our past heritage. For some time this theory influenced the elementary curriculum. But doubts arose, if acquired characteristics can ever be inherited. Because of this doubt, the theory lost faith among the scientists of the present century.

### **Relaxation theory**

Relaxation is the main function of play. As such Patrick said that play relieves fatigue which results from performing daily tasks of life. He said that daily works and worries in modern civilization puts severe strain upon the adults and brings about rapid fatigue. Relief is obtained through play. Hence, the relaxation theory came into existence. The theory appears very appealing but experimental evidences are needed to support this interpretation.

John Dewey believes that play can be explained in terms of the basic nature of organisms. All living organisms are by nature active. Because of inter-organic stimuli, the organism is in a constant state of action. Activity is very essence of life according to Dewey. The only thing necessary is to state the conditions under which organic activity takes this or that form. In this sense, developmental views appear most acceptable.

### **FACTORS OF PLAY**

Play is pleasurable because the attitude toward it is favourable. It involves freedom and is a highly motivated form of activity. While children in all parts of the world and society play and love to play there are certain factors which influence it. These factors are : age, intelligence, environment etc.

For example, certain ontogenetic trends may be observed in plays of children. A baby finds pleasure in kicking, waving his arms; later on he gets pleasure in cooing blowing bubbles and so on. As the child grows more older he becomes more social in his play and he engages himself in more and varied activities. With increase in age a child becomes more selective in play and as such the variety of play decreases.

### **Sex**

Sex differences is also observed in play and is more prominent during 8 to 10 years of age. Children around this age choose playmates of same age and sex. During adolescence boys engage in more competitive games and skill activities.

### **Age**

Age is also a factor determining play activities in children. There are 4 basic stages of play. Parents should know and recognise these stages so that they do not expect more of their child than he is ready for.

The infant and toddler play alone. If there is another child in the room they do not play. By age two he will play with a child of his age but there is no real contact between them even though they may be playing using the same toy. This is known as parallel play.

Between age 3 and 4 the child engages himself in cooperative play group. Organised play appears when the child is grade one or two. At this age children play games with rules and involving team work.

### **Health**

Healthier children have more active play. They take part in games and sports compared to weaker ones. It is also other way around. Play, sports games increases physical agility.

**Intelligence**

Bright children at each age are more active than less intelligent ones. Their play shows greater ingenuity, intellectual, constructive and have a balance between play and academic.

**SES**

Children coming from higher or upper socio-economic strata can afford to play games etc. which have become expensive over the years where as children from low SES and rural areas play less than high SES and urban children.

**Leisure time**

Amount of play time depends upon primarily on the family's economic status, involvement on household duties, and out of school time available.

**Value of Play**

Play in childhood is satisfying and pleasant. Besides the affective values, play makes the child physically stronger. The blood circulates more freely and the elimination of waste matters becomes greater. Muscles become more developed, motor skill increases, resistance to diseases decreases, agility and body control are increased. In other words, play has tremendous physical values which are beneficial to children.

Thinking capacity increase through manipulation of play materials. The child gets new ideas, becomes inspired, his vocabulary increases because of verbal communication among playmates and in describing materials associated with play. There are creative play materials to increase thinking in children. After a little play, the child concentrates much better in his studies. Play has thus educative value for the child.

Play is essentially social. The child gets pleasure from being in a group. He learns through play the value of cooperation, realistic competition and initiative for achieving success. He adopts himself to many situations and groups. He internalizes rules and regulations. Good play habits help the child to overcome timidity, shyness, moodiness, sensitiveness and irritability. It provides an outlet for emotional satisfaction and avoid day dreaming and phantasy.

In other words, play has both socialising and stabilising influencing emotion. In view of the later, it can be stated that play has a therapeutic value. Play help the child to express his pent up emotions in socially accepted ways and with approval of others. Fantasies or make believe plays serve as outlets for anxieties. Many of the frustrations and unfulfilled desires are freely expressed in play in a sublimated form and as such relieves the child from tension and anxiety.

Above all, play helps the child to learn some social and moral values. He learns to toe the mark more quickly and more completely in play than in any other method. He expresses his whole personality during play. The baby who habitually smiles through his tears when he falls down experimenting with the new motor activity of walking yet continues to preserve, is the youth who fights to win but smiles even when he lost the game and like an adult who is self-reliant in the face of defeat. An individual who is in harmony with others develops an integrated personality. Play helps the child in doing this.

Play offers an outlet to express natural instincts and emotions. It prepares children to be able to express themselves. Play has therapeutic value and it acts as a catharsis for release of pent-up-feelings. It enables the child to control the emotion, and distinguish between fantasy and reality.

Free and spontaneous play are mostly found in early childhood. For the most part these plays have no restrictions in time and rules. But as soon as the child becomes older these plays seem to lose their popularity and more competitive games are introduced. Boys are more active and at same time destructive in such play compared to girls who display greater coordination and less destructive mentality.

Dramatic plays occur between age 0.5 or 2 years of age and 5.5 years of age. Bright children and usually girls enjoy dramatic play much more than low intelligent and poor ability children. Since reasoning ability begins to develop early in the more intelligent children they begin to spend less time on dramatic play. Dramatic plays are also known as make believe plays. About the time the child is ready for school or reaches the school daydreaming replaces make believe play. Daydream is at height during puberty. The degree of satisfaction or enjoyment from play that the child derives depends upon the nature of play activities available to meet his personal need and values.

Role of play in development has been recognised. It is said that a child in play is a scientist in his laboratory. While playing he is observing and learning the world around him. While playing with colours he understands two colours are mixed to produce a third one. He while arranging blocks understands that unbalanced things fall-*i.e.*, gravity from play experience. They put so much energy that play becomes direct route to learning.

Play helps him to practice whatever is taught in the class. If he is taught counting, arithmetic he works it through play with marbles, sticks, stones. The child prepares a house using sand. His power of observation and imagination are increase play becomes thereby an essential part of learning process. He connects the world of knowledge with the world of play.

Playing with others helps the child develop social taste. All children benefit from this but it is particularly helpful to the only child.

Play also helps develop the child's body, both his strength and coordination. He learns to achieve his movements better.

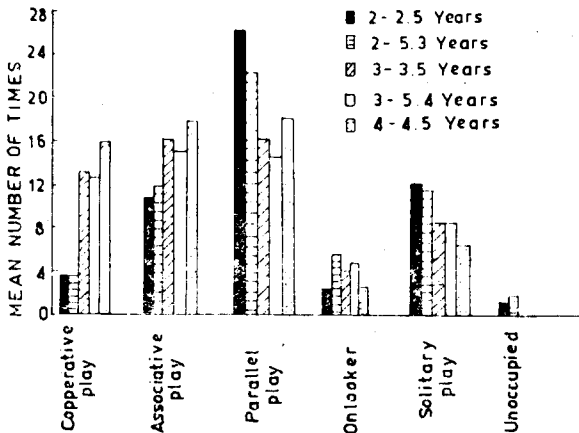
Play is a royal road to the child's conscious and unconscious inner world. If we want to understand his inner world and help him with it we must learn to walk this road. A child does not play spontaneously only to while away the time although we think so. The play is motivated by inner processes, desires, problems and anxieties. Besides, play has a positive effect on the development of socio-emotional characteristics.

### CHARACTERISTIC OF CHILD-PLAY

**Play follows a pattern of development.** In early childhood, children play by looking at people, involve themselves with motor activities, and then play with toys. Irrespective of culture, by age 4 to 5 they become interested in playing with children of their own age group.

In spite of the fact that there is a general pattern, yet play is influenced by traditions. Certain sex appropriate plays are prevalent inspite of the children's preferences. The type of play also differs in relation to socio-economic status of the family.

**Play activities decrease in number with increase in age.** Average number of play that children have per week gives us a better idea about the above age-play relationship. At age 8 years the mean number of play is 40.11 per week and at age 20 years the mean drops to 17.71 per week. Play activities involving other children also decrease with age. The total time



Social Participation Among Pre-school Children (Parten, 1932)

spend in play decreases with age. On the contrary, the total time spent in a single play increases with age. For example, at age 2 years children normally spend about 6 to 7 minutes on a specific play but when they reach age 5 years, the average time for a specific play comes to 12 to 13 minutes. In other words, as children become older they do not change from play to play but devote more time in a single play.

**Childhood play is informal and spontaneous.** The child plays regardless of place, time and type of toy. Later on he needs special places, time, play group and gradually becomes more formal.

Similarly with increase in age physical play decreases. The child becomes more involved in listening to radio, reading novels, indoor games etc.

Sometimes the child daydreams. Daydream thus becomes a wishful play. In case of poorly adjusted child, daydream becomes a substitute for constructive play. In other words, in play really there is more of ego satisfaction and relief as one finds in daydreaming. It is most satisfying to children when life at school or in home becomes most ego threatening and monotonous.

**Plays is influenced by tradition.** Young children imitate the play of older children. It appears they have traditionally inherited to play specific type of play on the basis of culture, caste, sex, etc. The number of playmates decrease with age.

### Stages of play in development

**Exploratory Stage.** Until babies reach age 3 months or more, they look around people, objects, random grabbing of objects. There after hands and arms came under voluntary control and they can examine everything they reach.

**Toy Stage.** It begins in 1st year and reaches peak around 5 and 6 years. Between 2 and 3 years they think their toys can think, grasp, talk, feel. Toy play is solitary. Hence they decrease with age and children look for companion. Toy play is baby play.

**Play Stage.** Children enter to school. Play increases, science alone with toys but mostly with classmates, age mates in games, sports, hobbies and more matured forms of play.

**Day dream stage.** As children reach puberty, they engage themselves in daydreams usually of martyr type *i.e.*, they ridicule themselves in play.

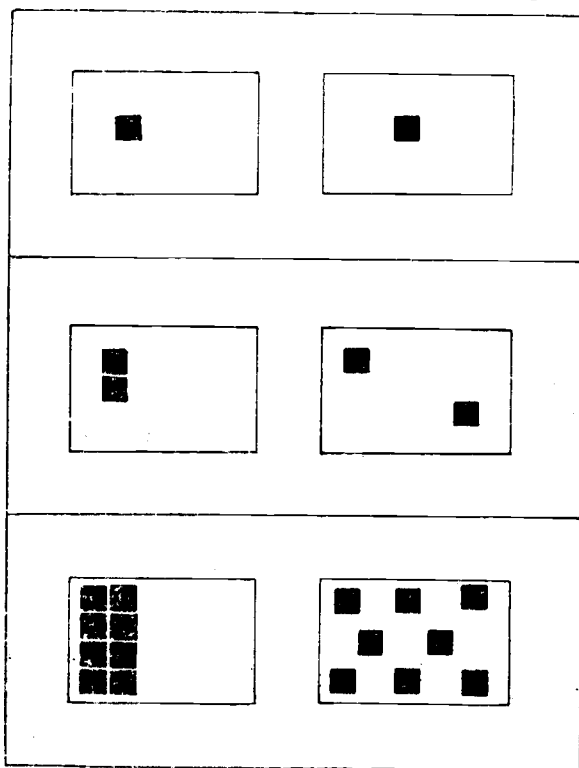
### THINKING IS CHILD'S PLAY

Piaget considered the child to be very active, experimenting and explorative. His activities reflect greater dynamism and curiosity for which he thought, child's thinking can be developed more through play than any other medium.



Froebel and Montessori the two well known educators also looked at play in children from these view points. Play is not trivial. It is highly serious and has deep significance for development of intellect. Play is a way of learning. It is not merely a relaxation.

A child at play is a scientist in his laboratory. He is investigating the world around him and learning new facts about it. The toddler trying to balance one block over the other is studying gravity. If a child plays with finger paints or water colours, he finds out the mixture of two colours giving rise to another colour. These are first hand experiences. For example, when child is in the elementary school he can conserve the concept of area by using play materials. The diagram given here illustrates the concept of conservation.



(Conservation of Area)

There are two table mats and sixteen playing cards. In phase one, the two cards are placed one on each mat. The child brings one card places it on the top of the other and says it is same. Then he places two cards in one, close to each other and two in separate places in another mat. By means of direct comparison he comes to know no matter how the two cards are

arranged the area covered on the mat is same. When the number of cards are eight in each, spread in different order, the child conceives these as same if he has reached the stage of concrete operations. He does this by manipulation and playful comparison. Many such materials can be used for intellectual development. It gives to the child in fact, the way of connecting what he has learned and what is the reality.

Child's play during the first two years of life is mostly through sensorimotor experience including imitation of motor responses. Manipulation of concrete objects and grouping appear gradually during the period of 7-11 years and play provides enough situations for experimentation and assimilation. It is through innumerable varieties of play experiences involving objects and people that the child gradually assimilates the realities of the world around him. Symbolic play appears gradually after the end of the sensory motor stage. Symbolic play is at its peak during the pre-conceptual stage (2-4 years). Doll play fulfils the emotional needs of the child. The symbolic games are of three types. Type-I includes such things as pretending to be asleep and making the doll sleep. In Type II the child makes use of his body to represent other things. For example, the child may crawl and say "I am a tiger". Type III games are more complex. A whole act is directed by the child through toys, *i.e.* how to take a bath, preparing a dish etc. It does include compensatory play. He compensates or fulfils some of his ambition through "doll play". During pre-conceptual stage (4-7) the child's play are more socially oriented. During 7-11, children need more of outdoor games, skills. Playing with sand, creating a bridge, tunnels etc. help the child to develop his thinking ability and creativity.

This suggests that in schools, teachers would encourage children to preparing creative toys, which would promote creation, through imaginative and experimental play and arts. The play room in a house must have enough space and toys as the child has to identify and classify various toys. As the children grow it is difficult to provide play equipments which enable the child to practice the skills already acquired.

Educational games and play games as techniques and exercises should be happily blended in teaching different curriculum subjects. There should be scope for projects and group work.

The values already discussed above make it obligatory of reflect on the educational significance of play. Over almost 100 years ago Froebel said, "play is the highest achievement of child development, of human development, at this stage, since it is the spontaneous, expression, according to the necessity of its own nature, of the child's inner being...Play at this stage of life is not a trivial pursuit, it is a serious occupation and has a deep significance". He

introduced various forms of play like activities for the young children. While in school, these children played with activities like paper folding, mat weaving, clay modelling, symbolic games, music and developed their imaginative and creative talents. This kind of approach to play also is currently in vogue in many nursery and kindergarten schools. Piagetian concepts have also been brought to the level of play like activities to which children are exposed and they learn the concept of form, number, and vocabulary also becomes large enough.

'Education through the senses' introduced by Montessorie also stresses the significance of play for children. She believed that the child must use the didactic materials in spontaneous play. The teacher of course, gives some guidance but in most cases the pupils find their own choice and improve their thought through these materials.

Although there is a basic difference in two approaches of Froebel and Montessorie, the facts remain that play-way in education is a basic principle. In early childhood, the child can learn much through doll play, spontaneous play, make believe play, constructive play materials and symbolic plays. The progressive nursery schools cater for all these and give a lot of freedom to child to develop thinking and conceptual abilities through play.

### REVIEW EXERCISES

*Answer the following questions within 500 words each :*

1. Discuss the importance of play in life of children.
2. What are the characteristics of child's play ?
3. 'Thinking is child's play'? Explain.
4. What are the various theories of play? What factors are associated with child's play ?
5. What are the various types of play? How do they differ at different stages of development ?
6. What are educational significance of childhood play ?

*Write the contributions of the following to play within 50 words each :*

1. Stanley Hall
2. Gross
3. Patrick
4. Dewey
5. Schiller and Spencer
6. Meaning of play
7. Recapitulation theory
8. Relaxation theory
9. Surplus energy theory
10. Therapeutic value of play

**Write whether the following statements are True or False :**

1. Thinking is child's play.
2. There is no difference in play of boys and girls in early childhood.
3. Socialisation takes place through play.
4. Play time increases with increase in age.
5. Play has no meaning for the child.

**Fill in the blanks :**

1. With increase in age number of play activity .....
2. With increase in age time spent in a specific play .....
3. Play differs at different ..... of development.
4. There is ..... in type of play with increase in age.
5. ....defined play initially.
6. ....regarded play as a preparation for future life.
7. ....talked of recapitulation theory of play.
8. ....only plays alone.
9. Childhood play is informal and.....
10. Play is.....for social development.

## Children's Interests

Interest is an organismic condition that results in a desire for further stimulation from a particular type of object, idea or experience. How do then interest emerge? How can we know them? What are the types of interests? Are they related to general behaviour? Observations of individual difference in interests date back to as early as Plato's comment in the Republic "No two persons are born exactly alike, but each differs from each in natural endowments, one being suited for one occupation and another for another" Formal observation on interest began in the 20th century.

Strong (1955) conceived interests as an aspect of consciousness similar to feeling. It has three characteristics: Persistent attention, feeling, activity and direction. Interests are also characterised by intensity and duration. Interests have been designated operationally as vocational, educational or personal depending upon the measures of interest. It is an expression or likes and dislikes, preferences of choices.

The child's interests in certain activities are known from the things he chooses to do. If he is not interested in certain activities no amount of training or force can help him to get things done. Before the age of two, a child shows little spontaneous interest in dressing himself, handling buttons but later insists on doing these things. A child's interests are closely related to his abilities and as the child becomes older he acquires certain new interests. The range of children's interest is quite restricted compared to the interest they acquire later on. An interest is a learned motive. The child identifies his well being with this.

### METHOD OF OBSERVING CHILDREN'S INTEREST

How does one know the interests of children? The child's interest can be determined by various methods broadly characterised as testing and observation. At the early childhood stage it is observation that helps one to know about interest because the child cannot answer to formalised tests. His activities will speak of his interests but it is always better to supplement

observation or use varieties of observational techniques. Hurlock (1972) suggested the following techniques :

### **Observation of Activities**

One can observe the children in play. What objects he prefers to play with; the objects he buys; the activities in which the child is spontaneously engaged. Inferences about his interests can be made easily from these samples of behaviour.

### **Question**

The child by nature is curious for many things. After the age of 3 years, he starts asking series of questions, regarding plants, animals, human beings or anything that he sees in the environment. The nature of the question, the frequency of a particular question indicates the type of interest the child has. Parents by encouraging the child for asking questions can easily know what the child's interests are.

### **Conversation**

After speech develops the child plays with his age mates, talks to them; talks with elders; listens and participates in family conversation. In his conversation he expresses certain likes and dislikes. If one closely watches the conversation of the child which is very clear, spontaneous, and seldom defensive, one can deduce the type of interest that he has.

### **Reading**

Another way is, analysis of the reading materials after the child enters into school. He becomes interested in reading various types of books. One can observe very dispassionately the type of books the child is reading other than his text, whether novel books, story books cartoons, travels etc. Reading materials are really great indicators of interest of the child. If the child enters into a book shop what does he select will depend upon his interest and therefore his selection indicates his interests.

### **Drawings**

Childhood stage is the most formative period of life during which many things come in. In his free time, the child draws sketches in pencil, in chalks, plays with clay and prepares toys. Hence, from the type of drawing one can infer the interest of the child because it is interest that manifests in action. Drawings are sublimated reactions of childhood frustrations but at the same time are considered interest indicators. The time spent on drawing also provides clues for interest measurement.

### **Wishes**

There is a proverb "if wishes were horses then beggars would ride upon them". The wishes expressed by children are mostly imaginary than real. But when you ask the child what would you do if you get some money. The child then comes up with certain wishes. These are his interests. Hence, one can know childhood interests by observation of various forms of children activities.

At the elementary level the childhood interest are more egocentric and this continues upto sixth grade. After this interests become social. At this stage one can directly ask the child to write down what are the things in which they are interested. This is a direct approach to measure interests. Standardised interest inventories are available, but they primarily measure vocational interests.

### **REPORT ABOUT INTEREST**

When they are asked to write about their interests one can easily draw inferences about the interest patterns of those children.

Standardised interest inventories can be given to children after they gain the working reading knowledge and written expression. These are Kuder Preference Record and Strong Interest Blanks.

When pupils were asked their interest in school, the junior and senior high school age children less often mentioned academic subjects than did the younger children. Older children mentioned sports, industrial and mechanical arts, intellectual self improvement, vocational preparation and relations with other persons of their own age. Young children give a great deal of emphasis to people and relationships with people. Older children's interests are influenced to a great extent by what happens to be available in their environment. As they move through school there is a decline on interest in the schools academic programme and greater interest in social contacts.

### **DEVELOPMENT OF CHILDREN'S INTEREST**

The child is not born with all interests. Interest develop through learning and experience. The child learns various interests by trial and error processes; by identifying with a person he likes, generally peers or adults, and by guidance and direction.

Children's interest parallel their physical and motor development. Interests like other characteristics undergo changes. It changes from simple play to games and sports with involve rules and skilled movements. Acquiring new interests depends upon his readiness to learn and the opportunities available. On many occasions interests become limited because of physical handicap, pressure of academic, cultural demands, the emotional

experiences of the child with other objects, persons and activities. Persistence on how long and how frequently and individual works on a particular problem tells us about his interests.

There is individual difference in the interest patterns of children. Very bright children have different interests from that of dull ones. Children coming from rural homes, slums, low SES homes have different interest patterns. Development of interest depends upon readiness to learn, his mental capacity, and physical development.

Moreover, the opportunities available for the child are also important. The first born child has more range of interests than later borns. The later borns mostly imitate the siblings. Interests increase in case of good family, large family, good neighbourhood, good peer groups. Interests change with age. Childhood interests are different from that of adolescence period. Interests are rather general and specific as well.

During early childhood the interests of children are egocentric. Gradually contacts with peer groups increase. His interests become socialised. He is more influenced by his friends in developing interests and other environmental pressures.

## TYPES OF INTERESTS

### Human Body

The baby is interested more in himself and his own activities upto age 3½ years. He is interested also in his own products; urines, feces etc. Before they attain school age, their interests in sex difference begins to grow, and in the latter parts of childhood it reaches a peak. They become interested in genitalia and other sex characteristics at the onset of puberty.

At the beginning the child is interested in the external parts of the body but gradually he explores the internal systems, their names, functions which he gets by exploring his own body and asking questions to others. A sick child becomes more interested in health but in normal cases, by adolescence the child becomes interested in health, appearance, and related activities. Interest in health becomes an obsession in most cases.

### Appearance

The young child is very little concerned about his appearance. Boys, however, are more interested in sex appropriateness of appearance. They play with their own sexmates. Boys and girls appear masculine or feminine by using appropriate dresses. The peer group has lot of pressure in this regard. Of course, peer group pressures are reinforced by social acceptance or rejection.



### **Clothes**

Clothes satisfy the interest of the child to a very great extent. The baby satisfies his sense of autonomy by selecting the types of clothes. He selects clothes that gives the feel that he is growing up. He selects attention getting clothes, bright, coloured, new or ornamental. At times he tries to maintain his individuality by wearing clothes like his peer group but with different colour. Before they reach adolescence, they do show the interest in sex appropriate clothes.

### **Names**

The child accepts his name as he accepts his body. Gradually the child becomes interested in his name. He likes his names if social reactions are favourable. Children have a strong interest in their nicknames. Nicknames and pet names become focal points of interest.

They dislike old names, common names, good long names, short names, and sex in-appropriate names.

### **Religion**

Religious practice is more often seen in younger children and religious faith is seen among the grown ups. For development of his interest in religion the home is more responsible than any thing else. Regardless of religious belief every child is curious to know who is God ? Where is heaven ? How do you get that ? His concept of religion changes as he develops. Their belief also vary depending upon training and experience in home and outside. They show interest in religious stories, prayer, idols, and attend religious functions.

### **Sex**

Sex interest becomes more strong after they enter school and have more intimate contacts. The child until by puberty spends most of the time in sex interests. It is assessed through his curious questions and activities. The preschool child asks more questions about sex, origin of babies etc.

### **Status Symbols**

Status symbols are prestige symbols. It differs for various age groups and social groups. The name of the school becomes a prestige symbol for attracting children's interests. A status symbol gives the child satisfaction and attention he craves. The child becomes interested in these status symbols which are concrete and visible. He is not interested in club membership or family background as such unless it helps him to grow.

In early childhood material possessions are the most universal status symbols. The child understands the values of toys, clothes, and other

possessions. The child is interested in the father's occupation and relate it to his economic status by the time the child reaches fourth and fifth grade. Each year children become interested in role and status and these play a great role in social acceptance. Girls are more interested in status symbols than boys. From early childhood, children change their emphasis on quantity of status symbols *i.e.* toys and possessions, to quality when they become older.

When he reaches age six, he explores his own sex organs. Exploration of sex interest may take various forms. They play with members of the same sex, and obtain many incorrect information about sex life.

### **School**

The young child becomes interested in school but as he spends more time in school, his interest declines. His interest in play, games and sport increases. He develops disinterest in teacher and home work interest in school not only changes but children develop specific interest either in academics or in extra curricular activities.

Decline in interest in school is because of various factors. The influence of parents is quite great in developing the interest in school and in school subjects. Young children's activities are also influenced by siblings and peer attitudes. Teacher pupil relationships, and emotional climate in school contributes to children's interest to a significant degree. Sex appropriateness in interest is also seen among boys and girls in school. Boys like many subjects such as : reading, arts, social activities, language etc. Girls on the other hand like these subjects than mathematics and science. Truancy is an expression of negative interest in school. Underachievement and interest in school and school phobia result out of negative interests.

### **Vocational Interest**

Children development their interest in future vocations by reading stories, visiting films, looking at others, hearing people talk of vocations and so on. Vocational interests, undergo changes quite often in early childhood because it is not based on reason but emotional identification. It is related to mental abilities of children. But around secondary school stage stability in realistic vocational interests are seen rather than fantasy choices. Prestige value of occupations, his own attitudes, interest and aspirations in addition to cultural stereotypes influence vocational choice. However, three distinct patterns are seen in the vocational interests of children. Fantasy choices continue into the age of 11 or 12 years. Choices and interests become sensitive from 11 to 12 to end of high school period. After the age of 17 interests in vocations or choices of vocation become more realistic and are based on various considerations.

A teacher should know the interests of each pupil in the school. Instruction should be related and should begin at the point of interest of the child. Unless instruction is related to child's interest it is difficult to gain much, it is not enough to channel learning through the interests of children but broaden the interests of children. Teachers can use optimum of sensory stimulation in a learning situation. Vocational literature can be supplied to boys and girls. Teachers can point out vocational aspects of the subject matter taught. Field trips offer opportunities for observation of people working at various jobs. School can contribute quite effectively for promoting children's interests in school and other activities arranging them in a co-ordinated programme.

### REVIEW EXERCISES

*Answer the following questions within 500 words each :*

1. What is interest ? How does it develop ?
2. Describe the methods of ascertaining childhood interests.
3. What are the various types of interest that children displays ?

*Write short notes on the following within 50 words each :*

1. Vocational Interest
2. School and interest development
3. Implications of childhood interests
4. Hurlock's contribution
5. Strong's interest Blank
6. Question
7. Conversation
8. Reading
9. Drawings
10. Wishes

*Write whether the statements are True or False :*

1. Strong conceived interest as an aspect akin to feeling.
2. An interest is a learned motive.
3. Children's interest parallel their physical and motor development.
4. The baby's is interested in himself and his body upto age  $3\frac{1}{2}$  years.
5. Sex interest becomes more strong after they enter schools and have more intimate contacts.
6. Interest in others decline in schools.
7. After age 17 interests in vocations become more realistic.
8. In early childhood material possessions are the most important status symbols.

# 13

## Development of Intelligence

Since intelligence is related to so many aspects of behaviour and psychological growth, it is of interest to parents and teachers also to promote the welfare of children. What is intelligence any way ? What does an IQ 130 mean ? Are bright children abnormal in any way ? Are children with very large head brighter than other boys and girls ?

Intelligence is first of all a descriptive concept—meaning brightness, brainy, and the like that was a smart things to do, that was a stupid things to do many such remarks.

But what is really intelligence ? Intelligence is what the intelligence tests measure. It is a reasonable definition which does not serve any purpose.

Probably no area of psychology has been the subject of so much controversy as that of intelligence. Psychologists have not agreed upon the basic concept and nature of intelligence. The first idea of defining and measuring intelligence was done by Alfred Binet, who at the turn of the present century was asked by the French Govt. to investigate the causes of retardation in the schools of Paris. Binet conceived intelligence as the sine qua non of scholastic achievement. Terman (1921) defined "intelligence is the capacity for abstract thinking" although Binet did not really define intelligence in any cut and dry manner. For Binet, "it is Judgement or common sense, initiative, the ability to adapt oneself and capacity to learn". Wechsler's (1958) definition of intelligence runs as follows. "Intelligence operationally defined as the aggregate or global capacity of the individual to act purposefully, to think rationally and to deal effectively with the environment". For Ravens, it is a capacity for logical thinking and abstract reasoning. One of the operational definition of intelligence was given by Stoddard (1941) which is "Intelligence is the ability to undertake activities that are characterised by difficulty, complexity, abstractness, economy, adaptiveness to a goal, social value, and the emergence of originals, and that it includes the ability to maintain such as activities under conditions that demand concentration of energy and resistance to emotional forces."

## NATURE OF INTELLIGENCE

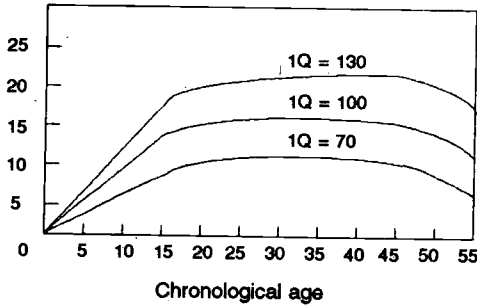
Spearman (1904) stated that in intelligence, there is a general factor of ability ('g') which is found in all performance varying from individual to individual and a large number of specific abilities ('s') which operates in certain performance but not in others. Hence, the nature of intelligence is explained in terms of 'g' and 's'. This is known as two factor theory of intelligence. Thurstone (1938) proposed a set of factors known under the concept 'Primary Abilities' (PMA). These abilities are : verbal comprehension, word fluency, number, object associations, memory, perceptual speed and induction, and general reasoning. While the nature of intelligence is limited to seven primary factors, Guilford (1956) conceived hypothetically 120 factors of which a great majority are not yet identified. Thorndike (1927) conceived intelligence as abstract, practical and social. Thorndike defined intelligence in terms of the test; completion, arithmetic, vocabulary and directions (CAVD). This concept of intelligence was very much used by educationists in theory and practice.

The British psychologist, Vernon (1950) conceived intelligence in a different way. He gave a hierarchical nature of intelligence with Spearman's 'G' at the top. The next factors are verbal educational abilities and practical mechanical aptitudes. These were further subdivided into minor factors. The American Psychologist Hebb (1948), a professor of Psychology at the University of McGill talked of three kinds of intelligence, A, B, C, Intelligence 'A' innate neither observable nor measurable. 'B' measures school and related works : 'C' is measured in an intelligence test. Intelligence, 'A' is responsible for the development of 'Schemata'. Cognitive abilities are reflected in intelligence 'B'. Early experience is important in the development of 'intelligence'. The Piagetian concept of intellectual development was not psychometrically measured intelligence but it is one that explains intelligence in terms of assimilation and accommodation and the resulting schemata.

Raymond Cattell's views on fluid and Crystallised intelligence is a synthesis of the British and American view points. Fluid intelligence is a general relation perceiving capacity which operated in all fields, Crystallised general intelligence is represented by those cognitive performances in which habits become crystallised from the application of some prior, more fundamental general ability to these fields. Before 15-20 years of age individual differences between fluid and Crystallised intelligence reflect cultural opportunity and interest. Among adults it reflects 'Age'. Recently Das (1995) suggested PASS Theory of IQ, and Sternberg (1994) a triarchic theory of intelligence considering this as a planning process. This is a brief presentation of the nature of intelligence which is in fact, much varied and extended.

### DEVELOPMENT OF INTELLIGENCE

Intelligence does not continue throughout the entire period of one's life. It begins to slow down in rate during the early teens reaches its peak somewhere in the middle twenties. The general shape of the curve is given in Fig. below.

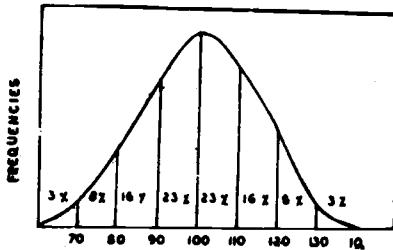


Nature of Mental Growth Curve For Three IQ Levels

It is said that nearly 1/3rd intelligence is developed by age three, 1/3rd intelligence is developed by 6-10, and the remaining 1/3rd by age 16-18. After that it takes a flat rate. From the practical point of view of learning ability and effectiveness of behaviour, the experience gained by older individuals compensate the decline in intelligence if any, after its optimal development around age 16-18. Therefore, the early experience is very vital for depressing or accelerating development of intelligence.

### Range of individual difference in I.Q

The distribution of intelligence is fairly normal. The distribution of intelligence obtained from Stanford-Binet Intelligence tests has been calibrated with mean as 100 and SD as 16 show in the figure given below. For Wechsler, the mean IQ is 100 and SD is 15. Deviation IQ is calculated along these lines.



Distribution of IQ in the Population

There are current many tests to measure intelligence in children.

### Measurement of Intelligence

*Stanford-Binet Intelligence Scale.* In about 1890 the French Psychologist Alfred Binet became interested in investigating reasoning and judgement. The original scale came up in 1904 which was modified in 1908, and 1911 and later by Terman in 1910 and in 1916, the second revision of the Stanford Binet scale was produced. The second revision of the Stanford Binet scale under the leadership of Terman and Merrill came up in 1937 and the third revision was published in 1960 having a single form. The most radical change in the 1960 revision was in the IQ tables which gives deviation or standard score IQs. This was a departure from the previous method of  $MA/CA \times 100$ . The revised IQ is a standard score with a mean of 100 and a standard deviation of 16.

This is a verbal test and scoring is done for every six months. This is a very reliable and valid test but it is not culture free. It is administered to individuals from age two onwards.

### WECHSLER SCALES

Wechsler's first scale of intelligence was developed primarily for adults. The test which was known as Wechsler Bellevue scale was changed as Wechsler Adult Intelligence Scale (WAIS) measuring intelligence from 16 to 75 age. It has eleven subtests. The verbal subtests are six and performance tests are five. Both the scales are combined to make a full scale.

The Wechsler Intelligence Scale for children (WISC) was developed in 1949 and a revised WISC-R was published in 1974. In the WISC-R there are 10 basic tests and two alternates.

Verbal	Performance
General information	Picture completion
General comprehension	Picture arrangement
Arithmetic	Block design
Similarities	Object Assembly
Vocabulary	Coding or Mazes
Digit span (Alternate)	(Alternate)

This WISC-R is meant for use with children  $6\frac{1}{2}$  to  $16\frac{1}{2}$  years. There is a Wechsler Preschool and Primary scale of intelligence. (WPPSI) published in 1967 meant 4 to 6 year olds having six verbal tests with one alternate (Sentence) and five performance tests.

Raw scores on each subtest are converted into scaled scores. The mean is 100 and the SD is 16. The scales are highly reliable and valid and are always above 90. The scores indicate certain degree of intellectual functioning.

### CULTURE FAIR TEST

Culture fair tests are nonlanguage tests. In earlier period the term "culture free" was used to denote this but this has been dropped from the literature.

One of the first attempt was made by Cattell to prepare the culture fair intelligence scale. This test is based upon the premise that general intelligence is a matter of seeing relationship in other things with which we have to deal, that the ability to see relationships can be tested with simple diagramatic or pictorial material and that for a test to be usable in different cultures the pictures are universal and not pertaining to any cultural group.

Another "Culture fair" test was developed in Great Britain by Raven (1938) is known under the brand name "Progressive Matrices." It is a nonverbal test series requiring the subject to solve problems presented in Abstract figures and designs. There are three forms of the scale.

Standard Progressive Matrices-containing set A, B, C, D, E, each having 12 matrices is meant for adults ranging from age 11½ onwards. Coloured Progressive Matrices containing sets A, Ab, and B each having 12 matrices are meant for children between ad 5 to 11½. Advanced Progressive Matrices Part 11 with 12 matrices and Part 11 with 24 matrices are meant for quick assessment of individual's ability. The tests are fairly reliable and valid and are widely used as measures of general intelligence and reasoning this is a group as well as individually as administered test.

### PIAGETIAN SCALE

One test that has been prepared based on Piagetian approach is the concept assessment Kit-Conservation Kit. It is meant for children for four to seven years old and measures the qualitative change in thinking about physical objects that a child attains in moving from the preoperational stage to the stage of concrete operations.

The child is shown two physical objects such as two glasses of water. One object is then changed in appearance. The child has attained conservation when he knows that the quantity remains same even though it looks different. The younger child has attained conservation when he knows that the quantity remains same even though it looks different. The younger child attends to perceptions while the older child can over ride the perceptions to make logical conclusion with concrete objects. This test has 3 forms Form A, Form B, and Form C. Form A and B have both six subjects. Two dimensional space, Number, Substance, Continuous quantity, Weight and discontinuous quantity. Form C has the above six subtests and the test on area and length. The statistical information available on the test area generally and indicate this as a promising instrument.



**FACTORS AFFECTING INTELLIGENCE****Heredity**

The role of heredity and environment on intelligence has been discussed as examples of the general problem of nature vs. nurture and shall not be repeated here excepting stating broad generalisations. The general evidence goes in favour that intelligence is inherited and the influence of environment is contributory to the tune of 20 per cent.

**Age**

Age curves of intelligence have always been a question of great importance. Studies of Bayley (1955) and Terman and Merrill (1937) have shown that there is improvement in mean scores until the late teens or early twenties. Our knowledge about Indian child is limited as studies in India are test centered than child or norm centered.

**Culture**

Responses in a psychological test is influenced and coloured by culture in which the individual lives. Even there are cultures where time is not considered important. Hence, intelligence test having a speed factor and time component is likely to show cultural variations in measured test scores than the culture fairness of the test developed. Culture affects through child reading, in providing early experience but within limits of heredity.

**Rural Urban Difference**

Rural children as a group score lower than urban children on intelligence tests. Terman and Merrill observed wide difference among rural-urban children between 15 to 18 years of age by using Stanford-Binet test of intelligence. The difference was as great as 12.2 points of IQ. On the WISC the rural children scored less than the Urban children and the difference was large in the performance scale. In our studies (Panda, 1981) rural children also scored less in Raven's progressive matrices test than urban children.

**Socio-economics Status**

Socio-economic status is highly linked with urban rural origin. It is true that interactions in lower class homes are restricted, impoverished and as such there is the adverse effect in the development of intelligence. The test scores become low because children are used to such testing in lower class homes. They can't in many cases understand the language of the items and as such they score low and give evidence of low intelligence. Since 40 to 50 per cent Indians are below the poverty line this has large implications for Indian people.

Deprivation and malnutrition are concomitant effects of low SES and thereby affects adversely the development of intelligence. Even though the child inherits intelligence, because of early malnutrition, lack of stimulation, emotional and general deprivation intelligence scores are depressed. It is a vicious circular notion but the facts remain that intelligence can develop well under favourable conditions of nourishment than otherwise within the limits of heredity.

### Use of Intelligence Test

In recent years intelligence has not been accepted as the sole predictor of learning and achievement. It explains however, nearly 50 per cent of the total variation in learning. It permits greater understanding of pupil behaviours and ability in school.

Intelligence is being used alongwith adaptive behaviour scores for tracking children into special schools and special classes. The imbeciles and idiots are denied admission to school or any academic programme they can't learn.

Intelligence scores tell the teacher what the child could do, not what he will do since motivation, emotional blocking, work habits, teacher behaviour etc. are related to learning. In spite of these, there is a strong relationship between IQ and school learning.

It is true that the measures used for assessing intelligence may have wide limitations for giving a correct score regarding the intelligence level of a child because of measurement errors, cultural variation, socio-economic factors etc. but there is nothing wrong with the concept of IQ and its use. It still remains as the greatest predictor of learning, if not sole predictor.

Intelligence test which measure verbal and quantitative ability separately offer a promise for diagnosis of learning difficulties as well as offer a scope for applying remediation. Factorial measures enable us to fair point on the weakness of a given factor or factors.

In the field of intelligence, a strong notion persists *i.e.* intelligence remains relatively constant over the years, a dull child becomes a dull adult, a gifted child becomes gifted etc. This does not mean that if determined efforts are made changes in IQ will not be made. There is a considerable empirical evidence pointing out IQ changes due to interaction of environment especially during the early years of life and as a result of continuous and comprehensive enrichment programme. Hence, IQ does not remain exactly constant over the years.

Correlations between IQ of children with their own IQ at age 16 are given below for showing that IQ is not always constant over the years

although wide variability is also not expected.

Age	Boys	Girls
7	.58	.54
8	.64	.58
9	.58	.53
10	.74	.70
11	.75	.73
12	.79	.79
13	.78	.81
14	.83	.82
15	.90	.91

This indicates increased stability after age 14 or 15. The relation between child's intelligence at 1 with that of 16 is zero. Only after 4th year one can expect some degree of consistency.

Teachers and parents need to concentrate on providing each child with a psychologically enriched environment further which the child can develop his maximum potential and attain self actualisation. They should also not expect dramatic effects *i.e.* a dull child becoming light or an average child becoming gifted. It develops within reasonable limits but a good environment definitely prevents depression of inherited ability. This should be the consolation for us even if we cannot increase the substantially as IQ is relatively constant.

### REVIEW EXERCISES

**Answer the following questions within 500 words each :**

1. What is intelligence ? How does it develop in children ?
2. What is the role of heredity environment on the development of intelligence ?
3. What is the significance of intelligence ?
4. What are M.A. & IQ ? How intelligence is measured ?
5. What is the nature of intelligence ?

**Write within 50 words each :**

1. Stoddard's view on intelligence.
2. Raven's view on intelligence.
3. Spearman's 'g' and 's' factor.
4. Thurstone's Primary Mental Abilities.
5. Hebb's ABC intelligence.
6. Deviation IQ.
7. MA and IQ.
8. Race and IQ.
9. SES and IQ.
10. Rural/urban and IQ.

***Write whether the statements are True or False***

1. Terman defined intelligence as capacity for abstract thinking.
2. Raven develop progressive matrices test.
3. For Binet intelligence is a judgement the ability to adapt one self and capacity to learn.
4. Wechsler thought intelligence is a global capacity to act purposefully, to think rationally and to deal effectively with environment.
5. Measurement of intelligence by using tests are not that accurate so far real intelligence of the individual is concerned.
6. Das developed the planning process concept of intelligence.
7. Triarchic theory of intelligence is recently developed by Sternberg.

## Intellectual Development

Jean Piaget (1896-1980), born in Switzerland is known throughout the world for his contributions to intellectual development. He is a biologist by training. But he was a philosopher, logician, psychologist and an educator. His researches and theorizing of intellectual development are based on observations of his own children : Laurent, Jacqueline, and Lucienne. Piaget calls himself as a genetic epistemologist. He has an outstanding record of achievement.

At the age of 10, he published his first research article on "Albino Sparrow" in the journal of Natural History of Neuchatel. He was immediately invited by the Director of the Geneva Museum of Natural History to join as a Curator, which was withdrawn when his age was discovered.

As a University student majoring in Biology he became interested in Psychology. He studied in the psychological laboratories at the University of Zurich in 1918 and in the experimental laboratory of Binet in Paris from 1919 to 1921. His first major work was published during 1924-1932. The first notable book came out in 1928. "The Judgement and Reasoning in the Child" which brought him wide reputation both in USA and Europe. From 1929 to 1939 he formulated his concepts of 'Grouping' and published the book. "The Child's Conception of Number" in 1941. "The Child's Conception of Space" was published in 1948 and "The Child's Conception of geometry" was published in 1960 followed by the early growth of logic in 1964. Piaget is a genetic epistemologist who was concerned with nature of knowledge, the structure and processes by which it is acquired. Piaget argued "that much of our knowledge comes not from without but from within by the forces of our own logic...a fact often forgotten in education."

Piaget was strongly influenced, by his training as a biologist. As such he makes constant reference to the interaction between an active organism and the environment. According to him intellectual activities are adaptive. Intelligence is seen as an aspect of biological adaptation. It helps the child to cope, to organise and to reorganise thought and action. Piaget describes

this adaptation as a balance between assimilation and accommodation. This dual process determines intellectual development throughout life.

Assimilation means 'incorporation and organization of experience into existing schemata', something new is interpreted in terms of a past experience with which the individual is familiar. For example, a young child while playing catches a ball and relates the experience to a 'grasping' schema. In a classroom situation the child who understands and follows what the teacher is telling is really assimilating the incoming information into his own schema of learning. The child fits unfamiliar stimuli into his own available mental structure or organization *i.e.* all flying objects are 'birds'. Hence, assimilation is somewhat similar to the concept of generalisation.

For intellectual development, a child must also be capable of adapting its schemata to accommodate perceptions, stimuli, and inputs which were previously impossible to assimilate. It involves the formation of a new schemata. It depends on the ability of the child to change his schema or structure in order to adapt to the new environment.

For example, suppose a four year child who expects to see girls dressed in skirts and boys in pants, sees a child with both long hair and pant playing with a toy. He will probably perceive this person as a girl and accommodate to the situation.

Imitation of parent's behaviour is the most clear example of accommodation.

Assimilation and accommodation are complementary to each other. Succinctly speaking assimilation is the force which makes one want to act and think in terms of past experience. On the contrary, accommodation is the force which makes one to modify action and thought to meet demands of new or changed situation. The concept of a balance between the two theoretical constructs is central to Piaget's theory of intellectual development.

Piaget's theory is both genetic and hierarchical. He believes that mental development is a process that begins the day the infant is born and intellectual behaviour at any age evolves directly from prior levels of behaviour. The roots of all intellectual development are in early sensori-motor behaviour.

Piaget divides the entire period of intellectual development into four basic stages :

1. Sensory-motor period (0-2 yrs)
2. Preoperational period (2-7 yrs)
  - (a) Preconceptual (2-4)
  - (b) Intuitive (4-7)
3. Concrete operations (7-11)
4. Formal operations (12 +)

It may appear from this categorisation that the stages are specific. But Piaget uses the term 'stage' or 'period' in a more wider sense and for ease of recognition. The age specifications are not fixed boundaries rather these are approximations. It simply suggests that all stages of development subsequent to the initial stage incorporate all previous stages. This is the sequence of events which is important rather than the ages which are suggested.

### **SENSORI-MOTOR PERIOD**

Piaget uses the term 'Sensori-motor' to describe this period because it involves co-ordination of sensory perceptions and motor movements. This period is sub-divided into six stages through which progressively complex pattern of intellectual behaviour appears.

#### **Reflex (0-1 month)**

During this stage an infant's motor responses are largely innate reflex actions; such as; sucking movements to nipple become more prominent, Grasping, crying, movement of arms, trunk, head also appear regardless of stimuli. The infant assimilates all stimuli through reflex activities. Just after a few weeks of birth one can observe simple accommodation in children. For example, the infant begins to search for the nipple if it cannot be seen. At birth he has no awareness about the permanence of objects. Further he is unable to differentiate between himself and the environment. The child is completely egocentric.

#### **Primary Circular Reaction (1-4 months)**

The child after one month of post-natal life begins to make simple co-ordinated movements between hand and mouth. Simple activities appear repeatedly such as : repetitive sucking, closing and opening of the fists, fingering the bed etc. The child does these activities without any intent or purpose. Thumb-sucking becomes habitual. Eyes follow the moving objects. Such co-ordination implies accommodation, on the part of the child. Yet the child's activities lack purpose or deliberate intention.

#### **Secondary Circular Reaction (4-8 months)**

After about four months of age an infant makes purposeful movements to achieve a simple aim and actions like grasping are extended to shaking and pulling. Movements of the hand, eye and mouth are co-ordinated. The child repeats responses which produce interesting results e.g. the child repeatedly kicks his legs in order to produce a swinging movement in a toy suspended over his crib. Child's behaviour becomes increasingly oriented

forward objects and events beyond his body. Intentionality appears at this stage and there are clear signs to sustain and repeat acts. Piaget calls this act as reproductive assimilation *i.e.* the infant tries to reproduce events that are unique to him. Children look for objects or toys in places where he predicts they have fallen. He develops awareness of permanence of objects. But the child still remains egocentric. He sees himself as the primary cause of all activity.

### **Co-ordination of Secondary Circular reactions (8-12 months)**

The child now is able to solve simple problems. He uses a response already learned to obtain a specific goal object. For example, he moves away the pillow in order to obtain a toy hidden behind it. The child establishes means-end-relationships. He begins to see that other objects in the environment as sources of activity (causality). He selects certain means or ways of responding before initiating the final behaviour. In other words, he demonstrates the ability of anticipation or provision and meaning of certain events. In the previous-stage actions of the child were always dependent on the immediate actions in the environment. Jacqueline would cry when alcohol is put on the cut, not before it. The child acquires constancy of shape and size of objects. Learning that an object continues to exist in space even if it cannot be seen makes an important step forward in mental development of the child. It indicates the beginning of reasoning and anticipatory tendencies.

### **Tertiary Circular reactions (12-18 months)**

In the beginning of second year of life the child attains higher level of operations. He begins to form new schemata to solve new problems. The child engages in active experimentation and exploration and the balance shifts from assimilation to accommodation.

The child begins to experiment and through a trial and error process develops new means. Piaget describes this active trial-and error experimentation as the tertiary reaction or a stage of problem solving behaviour. For example, the childhood previously knocked the pillow with his feet to get the toy may now do the same with his feet or use a rattle to push it down. The child varies his movements instead of repeating something mechanically or in a stereotyped fashion. The child begins to manifest the constructive original elements that Piaget regards as characteristic of intelligence. When a rattle is hidden in 'A', it is searched for in A; when it is hidden in 'B', it is searched for in B. Thus elementary problem solving behaviours appear in children at this stage of development.



### **Mental Combinations**

Between 18 and 24 months, the child shows evidence of symbolic or representational behaviour. In a very elementary fashion he begins to represent sensori-motor movements in mental acts. Piaget calls this stage the stage of mental combinations. It is characterised by "invention of new means through internal mental combinations." When the child wishes to obtain some end for which he has no habitual available means, he invents one. He does this by internal experimentation and not by overt trial and error process. For example, when Lucienne plays with a doll carriage where handle comes to the height of her face, she rolls it over the carpet by pushing it. When she comes against a wall, she pulls walking backward. Since this position is not comfortable, she takes a pause, turns back pushes the carriage.

The dual process of representation and invention are basic development of this stage. The child is able to use imaginary manipulation of reality. The child imitates the behaviour of others and begins to show conceptual symbolic behaviour. As a result of Piaget's observations of cognitive processes in infants, Ricciuti, (1965) has tried to examine the mental development of children. One year old infants recognised similarities among objects, suggesting the presence of primitive conceptual skill. When a tray containing 4 yellow cubes and four gray balls are kept in a scattered manner the one year old could touch successively either the yellow cubes or 4 gray balls but when objects are subtle, infants do not display this primitive conceptual behaviour or grouping. This study suggests certain individual difference in rate of conceptual growth of children but the basic pattern or sequence which Piaget emphasized remained the same. From here on the child moves into the preoperational period during language and cognitive skills develop.

### **PREOPERATIONAL PERIOD**

This stage is sometimes referred to as 'preconceptual' or beginning of symbolization in thinking. The term preconceptual was used because the infant is only capable of forming a concept of single object rather than a class of objects. The period includes the age range of 2 to 4 years.

During this period the child constructs symbols, uses language, and indulges in make-believe play. He begins to develop imagery, distinguishes between 'words' and 'things'. The range of cognitive functioning and thinking are expanded. Play and imitation begin to appear although the child cannot immediately construct such operations. The child does not understand the nature of classes and class memberships. He regards every object or situation as an 'instance'. He does not have the ability to understand the

dimensionality of an object. For example, he takes a 'red pen' as 'red pen'. He does not understand that 'red' is one of the colours and 'pen' is one type of article used for writing. When young children during this age range are given toys sort out, it was found that they only sort them on the basis of similarity or superficial quality. They cannot give a verbalisation that accurately describes the grouping. Neither the child follows a deductive or inductive method in his thinking activities.

Preconceptual thought is extremely concrete and strikingly egocentric. The child thinks everything in terms of his own point of view and does not regard other opinions as valid. For example, you ask a young child of 4 years, what does the moon do? The child simply says that the moon follows him (egocentrism).

Egocentrism is a major hindrance to cognitive development. The child of 4 to 6 does not reflect on his thoughts. He never questions his thinking even when contradictory evidence exist. Egocentrism or self centeredness is not intent but the child is unaware that he is egocentric and consequently never tries to resolve it. Around 6-7 egocentric thought begins to give way to social pressure and the child begins to accommodate others. Interaction with peers and playmates dissolve egocentrism.

In the area of language and thinking also the child tends to display egocentric attitudes and centration. The child at this stage makes little attempt to adapt his speech to the needs and interest of his listeners. The preschool child's thinking tends to be static, focusing at one feature at a time. He is unable to combine various features into integrative patterns. This is known as centration. Centration means the child's habit of attending to one salient aspect of a problem neglecting other ones, thus distorting reasoning. For example, you put water of equal quantity in two identical tall thin vase. If the contents of one of these is poured into a broad jar, the child will deny that the quantities are identical. Instead, he will say that the tall vase has more water. This means, he has centered only on height and failed to decenter that width and height both determine the amount of water.

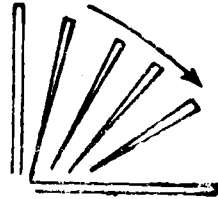
The child knows at age 4 that 9 is greater than 7 but when we put 9 dots close in one line and seven dots far apart in another line, the child of 4 invariably says that the second line contains more dots. This is because the child is unable to decenter and his perceptual evaluation dominate the cognitive evaluation. This behaviour pattern continues upto age 6-7.

1st line	00000000	.....(9)
Second Line	0000000	.....(7)

Piaget also uses the term transductive reasoning to describe that the child during this stage fluctuates in his reasoning from the particular to the

particular without logical sequence and generalization *e.g.* 'I have not had my sleep, so it is not morning'. In this case the child argues by implication that occurrence sleep is followed by occurrence of morning even though the two events are not related to each other.

Further, if a pencil is held upright and allowed to fall, there are series of changes. But even after noticing the fall, the preoperational child cannot reproduce the steps. This transductive reasoning hinders the cognitive growth and does not enable the child to follow transformation.



At this age children are unaware of the inconsistencies in their thinking. Two common forms of transductive thought are identified by Piaget. These are Juxta position and syncretism. In syncretism, the child fails to relate various observations into a consistent whole. For example, a child at this age may say, an aeroplane flies because it has engine and it is heavy; a bird flies because it has wings and it is light. Similarly in juxta position children display drawing the pictures of various parts of bicycle and putting them in a non-function relationship. Such behaviour indicating indiscriminate relationships are examples of Juxta position. The children are often selfish and difficult at this stage.

During age 4 to 7 there is decrease of gross absurdity in thinking and reasoning. The child conceptualises more. He has now some ideas of classes or concepts. He groups objects by similarity. He uses the words 'some', 'all' but still his ability for logical thought is limited. He continues to centre and cannot conserve problems. For him tall = big = more are same and convey the same meaning.

One of the most important characteristics of this stage is irreversibility. Reversibility means the ability of the child to maintain equivalence in spite of change in the perceptual field. If  $A=B$ , then  $B$  must be equal to  $A$ . But child at this stage cannot conceive of this reversible operations. Another example can be used to illustrate this phenomenon. A child is shown two rows of 8 coins each.

```

0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0

```

He agrees that they are same. Then one of the line is stretched.

```

0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0

```

Now the child says, these are different. He cannot maintain equivalence of number in the face of perceptual change. In other words the child during

ages 4-7 does not develop a concept of invariance. His thinking is still dominated by perceptual process. He fails to realise that if water is poured back to the thinner and taller container it will be same as original. In reversible thinking the individual can retrace these steps mentally and arrive at the conclusion that the amount of water has not been changed.

The child's understanding at this stage is restricted to his own perception and his comprehension of objects is still based on single salient perceptual aspects of a stimulus. He intuitively equates the height of a container with the amount of liquid it can hold as if he had learned an equation that reads long = big = tall = more.

Many of these changes in conceptualisation and ability to group objects are related to his language abilities at this age and these are very important in verbal mediation, concept formation, and problem solving. Gradually the child's thought processes are liberated from perceptual dominance and become less centered.

Conservation is the conceptualization that the amount or quantity remains same regardless of any change in shape or position. Conservation of number appears around age 6-7 years. So also conservation of substance begins to appear towards the end of 7th year. Various attempts have been made to increase the ability of the child to conserve through instruction and using various reinforcement techniques. But Piaget always states 'experience is the key'. It comes through exposure, manipulation but not by teaching the child how to conserve. Children remaining at home give evidence of conservation almost around the same age as school going children, across all cultures. Qualitatively the thought of the pre-operational child is different from that of the sensori-motor child.

According to Piaget language serves three consequences to mental development.

- (i) The child exchanges his ideas with other persons which helps the socialization process.
- (ii) There is the beginning of thought and the child thinks internally by using words and signs.
- (iii) There is internalization of action and actions become more symbolic rather than perceptual-motor.

Piaget further observes that there are two types of speech :

- (a) Egocentric Speech
- (b) Socialised Speech

From age 2 to 4 the child lacks communicative speech. His speech is egocentric. He speaks in the presence of others but not necessarily to others. The child repeatedly uses 'I', 'I Say', 'I have', 'I am' etc. in his communication

with others. But between age 4 to 7 language becomes intercommunicative. Children clearly exchange ideas. Use of 'you', 'she', 'he', 'they' are added while conversing with others. Speech becomes socialised. Language facilitates logical thought. In deaf and mute children logical thought starts a bit late or at an interval of 1 to 2 years delay.

### **SOCIALISATION OF BEHAVIOUR**

Behaviour is considered social when it involves clear exchanges of ideas and the child's socialization begins when the child starts initiating other people. At age 2 the child reproduces imitations even when the persons or objects are not present. During pre-operational period the child plays games with rules, and makes verbal communication with others. While in play he shows development of co-operative behaviour, awareness, and observance of rules. As a result of social activity, especially sharing and playing with other children and linguistic development the child slowly gains awareness of alternative points of view. His thought processes become liberated from perceptual dominance.

### **CONCRETE OPERATIONS (7-11)**

During this period the child's reasoning process becomes logical in relation to concrete operations or objects or persons. His thought processes are no longer perception-bound, egocentric and transductive. Instead, children are able to understand transformation. It is not the final stage in thought development because the child is still restricted to concrete as opposed to abstract thinking.

Piaget believes that the child after age seven is able to classify objects on the basis of similarities, classify ideas into a logical systems or ordered system. Upto the age of about seven years a child quite easily picks out all the red counters from a set of counters of different colours. In doing so, he performs an external action with concrete objects. A time comes when he thinks of a set of red counters in the absence of any counter physically in front of him. This stage of affairs is called internalisation of a concept.

The most important systems or concepts of classifications a child is capable of handling are described below :

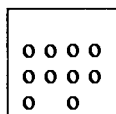
### **CLASSIFICATION**

An example will illustrate the operation clearly. A child is shown a box containing 13 wooden beads of which 11 were brown and 2 are white. The child is given two other box and is asked to put them in the separate boxes. When the child does this, he shows the ability to classify.

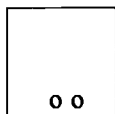
Once this is done, the child is asked, 'Are there, more Wooden beads or more brown beads?' At ages :

2-7 years the child says more brown beads

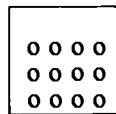
7-11 years the child says more wooden beads



Brown



White

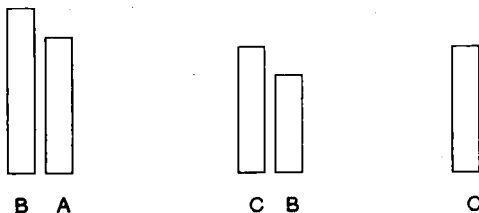


All Beads

At the concrete operation stage the child can simultaneously consider two kinds of classes or comparisons. Since the concrete operational child has the ability to decenter, he makes classifications correct. Similarly the child develops classifications concepts like odd and even numbers; animals, plants, mathematical concepts like sets or Venn diagrams.

### SERIATION

This refers to placing related objects in their correct order or succession. In other words, it is the ability of the child to mentally arrange elements according to increasing or decreasing size. For example, if we show to the pre-operational child two pencils of different length A, B, he can visually compare and say 'A' is shorter than 'B'. If he is then shown 'B' & 'C' while 'A' is hidden, he can say 'B' is shorter than 'C'. If the child is asked to compare 'A' and 'C' while 'A' is hidden, the pre-operational child cannot answer because he does not see the objects.



But the child in concrete operations stage will say A B, B C, hence AC. He can mentally order the events. Seriation learning like conservation typically occurs at different age levels in an invariant sequences. Some of the milestones in seriation are :

Seriation of length-age 7

Seriation of weight-age 9

Seriation of volume-age 12

Analogous to concept of seriation is the concept of equivalence :  $A = B$ ,  $B = C$ , Hence  $A = C$ . In primary school much time is devoted to seriation

exercises in mathematics, history (sequence of dates), Geography (weather recording) and Nature study (growth).

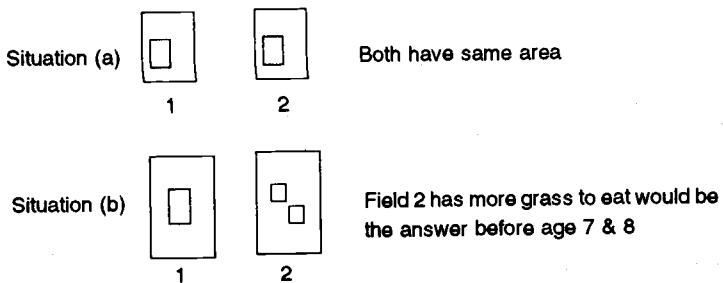
### REVERSIBILITY

Concrete operational thought is reversible. For example, a child is shown three balls of the same size each of a different colour (ABC). The balls are placed in a cylinder in the order of ABC. The pre-operational child will say, that will exist from the bottom of the cylinder in the same order ABC. The cylinder is rotated 180. He will say, the order will be same ABC. He is surprised when he finds them in CBA order. But the concrete operation child has no trouble with the above problem. He can rotate it back and forth and bring the balls into ABC order. The child after age 7 acquires the ability for reversible operations which indicates a higher level of intellectual functioning.

### CONSERVATION OF AREA

The term conservation has been explained earlier. It has also been stated that conservation of number develops towards the 6th year of age and conservation of substance is seen by the end of seventh year of development. In reality, however, conservation with exception to that for volume are all seen during the period of concrete operations.

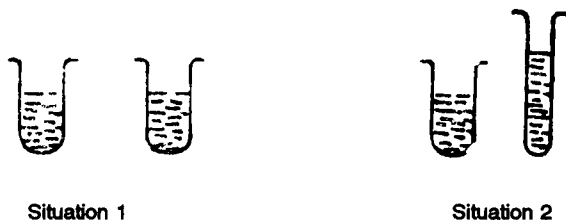
Conservation of area for example, appears around age 7 to 8 and that of weight around 9-10. But volume conservation remains until 11 and 12. An illustration would make the concept more clear. For example, in a typical situation, the child of 7 and 8 years of age is asked which cow in the following situations has more grass to eat ?



But the 7 and 8 years old will say both areas are same.

### Conservation of volume

Let us take case of volume conservation. Water was poured into two beakers of same size and the child said water in both beakers are same (situation 1).



In situation 2, when water from one of the beakers was emptied and poured into a narrower beaker, the child under age 11 or 12 years invariably said that it is more in the new beaker. In other words, even though the child at 11 years has shown reversibility, equivalence, decentering characteristics in other areas of conceptualizations his volume conservation still remains to be developed after age 11 and 12. However, many of the internalizations are complete before age 11.

### MENTAL REPRESENTATIONS

It is only during age 7 to 11, the child develops the capacity of internalization or mental representations. He can describe the whole sequence of events of any act *i.e.* going to the market and coming back, which was not possible at age 4.

### CASUALITY

Piaget says that the child does not understand the relationship between time and speed until age 10 to 11. Generally if we ask a child below age 10 years, which one of the two cars moves faster? The child says (a) the one that overtakes or (b) the one that reaches the goal first. The child does not consider the points of starting and whether the path is shorter than the other before age 10 or 11 years. In other words, the concept appears a bit late in the process of development.

### GROUPINGS

Piaget believes that the concrete operational child gives evidence of grouping or the ability to generalise. Five such structures or groupings are mentioned as the characteristics of the concrete operational child.

- (i) Law of combination, composition or closure : Two distinct classes may be combined to form a comprehensive class which includes both the previously distinct classes *e.g.*, all boys and all girls = all children or  $A + B = B$ .
- (ii) Law of inversion : For each operation there is an opposite operation which annuls it, or two classes combined to form a comprehensive class may be separated *e.g.* all children - all boys = all girls.



- (iii) Law of associativity : If several operations are to be combined then order in which they appear is of no value.  $A + (B + C) = A + B + C$ .
- (iv) Law of identity : When the operation is combined with its opposite it is annulled *e.g.* travel 5 miles East and then 5 miles back to West, then one is back to the starting point.  
or  $A - A = 0$
- (v) Law to Tautology : With exception of combination of numbers *e.g.*  $3 + 2 = 5$  whenever a class is combined with the same class it remains the same class *e.g.* all girls plus girls = all girls. In other words a classification which is not changed.

Piaget devised many ingenious experiments to demonstrate how children perform these operations. From these experiments he concluded that after age 7, the child's thought is considered reversible. But at the stage of concrete operations some children continually find verbal reasoning difficult and even at age 11 cannot cope with all conceptual problems.

#### FORMAL OPERATIONS (12 +)

The child's cognitive structure reaches maturity during this period. After this period there is not qualitative change in the cognitive development, only quantitative variations take place.

Concrete operational children cannot deal with complex verbal problems, hypothetical problems, or problems involving future. The child in the formal operation period can deal with the past, present, and future, and that too both at verbal and non-verbal levels. The child after age 11 years is able to :

- (a) organise data
- (b) reason scientifically
- (c) generate hypothesis

All these abilities are applicable to the following conceptual categories of problems :

- (i) Combinatorial thought
- (ii) Complex verbal problems
- (iii) Hypothetical problems
- (iv) Propositions
- (v) Conservation of movement.

#### COMBINATORIAL THOUGHT

Before age 12 the child cannot visualise and understand part-whole relationships. He does not think of all possibilities. For example, in a given situation 5 different types of liquids are kept in 1, 2, 3, 4 and 5 contain bleaching. The child is asked to produce yellow colour. The child during 7 to 11 do mix two liquids at a time and leave the problem and

goes. But after age 12, children test all possibilities until 'yellow' solution is arrived at.

### VERBAL PROBLEMS

It happens so that children prior to age 12 fail to solve problems of verbal nature e.g. Bina is fairer than Rita : Rita is darker than Sima; who is the darkest of the three ? It is for this reason many of the arithmetic books do not contain problems of this nature.

### HYPOTHETICAL PROBLEM

The formal operation child has the ability to derive logical solutions from assumptions which has a greater validity e.g. suppose cola is while. The concrete operational child will say no it is black and stops thinking.

The formal operational child will start with this assumption and go ahead. Thought is selfconsciously deductive and resembles a scientist. It may not fit reality.

### PROPOSITION

Around age 13, the child comprehends the concepts of proportion, ratio, etc. For example, he understands that an increase in both sides will keep the balance equal.

$$W/L = 2W/2L$$

### ABSTRACT RULES

Formal thought is rational and systematic. What number is 30 less than 3 times itself ? If you ask the formal operational child this question then he will say.

$$X + 30 = 3X$$

$$30 = 3X - X$$

$$\therefore X = 15$$

In other words, he can set up an equation to come to an answer.

### CONSERVATION OF MOVEMENT

Movement conservation appears late in development and almost concurrently with that of volume. For example, a pendulum can be made swing faster or slower by adjusting the length of the string holding it. The shorter is the string the faster is the movement. The child under 12 emphasizes on the weight of the pendulum to control the speed but the child after 1 concentrates on the length keeping the weight same. By age 15, the child becomes sure that the length is the only factor affecting the speed or movement.

It is seen that instead of blind trial error activity, the child takes a rational outlook towards problems. This is the principal component of formal

operations. And Piaget's observations of the sequences in cognitive development seem to be essentially correct.

### IMPLICATIONS

Piaget's contributions to learning and thinking are not gross literary speculations. Teachers in primary school will recognise in Piaget some valuable contributions for educational practice. Secondary school teachers who also resisted change in curriculum content with equal tenacity find Piaget quite useful and pragmatic. The Plowden Committee came very nearer to the idea of a break around age of 12-13 between primary schooling and secondary curriculum.

More specifically stated, Piaget does not propagate that intellectual development can be accelerated greatly by any kind of training or instruction. But at the same time he believes in providing opportunities for the child to explore and experiment upon. Teacher's duty, Piaget conceives, is to provide the opportunities.

Activity methods in primary school lay stress on the importance of children manipulating objects with widely differing properties of colour, shape, form etc. This together with discovery, classification, construction and analysis of materials becomes essential for natural development of concrete reasoning. Adaptation becomes a painfully slow process but is a gradual process and a child moves forward by small incremental steps when previous experience is assimilated.

At the secondary stage teachers should take every opportunity to point out similarities, equivalents, opposites, relationships and other group structures of increasing complexity. It is not simply a question of maturation, that standards of thinking will improve naturally as pupils approach the sixteenth years of age. It is a slow structural process and there must be a match between curriculum and cognitive development of the child.

When of course, the effect of direct teaching cognitive skills is open to question; teachers can use analytical questioning and setting individual work in the form of graded exercises and thought provoking problems.

Piaget stresses the educational significance of learning in a social context. He believes that group discussion on a common problem, provided children have some idea of experience about it, is invaluable in the development of formal reasoning and logical argument. He emphatically suggests that teachers should not be authoritarian in their approach to lead discussion. They should listen patiently and suggest alternative approaches and draw attention to gross examples of illogical thinking.

Replications of Piaget's experiments and suggestion indicate that his theory of child development is basically valid. Although most of the findings are based on Piaget's observation of his own intelligent children, yet this is in many ways most productive and least provocative of all his writings. He was most active till the last moment of his life.

Gross (1974) stated, "There is a paramount obligation for every practising teacher, whatever be his subject, in or out of school, directly or indirectly, to promote and develop standards of thinking and reasoning. If both school and home fail in this, the young adolescent is left defenseless against the onslaught of subtle defectors and persuaders with powerful channels of mass communication at their disposal."

### REVIEW EXERCISES

*Answer the following questions within 500 words each :*

1. Describe Piaget's views on pre-operational development of children.
2. Describe Piaget's views on sensori-motor development of children.
3. Describe Piaget's views on concrete operational development of children.
4. Describe Piaget's view on formal operational development of children.
5. What implications Piaget has for teachers and parents ?

*Write short notes on the following within 50 words each :*

1. Schemata
2. Egocentrism
3. Classification
4. Transductive reasoning
5. Mental combination
6. Groupings
7. Conservation
8. Irreversibility
9. Seriation
10. Syncretism
11. Socialised Speech
12. Assimilation
13. Accommodation
14. Tertiary circular reaction
15. Preconceptual thought.

*Write whether statements are True or False :*

1. Rational thinking appears in sensory-motor stage.
2. By age 12 all logical thinking is complete.
3. Child's thinking is influenced by play.
4. Number concepts appear in age 2½ years.
5. Egocentrism is an indicator of formal thinking.

**Fill in the blanks :**

1. Jean Piaget is well known for his contributions to.....development of children.
2. Conservation of area appears.....age.
3. Mental combination is a characteristic of the.....child.
4. Seriation appears at age.....
5. Cognitive development is.....specific not age specific.
6. There is a decrease in gross absurdity in thinking and reasoning during the period.....
7. Conservation of volume appears at age.....
8. All boys and all girls are.....
9.  $A + (B + C) = \dots\dots\dots$
10. Combinatorial thought appears at age.....

# 15

## Development of Creativity

In every society, there are children who are considered to be creative. Francis Galton, a British Bio-Genetist who got interested in psychology of individual difference, first talked about creativity or creative imagination in 1869. Due to the influence of behaviourism, the term creativity was not even mentioned in any literature upto 1930. Few passing references by Slower (1930) and Guilford (1930) did appear. Educationists and Psychologists were bogged down on the concept of intelligence and their interest was diverted to creativity when the factor analytic studies of Guilford identified divergent thinking ability of children and others. Wallas (1945) continued to describe creativity as synonymous with creative thinking involving the stages of preparation, incubation, illumination, and verification.

After 1950 the situation become different. Oshborn (1953) analysed the anecdotes of eminent people and published a book on Applied Imagination and immediately after World War II established a Creative Education Foundation in U.S.A. which is now located at Buffalo Descriptive and qualitative research began since then in the area of creativity.

Torrance one of the giants in creativity research mentioned that during 1959-60 there were 2 articles as against 121 in 1971-72 and 1250 in 1976. Guilford, in his Presidential Address to American Psychological Association in 1973 observed that the average pages in Educational Psychology books discussing creativity was 10.6 as against 27.8 in the text books of 1973 and at present it is an important area of research having immense educational relevance. The journal of Creative Behaviour got started in 1967. In recent years, the teacher-education programmes have greatly increased emphasis on creative education approaches within all subject disciplines (Parnes, 1976).

Who is then a creative child ? Or better say What is creativity ? Although there is no university accepted unequivocal definition of creativity, yet creativity means an ability to create, a multidimensional concept having its genesis in Guilford's 'Structure of Intellect'.

Originally the term meant an ability for good aesthetic sense, ability to make reflective discussions and capacity for taking initiative in addition to introversion and intuitiveness. Guilford, (1952) in his book 'The Nature of Human Intelligence' described creativity in terms of divergent thinking and production and transformational ability. These abilities include fluency, flexibility, originality and elaboration or redefinition.

### CHARACTERISTICS OF A CREATIVE CHILD

A creative child is one who gives evidence of being fluent, flexible original and elaborative.

Let us understand what these terms mean operationally. Fluency means the frequency with which ideas come to one's mind after a question is put. For example, a child is asked, tell me how many things you know those are solid, flexible and coloured. One can just count the number and find out his ideational fluency. Associational fluency is known by asking the child to tell the opposites, synonyms, homonyms, find relationships between different objects. Expressional fluency is observed by asking an individual child to complete a sentence using *e.g.* W-c-e-n (We can eat nuts. Willie comes every night, Weary cats evade nothing etc.)

Flexibility has a different connotative meaning. It is not the number but variety of responses that a child makes. For example, child is asked, tell me the use of Brick. It this is a question and the child answers, building a house, using a paper weight, putting it under legs of a cot to rise the height, powdering it to make some art on the floor etc., then these responses give evidence of flexibility. But if he answers building road, building house, building staircase etc. these become indicators of fluency because here functions do not change.

Adaptive flexibility or originality or uniqueness of response is another characteristic. This is measured by telling sotries before the children and asking them to give the title. In one of the stories, for example, a child was told "There was a woman who do not talk with her husband for long. She was operated. Then she talked so much that her husband got bored and then he had to undergo operation so that he can listen to everything that she tells loudly. Only then peace prevailed in the house" and they were asked to give a little to this story. Many titles were given such as : 'A Man and His Wife'. 'Talking and Hearing'. Medicine Triumphs, but these were not original or unique. The child who worte 'Happiness through Deafness, Operation-Peace of mind. The Deaf Man and the Dumb Woman' certainly proved their originality.

Elaboration or redefinition is the fourth characteristic but a minor one in terms of its inter-relationship with other creativity scores and its load on

the total score of creativity. It indicates the expansion of an idea by listening to an abbreviated form. No true score can be given but qualitatively one can infer the divergent thinking ability from this.

It appears that Guilford's approach to defining creativity is heavily leaned toward the processes but it does include evaluation of products emphasized by Lehman and Dennis (1972).

My own hunch is, when people talk of mental ability, be it IQ or creativity etc. they lose sight of an important aspect *i.e.* behavioural and affective side of the person. A creative person has certain behavioural characteristics other than the intellectual or cognitive characteristics. He is self-confident, self-assertive, socially bold, humorous, happy, impulsive and sensitive. In conceptualisation of creativity, therefore, an integrated personality product process approach is necessary but which has seldom been under-taken.

Torrance (1966) who has spent decades in creativity research stated "Creativity is a process of being sensitive to problems, deficiencies, gaps in knowledge, missing elements, disharmonies and so on : indentifying the difficulty, searching for solutions, making guesses or formulating hypotheses about the deficiencies, testing and retesting these hypotheses and possibly modifying and retesting them : and finally communicating the result".

It appears, therefore, that like most behaviour, creative activity represents to some extent learned skills. There may be limitations set on these skills by heredity but through learning and within limitation or heredity creativity can be boosted. A major breakthrough in this direction has been to identify the talent and then manipulate through intervention to boost it.

### **GROWTH OF CREATIVITY**

Kilpatrick (1900) using inkblots on children reading in grades 1 through 6 observed that the number of objects reported decreased with increase in grade level with a marked slump in grade IV, corresponding to age 8. Simson (1972) used a non-verbal method of testing imagination and asked children to use dots in making any thing. Mean number of figures drawn decreased at grade 4 and 8. Lehman (1953) observed the peak period of achievement of various professionals and concluded that superior creativity usually reaches its peak around the thirties and thereafter declines gradually. All these studies are isolated attempts.

Torrance (1962, 1963) investigated the development of creative thinking abilities in American school children. Discontinuities in development was observed at ages 5, 9, 13, 17. His study in 1967 across cultural groups included children of grades 1 through 6. There is a decline in the verbal and



figural ability measured by Torrance's test of creative thinking, at grade four. Negro children in grade 1 were at a lower level than White children, From grade 2 onwards the figural ability of Negro children become either superior to that of White children or at least equal. Verbal ability showed a slower growth rate. Children of Samoa did not show development of creative ability beyond grade 3. German children showed increased growth from grade 1 through 5th with high rate in 3, 4, 5 followed by a decline at grade 6 and thereafter. Children in Australia showed slow but linear increase in the growth of creativity especially on the verbal TTCT scores. Observation of creativity scores of Norwegian and Indian children in general point out that peak period in creativity development occurs around 5/6th grade followed by a decline. Although discontinuities in development is a marked feature of creativity yet such a generalisation is tentative in the absence of research investigations in the line.

Torrance's cross-sectional studies showed that upto age 16 there is a steady increase in creativity scores in the U.S. culture with decreased scores at age 5, 9, 12 and 17. But Kogan (1973) said it is quite premature to talk about declines in creative ability over ages when the various tests used to measure creativity is saturated with 'g'. Whatever decline has been observed in cross-sectional studies may simply be the products of decline in other intellectual functions *i.e.* intelligence and cognitive style.

### MEASUREMENT OF CREATIVITY

How do we then identify or measure creativity in children? Measurement of creativity has created a real problem and five standard tests are currently available of which two are quite well known.

- (a) Torrance Test of Creative Thinking
- (b) Wallach and Kogan Test of Creative Behaviour.

Guilford's test of Divergent Thinking, Getzel's and Jackson's' creativity indices, and Mednick's Remote Association Test (RAT) were in use for some time but these tests correlated quite high with the Torrance and Wallach and Kogan and also are not very comprehensive in their way to be in the field. For example, Remote Association Test of Mednick as a measure of creativity is not warranted in terms of the research evidences that exist on this test and has not received unequivocal acceptance. Not only the theoretical rationale behind RAT is unsound but the findings reported are mixed. It has same pitfalls as any verbal test of IQ *i.e.* its culture specificity. Only the constructors of the test (Mednick and Mednick, 1964) have reported positive findings.

Torrance, Professor and Head of Educational Psychology at the University of Georgia, U.S.A. has developed a test to measure creativity. This has two parts : Verbal and Non-Verbal.

The Verbal Sub-tests include :

- (a) Ask and Guess questions
- (b) Product Improvement Tasks
- (c) Unusual Uses
- (d) Just Suppose questions
- (e) Unusual Questions etc.

The Non-Verbal sub-tests are :

- (a) Picture Construction
- (b) Complete the Figures
- (c) Parallel Line Test.

The whole manual discusses the details of these tests but let us take a few examples to know how the tests look like. In ask and Guess games the children are shown pictures. The pictures in an elf like animal which is busy in looking its reflection on water. The child is asked to tell or write the number of questions relating to what. How and why of the situation and its consequences ?

In the product improvement test there is a folding type of toy of an elephant and the child is asked to join it in any way to produce a new animal. The unusual use test includes asking the child to tell the use of paper box which nobody knows. If the sky will fall what will happen ? In all these tests fluency, flexibility, originality and elaborations are measured. These scores are derived separately for verbal and non-verbal test. The test is presented in booklet form. Torrance's test as a reliable and valid test has strong merits and applicability.

Using this test Yamamoto (1964) and Torrance (1962) reported that the relationships between intelligence and creativity is near zero or sometimes negative when IQ is 120 or more : within the IQ range of the average or normal (90-100) the relationship between creativity and school achievement is not large enough. IQ and creativity are different constructs although points of similarities could be observed in the test items of both. Wallach (1970) has supported this conclusion.

Wallach and Kogan based their test on the formation of associative elements into combination which are related to creative behaviour. The items are graded from simple to complex. The child answers the questions like a play situation under verbal and non-verbal condition. In the verbal part for example, the number of objects that you know, what use you can make of newspaper ? What meanings you can get from the following lines ? It mostly measures originality and fluency. In Wallach test one does not count the wrong responses to determine the creativity score, whereas in Torrance it is given zero.

Using Wallach Test Ward (1968) observed the creativity-IQ relationship is .03 justifying their independence than interdependence with reference to the upper range of IQ. In other words, a child who is high intelligent is not usually and necessarily a high creative child. Search for independent measure of creativity is still progress.

Jackson and Messick (1972) suggested that tests of creativity should have unusualness, appropriateness, transformation, and condensed description but the available tests only tap the first two of the abilities.

The next question that arises is what about Indian conditions ? Can we with any degree of certainty measure creativity in our children. The answer is yes. Professor Baquer Mehdi (1973) has developed a test of creative thinking with verbal and non-verbal components and standardised it on Indian students. The verbal test has sub-tests (a) what would happen or consequences 4 mts. (b) Unusual use test using a stone, stick and water, 5 mts. (c) New Relationship tests 5 mts. air, water, three house etc. (d) Product improvement 6 mts. Scoring is done according to Torrance guide lines. The test has been standardised on rural and urban children.

In the non-verbal part we find (a) Picture Construction 10 mts. (b) Incomplete figures 15 mts. Triangles and eclipses 10 mts. These tests combined together, give us an index of creativity, having no or little relationship with IQ. This test can be used more effectively in identifying creative children in our schools.

Here again one may ask should we search for talents using an IQ test, a creativity test or take school achievement marks ? Creativity test may be used because Intelligence accounts for a minor portion of variation in creative performance and by itself is no means an adequate measure of creativity. Further, there is also little relationship between creativity and achievement, whatever may be the pitfalls in measurement. That is why since 1963, in U.S.A. National Talent Organisation has awarded scholarships for Creative Talents in Arts and Science and I would feel that we may do the same once we have a good instrument. The NCERT NTS examination is a step in this direction.

## DEVELOPMENT OF CREATIVITY

It is possible to develop or boost creative talents in children ? If so, what implications it has, for educational practice and inservice teacher preparation ?

Creativity is an innovation in education said William (1973) Director of National Schools Project in Minnesota. Although the term creativity was used by early educators such as Froebel and Pestalozzi in the 19th Century and it appeared quite frequently in the educational parlance during the progressive educational movement of the thirties, yet it remained for the

educational psychologists of the sixties to outline training strategies for improving creativity in children.

Osborn (1957) introduced the technique of Brain storming. Sydney Parnes was a strong advocate of this technique. This is a very simple procedure. The teacher simply encourages the pupils to ask as many questions as possible, however, absurd or unreal these may be. In group situation this may not be very effective said Torrance but when the teacher asks pupils to ask questions orally it has been found to be quite effective. Writing of questions or ideas those come up may not be stressed as children might forget something while answering.

Torrance and Myers (1963) advocated among many others the technique of active search or hypothesis formulating approach which ultimately proved to be inferior to the creative reading approach for stimulating creativity. In the creative reading technique pupils are told. "When you read you think of the various use of reading materials, you think how best you can apply, think in any possible manner when you come across any idea. Do not read with a mind to have negative criticism but with an open mind to think of alternative". This type of instruction to reading can be given by teachers and parents interested in creative educational process at no cost.

We must know that learning does not occur only in a cognitive environment but in an emotional climate where reward, acceptance and tolerance prevail. Torrance recommended that teachers can encourage the pupils to ask more questions and recognise their merits, reward them, tolerate disagreements, accept child's imagination, understand the social value of his questions and do not create any kind of repressive atmosphere in the classroom. These are a few inexpensive had outs for a classroom teacher.

The concept of idea books introduced by Torrance is another innovation in the field. These books contain 50 to 100 pages, each page having a picture and instructions for pupils to write down what they think about it. For example, if the picture is of an incomplete animal, the child is required to name the animal and describe the characteristics. This exercise is available for children at various grades and is a profitable investment for promoting and developing the talents of children.

Synecotics is another such exercise. Familiar things are presented as if they are unfamiliar. Children are asked to respond e.g. Did you read down ? Can you read a clock upside down ? It is difficult but can you ? Gorden (1961) called it a creative problem solving approach or deferred judgement but it has been a quite effective technique in classroom management of creative talents.

Davis (1969) has presented four techniques in his book "Thinking Creatively : a guide to Creative imagination" which are more appropriate from the points of view of classroom teacher : These are :

(a) **Part changing method.** The child is told about chalk. You see it has colour, shape, size. Think of a chalk that has 15 colours, 10 shapes, 5 sizes. Change each part and think of creating something original. You can take any object and run this exercise.

(b) **Checker Board.** It is similar to cross word puzzle. In one side for example, the characteristics of one individual is written and the other side has the educational situation. The student is asked to fill up the type of technique that is to be followed to teach him. This can be done using different games and can become a routine exercise.

(c) **Checklist.** Seven characteristics such as : colours area, size, new/old. add/subtract, rearrangement, new model are written in a paper. The children are asked to use these dimensions when they describe books, vehicles etc.

(d) **Finding something similar.** Here the child told that your school has no large space for cars to park. But parents come with their cars. Where can they park ? While thinking of the plans please keep in mind how books are arranged in a book store, shoes are kept in a shoe shop, how ants/bees live etc. The child then can possibly try to think of a multistoried garage. Many such exercise can be thrown open to the pupils in a classroom to activate the creative thinking process.

### PAKSA

This technique was developed by J.W. Taylor (1961) and refers to the Pack Corp Scientific Approach in honour of the Packaging Corporation of America. This is a modification of other techniques. The technique consists of nine steps :

1. **Pick a Problem.** Define your problem in writing. State what's wrong-what needs fixing. State your objective and what result you seek.

2. **Get knowledge.** Get known facts. Get new knowledge. Study written references. Experiment, explore, research deeply and broadly. Talk with informal people. Check your findings and put them in writing.

3. **Organise knowledge.** Put your information into understandable form. Sort it, organise it and write it.

4. **Refine knowledge.** Screen knowledge for relationship and principles. Match fact against fact. Look for similarities, differences, analogies cause and effect, combinations, patterns, apply stimulating questions, if new ideas still are slow in coming to mind.

5. **Digest.** Let the conscious mind its "second wind". Put the subconscious to work, Relax, take up another problem. Work at a hobby or enjoy some mild diversion-until refreshed. Then.....,

6. **Produce Ideas.** Ad lib or concentrate anew on your problem until ideas begin to emerge. As they occur, don't stop judge them, produce them write them. Build up as many alternatives as you can.

7. **Rework Ideas.** Check your new ideas for flaws. Examine each idea objectively, question it, challenge it, test it, rework it, improve it, follow it through.

8. **Put Ideas to Work.** If the approval and acceptance of others are required, sell your ideas. Plan each sale. Allow enough time. Get participation. Use "Samples", Stress customers interest. If new methods and skills are involved, teach them.

9. **Repeat the Process.** Until it becomes a natural habit.

10. **Role of a Teacher.** A teacher must encourage children not to give traditional answers, rather should give some whimsical answers which are sometimes good.

- Prize rather than punish their individuality;
- Recognize the talents even though the views are not one's own or they are not within the camp;
- Be cautious in editing what the child writes lest he may be offered;
- Provide just suppose activities ;
- Encourage them to record their ideas whenever they come;
- Provide materials (fairly tales) which development their imagination; and allow children to have sometimes day dreams and accept their natural tendency to be different from adults.

My own observations have convinced me that an old head pandit busy throughout the day in private tutions can only cause tension and despair in a child, raise the child body temperature through his anticipated presence, and frowning eyes, can see that the child rote memorises the whole curriculum within a month's time and go through it over again. He will certainly miss the target of making the child learn far lass making him creative.

Torrance stated often-"it does indeed seem possible to teach children to think creatively. The most successful approaches seem to be those that involve both cognitive and emotional functioning, provide adequate structures and motivation, and give opportunities for involvement, practice and interaction with teachers and other children. Motivating and facilitating

certainly make a difference in creative functioning but differences seem to be greatest and most predictable when deliberate teaching is involved. Teachers, through their behaviour in an instructional setting can make a lot of difference in the cognitive and affective life of children but they must be sure of their objectives, whether they count to foster creativity in pupils or their own self-fulfilling prophecy”.

### REVIEW EXERCISES

**Answer the following questions within 500 words each :**

1. Describe the characteristics of a creative child.
2. Outline the growth of creativity in children. How can creativity be developed ?
3. What steps can be used to promote creativity ? Give examples.
4. Define creativity and explain the process and product approach.
5. Explain with example PAKSA technique.

**Write notes on the following within 50 words each :**

1. Synectics
2. Brain storming
3. Paksa
4. Concept of creativity.
5. Torrance Test of Creative thinking.
6. Wallach and Kogan Test of Creative thinking.
7. Role of teacher
8. Checker Board
9. Checklist
10. Finding something similar.
11. Part changing method.

**Write whether the statements are True or False :**

1. Creativity is a process.
2. Creativity and intelligence are same but in different terms.
3. Synectics is not useful for creative thinking.
4. It is possible to teach children think creatively.
5. Teachers and Parents should promote uniformity in children.

**Fill in the blanks :**

1. .... is the originator of creativity research.
2. .... wrote “the nature of Human intelligence”.
3. .... is the most important characteristic of creativity.
4. .... introduced the concept of brain storming.
5. .... introduced the concept of idea books.

# 16

## Language Development

Language is a form of communication. It is one of the main things that distinguishes human baby from an animal. The form of language may be written, spoken, sign language etc. Speech is a form of language in which articulate words or sounds are used to convey meanings and thoughts. In fact simple vocalisation is not considered as speech unless it is associated with some meaning or objects or persons *i.e.* da, da must refer to one person, not to all men. Pronunciability is the second criterion of speech. In other words, the baby, must clearly pronounce the words so that these are clearly understood by others.

Speech is a kind of behaviour that helps the child to move from a world of egocentrism to a world of socialised relationship. The child with a better language is able to establish better social relationship in play, in neighbourhood and in small groups. The child feels more secure when he develops a command over language. He expresses his thoughts, feelings and attitudes more freely.

Learning to speak is a long and complex process. The baby does not utter a single word until the age of one year or a little more. In the early phase *i.e.* prior to using words the baby babbles, cries, makes explosive sounds for communication.

In early days most vocalisation takes the form of crying. With increase in age crying decreases and speech increases to convey feelings. Following crying, the child makes explosive sounds commonly "cooing". Babbling appears around 6 months, although it depends upon the development of his vocal mechanism, and his incentive to use it for speaking out. Babbling is considered as 'play speech' but it lays in foundation for later development.

Speech is a skill and like all other skills it is learned. The learning of speech or language is closely associated with corresponding developments in speech organs, mouth development, and ability of the child to associate sounds or words with meaningful events, objects, and persons. Although rudimentary speech appears before 12 months yet, speech readiness appear



between 12 and 18 months in most babies. The baby learns the language by imitating the speech sound of others or models, associates meaning with words following the conditioning and reinforcement systems but a major part of the speech also occurs through insight and contiguity. On the basis of various language studies, it seems that speech or language has two different aspects : language production and language comprehension. It can be clearly stated that insight and understanding play a role in language comprehension; and conditioning, reinforcement, imitation are more related to language production. There is in fact, a vast difference between the two processes. The child understands more than he can speak.

Lenneberg has outlined the development milestones in language development which is given below. This gives a clear picture of language acquisition from pre-speech stage to the period when language is well established.

### STAGES OF LANGUAGE DEVELOPMENT

<i>Period at the end of</i>	<i>Vocalisation and Language</i>
3 months	The child cries less. He smiles when some one talks before him. He produces 'cooing' a sound which is vowel like in character. The 'cooing' lasts for about 10-12 seconds.
4 months	The baby responds to human sounds more definitely. He turns his head. His eyes seem to look for the speaker. He occasionally produces some chuckling sounds.
5 months	The child utters some consonants sounds although they are acoustically much different from sounds of matured language.
6 months	Babbling vocal sounds become quite common. This appears when child sees something or hears some sounds. Most common sounds are ma, mu, da, or di.
8 months	Reduplication becomes frequent. Intonations become distinct. Speech or utterances signal some kind of activity.
10 months	The baby tries to imitate sounds but he does not become successful. He tries to differentiate between words which is seen from differential adjustments. Usually the first word is acquired by all children at this age irrespective of culture.
12 months	The child's speech become holophrastic or syncretic. He uses single words to express complex intentions. He understands some words, simple commands (show me your hand, show me your eyes etc.) He frequently uses 'mama', 'dada' and quite clearly too. The average vocabulary is 3 words.
18 months	The child begins to combine words <i>i.e.</i> where papa, see ball, eat cake etc. The child has acquired a vocabulary of at least

3 and less than 50 words, but on the average it is 22. Words may include thank you, come here, but there is little ability of the child to join any of the lexical items into spontaneous two item phrases. His ability to understand progress quite rapidly.

24 months

The child has a vocabulary of more than 50 words. He is now able to join two words and make a phrase. He can name almost many things in the nearby environment. He becomes more interested in communicating using language. He uses only nouns and verbs but no prepositions, and conjunctions. His speech is more or less telegraphic. Inflections are also absent in his speech. His vocabulary exceeds 50 words by this age, the average being 272 words.

30 months

Everyday the child learns new words. He does not babble any more. Each utterance is meaningful and purposive. He becomes frustrated when others fail to understand him. He uses sentences consisting of two to five words. The child repeats adult language or what is called as echolalic speech. Sentences and phrases have characteristics of child grammar. Omissions are noticed in repetition. For example, the child hears, "I can see a cow" but utters 'see Cow'. The child's speech is not very intelligible by this age. However, the following semantic relations are typical in early speech.

Identification

—See Ball

Location

—Book there

Repetition

—More milk

Non-existence

—All gone

Negation

—Not wolf

Possession

—My ball

Question

—Where Papa ?

The child at this age seems to understand that is said to him.

3 years

Vocabulary of children at this age is almost at a level of 1000 words. Nearly 80 per cent of what children say are understood by others. Grammatical mistakes continue. The child begins to use a few prepositions (in, on, under); Copulars (is are); and inflections (ed, ing, etc.) Morphemes improve gradually over the next two years. Average vocabulary is 896 words.

4 years

Language is well established. The child's use of syntax are slightly different from adults but soon the child learns to use correct language in style, form, and grammar. Actually the difference between child's and an adult's language at this stage is more in style and less in grammar. Average vocabulary for the 4 year old is 1540 words, and the average vocabulary for the 5 year old is 2000 words.

### During School Years

The young child makes dramatic progress in acquiring grammatical competence and semantic knowledge between the time he begins to use two-word sentence at the age of 18 months and age of 4 to 5 years, within this period of 30 months he essentially achieves mastery of complex structure of native language which is reflected in both comprehension and production of sentences. This is seen among the nursery school children. However, mastery of syntax and semantics appear long after the nursery school.

Between the age of 5 to 7 years of grammatical rules are incompletely developed *i.e.* use of have; nominalizations *i.e.* using a verb as a noun, *e.g.* walking is a good exercise; and use of conjunctions *i.e.* if, so. Redundancy in language also decreases gradually.

Psycholinguists have explained language in terms of deep and surface structure instead of following the traditional method of language acquisition. According to them the six year old can understand the sentence in which subjects of the deep and surface structure are same but not when they are incongruent *i.e.* 'Lucy was impossible to seek'. It was impossible to see Lucy'. After age 9, they have little difficulty in understanding these variations in sentence.

Comprehension of passive forms *i.e.* 'the cart is pulled by the bullock' develops relatively late. The five year olds never use passive forms in spontaneous speech. Only when they reach age 7 and are given some examples of passive forms, they can use passive forms in speech. This too, is possible only in 50 per cent of cases. Longitudinal studies have shown that syntax are complete between the age of 5-14 years. Children use greater variety of grammatical patterns, variety of words, and their mean length of sentences increase in number and complexity. Significant changes in language acquisition occur mostly at two different periods : Between 5-7 years and between 11-12 years corresponding to cognitive development.

At the semantic level, children use words in their vocabulary, rapidly. But even at age 8, the child still confuses the meaning of 'ask' and 'tell'. He gradually uses the connectives : because, therefore, but, although, etc., beginning from the elementary school years. At about age six, because, then, therefore, are used to express time relations than explaining the causal relationships. All the three words are used as if they are semantically the same. Understanding of 'But', 'Although' become perfect only at age 11.

Piaget pointed out that the complex meaning and relationships are understood only after age 11 and 12. Language becomes first perceptual and then cognitive. To illustrate this Piaget has explained how the meanings of the words brother, sister, girl are not properly understood by 5 year old but

after age 9, children understand the meanings and relationships quite clearly. At age 5, the child says, sister is a girl I know, brother is a boy. But at age 9 or above they understand the relationships, that they are born from same parents, live in the same house etc.

Before age seven, children do not apply the meaning of certain words in double way. Words in fact have both physical and psychological meanings. For example, bright, hard, soft, sweet cold can be applied to describe physical objects. The same words can also be applied to describe human beings, thoughts and actions. Psychological meaning depends upon the level of cognitive development. Therefore, Piaget said that language development is really complete only during the period of formal operations. Higher form of syntax and semantics in language can only appear after age 11 or 12.

### **DEVELOPMENT OF LANGUAGE HABIT**

Every child learns that the words have specific meanings. Learning to pronounce a word may be relatively easy but to comprehend the meaning of word that has more than one meaning is really difficult for the child.

Attachment of meaning or understanding the meaning of words follows the technique of conditioning. At first, the child makes random circulatory responses. He utters words and listens and then repeats. In the second situation or thereafter, he hears others saying a word and he repeats *i.e.* he utters by listening to the speech sound of others. Subsequently, he hears someone telling a word and simultaneously the person or object is present. In this situation of simultaneous occurrence, the child associates the word with the concrete object or person. When he sees the same object or person and nobody says anything, yet spontaneously he utters the 'word' that he has learned to associate. By this way he attaches meaning to a word. All meanings are first learned in connection with specific object or person. It is only later he generalises the meaning to similar situations.

As the child becomes older he is able to learn abstract words and abstract relationships.

### **SPEECH DEFECTS**

Defects in speech appear either due to malformations of the speech organs or due to emotional disturbances. Some of the common speech disorders are mentioned below.

#### **Lisping**

This consists of letter-sound substitution, Children, while pronouncing 'Simple Simon' pronounce, 'Thimple Thimon'; 'Red Rose' as wed wose'. This happens due to defective teeth, jaw or fascination for using 'Baby

speech', In other words, children due to one or other reason substitute the for 's' or 'z', 'w' for 'r' and so on. Soon after their permanent teeth appear, their lisping decreases. In rare cases due to organic defects or space between teeth lisping may be seen.

### Stammering and Stuttering

Stuttering is a kind of repetitive speech. It results out of failure of speech muscles to co-ordinate. Sometimes it appears that the person does not know suddenly what to say, often accompanied by stammering. There is check of speech followed by sudden speech which then is followed by no speech and so on. Children when asked to say something before the class they sutter but they can sing fairly well. Between age 21-2 to 31-2 stuttering is due to lack of correlation between thought and language. Later on, it appears due to poor vocabulary, overprotective parents, dominant and over anxious parents. These factors are responsible for its persistence.

Stammering is a type of stuttering *i.e.* tonic stuttering. This means prolongation of the sound of the opening letter of a word *i.e.* b....bath. Stuttering real refers to repetition of the letter b-b-b-b-bath. Tonic stuttering or stammering occurs when a child cannot get a word out. Some children have problems with certain consonants and not in another. Clonic stuttering is the repetition of the same sound over and over again. Instead of saying bath he will say b-b-b-b-bath. The speech therapist handles such cases and cures them.

Stuttering is a form of speech impediment which is common in preschool children. The most complicated task the child faces during preschool year is the process of learning to talk. The child during age 2 to 3 years has so much to say and his vocabulary does not permit to do, lapses into stuttering. Stuttering is seen more in boys and less in girls. Early stuttering disappears if the parents do not make an issues of it and if they let the child finish his utterances without correcting him, or calling attention to his difficulties or otherwise interrupting him.

The child who stutters is under serious mental strain. Parental pressure to force a child speak well confused coherant speech leading to stuttering. A child who is shy among strangers is unable to get his words out. Embarrassment is also a cause of stuttering. Private worries *e.g.* death or divorce in a family, left-right confusion, change in the family etc. also cause stuttering in children. Stuttering is not consciously produced by the child. Hence, it is useless to keep silence the child who stutters.

To treat stuttering, build his sense of security and self confidence. Do not press him to talk. Listen him patiently and with interest. Talk with the

child in calm manner. Join him in play where much talking is not involved. Stuttering under these conditions disappear. Security blanket offer comfort to children.

Secondary stuttering persisting into the school years is serious enough to demand professional help.

### **Slurring**

Sometimes the speech of the child is not clear. This indistinctness or slurring is due to inactivity of the lips, paralysis of vocal organs, timidity, excitement or fear for strangers etc. It mostly appears during post school years. Slurring can be corrected if the child opens his mouth while speaking so that sounds can come out. They speak so fast that no body can understand what they speak.

### **Cluttering**

Cluttering is a rapid, confused, and jumbled type of speech. It is akin to stuttering. But the more one tries to control it, the more of it you shall have. Children whose speech development has been delayed give more evidence of cluttering.

Speech defects besides lispng, are more common in boys than among girls. Mc Carthy attributes, this to greater insecurity among boys than that in girls.

## **FACTORS ASSOCIATED WITH LANGUAGE DEVELOPMENT**

There are various view points whether language is inherited, acquired by imitation or due to socio-cultural conditioning although the fact remains that language is the basis of communication and there is universality in the pattern of language acquisition. The rate in which language is developed, however, is influenced by some background factors.

### **Health**

When the child suffers from severe and prolonged illness during the first two years of life, language development is impaired. Illness not only delays the development of speech organs but isolation and seclusion confines communication with adults concurrently.

### **Intelligence Level**

There is a strong relationship between intelligence and language development. Babblings at an early age are better predictor of child's intelligence. Children of high intelligence show better linguistic competence both in vocabulary, length of sentences uttered, and correctness of sentence structure.

### **Socio-Economic Status (SES)**

Children who are born in upper socio-economic class families talk sooner, talk better and talk more than those of lower group children. The latter group of children suffer from listening elaborative language, suffer from under and over stimulation, and commit more articulation errors. The relationship between SES and language ability is well established and the gap in language competence and production becomes more between high and low SES groups as age advances.

### **Sex**

Boys lag behind girls in learning to talk. Compared to girls the mean length of sentences uttered by boys is less. The comprehension vocabulary is also small in case of boys. Boys commit more grammatical errors and their pronunciation is less accurate. Sex difference in favour of girls remain and become quite pronounced with every increase in age.

### **Family**

A healthy, stimulating and rewarding environment facilitates language development, particularly the relationship between mother and child. In contrast, the children reared in institutions are slow in learning to talk, and remain retarded in language development throughout their lives. This happens primarily because of lack of adequate adult contact and personal relationship in the institutional set up.

Twins and triplets relatively slow in speech development. Those who are only children they are definitely superior in linguistic skill. Children from bilingual homes, in general, have greater difficulty than those from monolingual homes in learning languages. Rate of language acquisition is obviously influenced by the degree to which the child's language leads directly to rewarding or gratifying goal states. In other words, family interactions are quite important in language development of children.

### **TECHNIQUES FOR ACCELERATING LANGUAGE DEVELOPMENT**

Children vary greatly in rate of language development. So chronological age is a poor index of linguistic competence. According to Brown (1958) the best index of language development is MLU or mean length of utterances. Certain techniques have been suggested to accelerate the rate of vocabulary growth, and language comprehension in children during early childhood years.

Schlanger (1967) has stated as well as established experimentally that :

- (a) telling stories to children, exposing them to different play things, naming objects before them, describing various objects;

- (b) acquainting children with different concrete objects and teaching words; and
- (c) encouraging children to play, and communicate with playmates verbally etc. have been effective in accelerating the rate of language acquisition in children.

Stearns and Spicker (1966) developed some of language lessons and these lessons were given to children everyday during school hours. The children were told how to construct a sentence with prepositions, connectives, conjunctions, verbs etc. They were helped to describe the food during the dining hours. They were taken in field trips and were assisted to describe what they see. It was found that such training through well structured lessons increased the MLU of the children in the training group. The Russian Psychologist Luria (1957), has supported such a stand in the acquisition of language.

Montessorie technique of playing with materials or sensory training enables the child to speak and increase his working vocabulary. Smith (1965) examined the effect of an intervention programme on language acquisition. He gave language lessons to the experimental group children three times a week for months and each session lasted for 45 minutes. The children responded through verbal and motor activities. It is found that language training has helped the experimental group to increase by 6.75 months compared to their actual age. The children who were not given training were 44 months below their CA in language acquisition.

Bernstein (1967), one of the most noted British Social Scientist emphasized the role of parents in the language development of children. He firmly believed that children who live in families where, parents use restricted language code, homes are crowded, there is more of over stimulation, parents punish children than explaining things to them, the children's language becomes inferior compared to children whose parents speak elaborative language and explain things to them. For example, instead of saying 'stop', 'Idiot', or giving a 'slap', to children, if the parents say "This activity is bad, If you are doing this, you are going to loose yourself, If you do away with this, others will be pleased. By this the child is exposed to different words, expressions and he tries to acquire a few out of them.

The following is a very good example of how a lower class mother and middle calss mother interacted with their children and how the middle class mother's use of elaborative code is helpful for the development of language ability in children.

While travelling in a bus the mothers instructed the child in the following way :



*Low SES Mother*

Mother — Hold on tight

Son — Why ?

Mother — Hold on tight

Son — Why ?

Mother — You may fall

Son — Why ?

Mother — I told you to hold on tight. Did not I ?

*Middle SES Mother*

Mother — Hold on tight, Darling.

Son — Why ?

Mother — If you don't, you will be thrown forward and you will fall.

Son — Why ?

Mother — Because if the bus stops suddenly you will jirk forward on to the seat in front.

Son — Why ?

Mother — Now darling, hold on tightly.

Don't make a fuss.

Bernstein (1967) suggests if the parents especially the mother handles the child's curiosity questions, thinking, and reasoning abilities by encouragement, explanatory answers, use variety of language to answer, then the language abilities of the child is accelerated. Hess and Shipman (1965) extended this kind of reasoning and confirmed the findings of Bernstein. In fact, American studies have shown that a daily 15-20 minute session on language training in school has been productive in improving the language skill among the low SES and deprived children. Russian experiments on the other hand, emphasized that concentrated individualised language training helps the child to offset ill effects of early deprivation in language development.

For effective language development, minimal stimulation in homes is required. This enables the child to listen early, to discriminate the sounds clearly, and to verbalise these.

In case, there is over crowding or over stimulation, the above functions necessary for acquisition of words are impaired. The technique of modelling has been suggested for improving language. The child can imitate the model and learn the language of the model which is being rewarded in his presence.

Bereiter and Engleman (1966) have suggested the drill technique for improving language among children. The techniques is repetition of certain sentences graded in order of difficulty by the teacher and continuous exercise by the children. After prolonged practice children seem to use sentences and words quite correctly and acquire different language skills. This programme has drawn the attention of educationists involved in compensatory programmes with disadvantaged children.

**IMPLICATIONS**

We are witnessing now the greatest change in the history of language teaching; advances in linguistic science, new techniques of teaching, invention

and mass production of recording and viewing equipments, and extraordinary interest in learning languages. The significance of linguistic advances to language teaching has become very clear. Since World War II, this problem is being faced rather squarely. Instead of emphasizing the grammar-translation method and direct method that were prevalent in Europe for language learning, linguists insisted on the imitation and memorization of basic conversational sentences as spoken by native speakers. They provided the descriptions of intonation, pronunciation, morphology, and syntax that constitute the structure of language, which gradually emerge as one learns the basic sentences and variations. The powerful idea of pattern practice was developed. Subsequently tape recorders and audio devices made it possible to provide authentic spoken models for oral-aural practice in homes. This brought linguistic approach to high level of effectiveness.

To-day the linguistic approach for teaching language consists of :

- (a) Basic conversational sentences for memorisation.
- (b) Structural notes to help the students perceive and produce speech sentence pattern of the Foreign language.
- (c) Pattern-practice exercise.
- (d) Laboratory materials for oral-aural practice out of class.
- (e) Opportunity for use of the language in communication rather than in translation (cf. Lado, R, 1964, P-6).

The ability to speak a language is not enough to help one to teach a language. One must know the structure of language. This is what a linguist is capable of doing. More important is, one must know the linguistic facts our the language of the children in-order to help them to learn the target language.

A teacher has to know why in English, spelling does not coincide with pronunciation. Also he must know developmental psychology of language learning, so that teaching of language will be effective. They must have a knowledge of not only of the phonology *i.e.* sound system, morphology *i.e.* pattern or part of words, syntax, but also how they are developmentally related to processes of growth and speech organs, and developmental milestones and learning environments, the speech errors due to emotional and embarrassing situations. Whether it is the linguistic approach, teaching of grammar, the drill technique, the reinforcement system/contiguity theory or more than one technique are involved in language learning, it needs to be clarified through a scientific approach. A suggested approach based upon available information, is given here, for use by teachers and others who are interested in language teaching.

What steps for improving language development of the preschools are to followed ? It must be remembered that a child learns from a good speech

model. Adults should use clear, and concise words slowly. Parents should encourage children to have both verbal and non-verbal communication. They must ask children to talk about something. They must ask questions, ask them to describe toys, picture, books, pets, and encourage them to do so. Encourage listening and attention skills. Nursery rhymes are useful in this regard. Parents should encourage children to speak to them and act out to directions. They should develop self expression. Use exact terminology and talk at the level of the children. Correct the child criticism. These suggestions have been experimented and found effective in helping the preschoolers to learn language by (Landreth 1972).

### PRINCIPLES OF LANGUAGE TEACHING

- (a) Teach listening and speaking first, reading and writing next. Writing does not represent intonation, rhythm, stress, and structures etc. and transfer from audio to visual learning is greater. Good models of speech should be available for language teaching.
- (b) Have the students memorize basic conventional sentences accurately. This principle has psychological and linguistic justification.
- (c) Encourage the students to use the patterns learnt in practice so that it becomes a habit.
- (d) Teach sound system structurally by demonstration, imitation, contrasts, and encourage children to produce speech than simply comprehending it. Practice will increase fluency and flexibility.
- (e) Keep the vocabulary load to a minimum while students are mastering sound system and grammatical patterns, because it is not the vocabulary that constitutes language but the pattern, sound contrast, and the sequences.
- (f) Teach the patterns gradually in cumulative grades and steps. Language acquisition is a complex habit and it has to be acquired slowly *i.e.* Begin with sentences (not words), teaching requests, greetings, introduce subsentences, structured words, modification structures; Add new elements to previous pattern *i.e.* after you teach the pattern 'do you understand'; you can teach, what, when, where questions; follow the principles of programming.
- (g) Avoid teaching language through translation. Psychologically the process of translation is more complex and unnecessary because it presupposes conceptual understanding of both languages.
- (h) Teach the language as it is true of the educated native speakers of the language not in terms of what it ought to be. If communicate the intention of the speaker.
- (i) Quantity and permanence of learning are dependent on practice.

Hence, it encourage child for practising language, linguistics have also emphasized practice through memorisation and pattern practice. Experiments show 85 per cent should be for practice.

- (j) Skinnerians believe that shaping and promptings are necessary for helping child to respond. Hence, give articulatory or other hints to help the students to articulate response.
- (k) Give immediate reward or appreciation when language learning is upto the mark.
- (l) Teach the meaning of language as it exists in a particular culture where the language is spoken natively.

### REVIEW EXERCISES

*Answer the following questions within 500 words each :*

1. Describe the nature of language development during preschool year.
2. Describe the techniques of accelerating language development.
3. What factors are associated with language development ?
4. What are the principles of language teaching ?
5. What are the various speech defects ? What remedial steps can be taken to reduce these defects ?
6. How would you teach language to a preschool child ?
7. What is stuttering ? How can you reduce its occurrence ?
8. Outline the varius stages of language development.
9. Outline the stages of language development of children during school years. What are the educational implications in studying language development ?
10. Mention the contributions of Lenneberg to our understanding of language development in children.

*Write the contributions of the following within 50 words each :*

1. Stearns and Spicker
2. Montessoric
3. Bernstein
4. Schlanger
5. Bereiter and Engleman

*Write about the following in about 50 words :*

1. Echolaliac speech
2. Elaborated code
3. Egocentric speech
4. Socialised speech
5. Speech pathology
6. Stuttering
7. Stammering
8. Lisping
9. Cluttering
10. Parent's role in language.

**Write whether the statements are True or False :**

1. Non-verbal language appear after birth.
2. Language is a medium of communication.
3. Maturation has no role in language development.
4. Language and speech development are different.
5. Language is inherited.

**Fill in the blanks :**

1. Between age 12 and 18 months the child is able to utter.....type of language.
2. Girls are.....to boys in language development.
3. Language is an aid to.....
4. Bilingualism at home.....acquisition of language.
5. Vocabulary is.....in boys than in girls.
6. ....Drill technique to improve language was suggested by Bereiter and Engleman.
7. ....suggested use of elaborated code.
8. ....suggested use of sensory training.
9. Speech defects are :..... common in.....than among girls.
10. Stammering is otherwise known as.....stuttering.

# 17

## Personality Development

How do human become persons and develop the personality they have and how does this determine their later behaviour ? These two terms are difficult to differentiate. Personality infact is behaviour. When we talk of personality we generally ask a few questions to ourselves. Is he pleasant or unpleasant ? Does he make us happy and comfortable to be with him ? Is he sincere or two faced ? These qualities make one unique and each person is different from others. Not only these qualities are personal they are also social as they manifest themselves in interaction with others. Hence, personality is that which characterises an individual and determines his unique adaptation to the environment.

Philosophers have interested themselves for a very long time for knowing human personality. Plato in his Republic distinguished three aspects of personality : intellect, emotion, and will. All these three aspects are integrated in a given act or situation.

The study of personality might take a number of forms depending upon the interest of the writer or investigator *i.e.* dynamics of personality, development of personality from birth to maturity. There are two basic approaches to the study of human personality : idiographic and nomothetic. The aim of the ideographic approach is to understand the unique qualities of one individual person and aim of the nomothetic approach is to arrive at universally acceptable laws applicable to all personalities.

In the study of child psychology we are primarily interested in five questions about of personality among children growth of personality among children.

- (a) What actually happens when a child grows physically and psychologically ?

- (b) How do changes come about ?
- (c) Why do they occur ?
- (d) When do they occur ?
- (e) What are the roles of family, school, peer group etc. on personality ?

The child reacts to a variety of objects, events and persons. He or she does not have innate tendencies to love, to hate, to fear, to approach or to avoid people. The child predominantly is a biological organism interested more physical comforts and wellbeing. He gradually learns the social manners, etiquettes, and acceptable patterns of behaviour. He wants to be socialised and this process of socialisation begins at home. The experience with the human beings during the first year of life lays the foundation for his future attitudes towards them. His relationships with the mother in most cases form the nucleus for his later behaviour towards others.

### FIRST THREE YEARS OF LIFE

A few spontaneous responses appear which are predominantly meant for his survival such as : vocalisation, sucking, smile, cry etc. Around 3rd/4th month he begins to manipulate his finger, his mother's hair, and toys. Most of the child's time is spent by looking at and scanning the mother's face. The infant babbles, the mother smiles and vocalises back. Circulatory babbling responses increase with the growth of the child. Smiling appears after two months of age and is mostly directed towards the mother; crying acts as an effective method or signal to the mother either to retrieve or attend to her baby. When the mother comes, the child feels relaxed by sitting in the lap of the mother. Most babies suck milk from the mother and watch the mother's face. But babies cling to their mother and scan her face even when sucking milk from the milk bottle. Hence early behaviours of the infant are directed to the biological mother. In Jung's terms the mother is liked because she is food providing and nourishing. This contact of the child with the mother influences his behaviour slowly but surely. The child becomes attached to her.

### Attachment

In recent times this behaviour between the child and the mother is being explained in terms of the concept of attachment. Attachment develops because of the conditioning of positive reward value of the mother. The child looks for the mother whenever the child feels hungry and or in need of any kind of nurturance. If instead of rewarding, nurturing, holding the baby in comfortable position, the mother shows an attitude of indifference or is callous, cold or she handles the child very roughly, the mother consequently becomes a source of anxiety and discomfort. In such situations, children withdraw from the mother. Attachment or withdrawal are learned behaviours observed in children.

Several experiments have been reported in the literature which explain the nature of social learning in children. Harlow is the pioneer researcher in this field. He and his colleagues placed infant monkeys with mother monkeys constructed out of wire mesh. Some of these infants were fed from a bottle attached to the chest of a plain wire mesh mother. The remaining ones were fed from the wire mesh mother covered with terrycloth. It was found that the infants would go to the wire mother when hungry, suck the milk from the bottle until satisfied and to the terry cloth mother for most of the day. When a spider was placed in the cage the infant monkeys ran to the mother, than to the wire mesh mother. On several experiments Harlow observed these behaviours.

The conclusions emerging from Harlow's studies were : For normal development the young monkey or the human baby needs some interaction with an object to which he can cling, scan or vocalise. The one year old baby runs to the mother and hides his face in her clothes if a strange person enters the house. Since the mother elicits these responses, she is likely to become the object of attachment for the young baby and the baby is attached. Reduction of discomfort and the supply of pleasant sensations become the primary source of attachments.

Soon these attachment responses are generalised to other people. The infant develops a fairly articulated schemata of the caretaker's form and voice. Whiting and Child (1953) observed that the monkeys who were reared by a human being for the first three weeks, and then isolated for the rest of the first year, spent more time with the animal worlds them the monkeys reared by a human being. In the animal world also the monkeys reared by their mothers spend most of their time approaching another monkey. On the other hand, the monkeys reared in isolation for the first six months remained aloof approaching neither monkey or man.

Rheingold (1956) demonstrated the effects of early isolation using human infants. Sixteen, six months old babies who lived in an institution were divided into two groups. One group was reared by a good substitute mother and the other half was reared by different persons every day in a routine fashion. Babies with the substitute mother received greater care. A social responsiveness test was given to these children. The children expressed their reactions to a stranger experimenter, and examiner who come from another test. The infants brought up by substitute mother appeared more responsive to all these persons than the other group reared by different persons each day. The conclusion that appears from these investigations is, social responsiveness increases with the reciprocal and playful social stimulation that occurs between the child and the adult or the mother substitute.



In addition to social responsiveness, the child acquires a mental image of the person who is the object of attachment. Consequently the child develops a tendency to react with fear and avoid people who differ from the caretaker. However, with continued exposure to the strange object the period of anxiety passes away.

Gewirtz (1965) observed the development of smiling response as an indicator of attachment and social learning in the first year of life. He observed three groups of children in Israel who were reared under three different conditions. The institutionalised children who rarely see their parents and received routine care developed smiling after 4 months of age : the children who were placed under the collective settlement and were raised by the professional caretaker after the first year care by the mother showed smiling earlier. In a sense they were more akin to the family reared children. It appears that it takes a little more time for a child to develop a schemata of human face in case the child is not reared in a natural environment.

### **Anxiety**

Two major classes of anxiety grow out of close contact or attachment to an adult.

- (a) Stranger anxiety and
- (b) Separation anxiety

It is quite nature for a child to show fear or anxiety towards the stranger. But proximity to the mother inhibits the fear as if the child felt more secured when held by her. The emergence of stranger anxiety is interpreted in this way. That by age 6 to 8 months, most infants have developed such a good schema for their that the stranger is a discrepancy. After a year the child meets many persons coming to the house where is lives. The faces become generalised and a new face becomes less anxiety producing. But children who are brought up in institutions rarely show stranger anxiety because these children are acquainted with different human faces from the very beginning.

Separation anxiety appears when the mother leaves the child in the room alone and goes away somewhere for sometime or leaves the child behind while going to some places or one some occasions. The child is so attached to the mother that he can not face separation. This does not appear untill the child reaches around one year of age. It disappears when the child becomes 11-2 to 2 years old. In our culture even at 3 or 4 years of age the child feels separation anxiety, unlike the American culture where the child is separated from the mother in many ways quite in the development.

The situation giving rise to a feeling of separation anxiety may involve these components.

1. Discrepancy that is produced by being separated from the mother.
2. Discrepancy of habitual response to the mother.
3. Inability to make relevant responses that brings the mother.

But as the child grows older and older he experiences frequent separations from his mother and he interprets her absence and reassures himself of her return.

### INADEQUATE CARE IN EARLY CHILDHOOD

The ill effects of inadequate care and institutionalization have been shown in case of mentally retarded children, animals and children who were kept in orphanages due to some reason or other. The work of Rene Spitz, during the 40's are quite significant with human infants, Spitz found :

- (a) A child does not have a primary adult devoted to his care does rarely become attached to an adult, if at all.
- (b) He is less likely to show stranger anxiety, separation anxiety and social responsiveness than the family reared children.
- (c) He is less likely to smile, vocalise, laugh or approach adults.
- (d) He is retarded in language development.

Harlow (1966) observed that monkeys reared in isolation for a period of six months or so develop extreme abnormal behaviour when they are removed from isolation and they placed in a normal or natural environments. They appear fearful, avoid social contact and it is difficult for them to come to a normal state, if the period of isolation is over a year.

So far as human babies are concerned, no one is raised in total isolation but the effects of lack of a caretaker can be studied among infants raised in an institution. Even in better institutions, a child has less opportunity to become attached to an adult. He shows less anxiety when the adult caretaker leaves the institution. The child in an institution rarely gets a chance to have face to face contact and vocalisation consequently leading to poor language development.

Spitz (1946) further observed that nearly 15% of children during 7 to 12 months, developed certain uncommon behaviours such as : crying, indifference to adults, living, sitting with cold and frozen face, apathy about the whole environment. These behaviours appeared due to inadequate care and inconsistent child rearing practices inside the institutions. In those institutions children are fed mechanically devoid of any humanitarian interactions. For the first 2 or 3 months significant differences did not appear between an institutionalised child and a child reared in neutral family environment, but the following characteristic differences appear in the institutionalised children after 4 months of age :

- (a) Vocalisations are very little.
- (b) No cooing, no babbling and very little crying is observed.
- (c) No postural adjustment or preparation to go to the adults arms, is made.
- (d) Around 8 months of age interest in toys and external environment decreases.
- (e) Stranger anxiety is rarely seen.
- (f) Facial expressions are blank and no expression as in family reared children.
- (g) Withdrawal from frustrating situations are quite common.
- (h) Even at one year of age, no sign of language development is seen.

The characteristics varied in intensity or degree depending upon the nature of deprivation. In Iran two types of institutions were observed :

- (a) Deprived setting—where one attendant was looking after the children. No toys were made available; children were not allowed to play engage themselves in any kind of mother activity.
- (b) Enriched Setting —where one attendant was looking after 3 children. They were held in arms while eating. Toys and other play materials were available to these children.

In both these institutions children were admitted shortly after their birth. Their behaviours were compared during the second year of development. It was observed that nearly 90 of the children under the enriched setting could sit alone as against 42 per cent of the children of the deprived setting. Sixty per cent children of the enriched setting could stand and walk by 2 years of age compared to only 5 per cent of children reared in the deprived setting. Lack of opportunity to do motor activity has depressed the development of motor competence. But the main factor responsible for such behavioural retardation is absence of the motor or maternal deprivation.

Bowlby's paper (1944) concentrated on the effects of maternal deprivation experiences on later behaviour stimulated much research into the early mother child relationship. But Clarke and Clarke (1978) write "the whole of development is important not merely the early years." However, the early years are important because :

- (a) the plasticity of the infant's nervous system makes him very susceptible to new learning.
- (b) such learning is very impressionable and not easily overtermed by later and different (better) experiences.

The experiment of Harlow (1962) with rhesus monkeys and Denenberg (1962) with rats indicates that for these animals at least early infant experiences of a certain kind can lead to impoverished facial and sexual behaviours and neuroticism.

Maternal sensitivity to the stimulation of baby's sense of curiosity and desire to learn has been discussed in the literature. What is important is not the quantity of interaction but the quality. Hence at this stage of our knowledge we do not know the extent to which multiple mothering or lack of responsive and sensitive care by itself affects the development of personality. But we have to consider that :

- (i) infant has an inherent ability to be social, which has however, to be developed.
- (ii) the plasticity of his nervous system and the speed of the development of his nerve cells in infancy enable him to learn in a manner, he will never be able to be equal and,
- (iii) his emotional needs and sense of helplessness are such that responsive caring must be immensely comforting and anxiety reducing.

More specifically behavioural deficits in the institutionalised deprived setting is due to the following three reasons :

- (a) maternal deprivation
- (b) minimal opportunity for social learning and development of motor responses.
- (c) lack of varied and distinct sensory stimulation.

The ill effect of institutionalisation are not confined to only early months of life but it has also significant effects on later life. Children who lived in institution for continuous three years showed that they are even inferior to foster children in.

- (a) Concept formation, reasoning and abstract thinking;
- (b) Ability to recall and inferential thinking during adolescence;
- (c) Language production and comprehension. Then children continued to remain as intellectually retarded even after a change to foster homes. They become emotionally more stimulating after living in foster homes.

The institutionalised children are more aggressive, dependent, attention getting, hyperactive, more distractible and emotionally cold compared to children reared in foster homes.

Lack of consistent interaction with the caretaker is major defect in the institutional setting which depresses linguistic, cognitive and social behaviour. Maturational activities are late to appear. In one culture, most children come from lower social class families and suffer from cultural deprivation which manifest in poor cognitive and social development. Such damages are irreversible. The bulk of the evidence supports the conclusion that placement of children in the institutions is emotionally and intellectually severely damaging to the child. Studies of animals reared in isolation indicate that simpler organisms too suffer from lack of normal stimulation and interaction.

Infant and childhood deprivation is not a simple concept. It may refer, not to the lack of the mother but to social isolation, cruelty and neglect, institutional upbringing, adverse child rearing practices, separation practices, severe economic and cultural deprivation. In early childhood children should be given adequate environmental stimulation; close, and intimate care and tender personal relationship should exist between children and adult members in a family, especially with the mother.

### Critical Period

The critical period hypothesis follows directly from the ethological evidence for critical period in animal learning and imprinting (Bowlby, 1969). The white-crowned sparrow for example, must hear its specific song before it is four months old, or it will never learn it.

Comparative psychologists believe that a process akin to imprinting occurs in human and but this cannot be accepted unquestionably yet. Indeed there may be critical periods during which the child is especially sensitive to certain kinds of learning experiences.

The psychoanalytic or Freudian theory of development is probably the best to explain critical periods. Briefly stated the major aspects of this theory are as follows :

- (a) development follows a set of immutable stages;
- (b) the stages unfold as a result of biological development and action of the environment;
- (c) development can be arrested and
- (d) the personality characteristics of adult hood, one's propensity for certain psychopathologies and coping mechanism can be traced to childhood experiences. The developmental stages are described by Erickson (1963).

Adolescence may also be critical period during which certain key social attitudes are formed.

Harlow and Harlow (1949) have posed the following problem. How does an infant born with only a few simple reactions development into an adult capable of rapid learning and thinking ? Children come to school in order to learn and teachers hope to help them learn but learning is much wider than school learning.

Learning involves diverse activities such as learning to control our emotions; learning to conform to society's needs learning a skill; learning to think conceptually; as well as learning of facts. Than the question is how to learn ? Learning can be broadly of four types :

- (a) imprinting
- (b) imitation and identification

- (c) classical conditioning and
- (d) operant conditioning.

Imprinting is form of learning which has been extensively studied during the past 45 years, first in birds and later in animals and human beings. It was thought imprinting is instinctive learning which occurs very early in life. It occurs without any reward.

Imprinting is kind of amalgam of an inherited tendency to behave in a particular way and experiences occurring at the right time in early life display this behaviour. Lorenz (1935) found that newly hatched ducklings instinctively followed their mother but they also followed Lorenz if he makes quacking noises and not the mother duck. So in early life imprinting occurs and if the baby has been imprinted to something less it has adverse effect upon later life. Human beings are particularly sensitive at certain periods of life. To a particular kinds of experiences and that their later development may be affected if these experiences are missed.

Smiling, visually following the mother, attachment behaviour to a person are examples of human imprinting experiences, appearing before the baby is six months old. It is not a classical process of learning in case of human beings.

A human baby learns by imitation. Aronfred (1968) has suggested that affect has a strong mediating role in influencing the occurrence of the child to see that the act he is about to copy is an appropriate guide for behaviour for himself. Imitation is a kind of empathetic learning; the child experiences instinctively the satisfaction experienced by the person on whom he is modelling himself. Imitation or ability to imitate has been observed in the first few weeks of life. Identification is also a process of imitation which gives rise to learning characteristics of the identified model. Identification is observed from the behavioural act of imitation. Classical conditioning and instrumental conditioning techniques explain how behaviours are learned and modified.

### **Pre-school Years**

As the child progresses his personality becomes more differentiated. For various reasons, the pre-school period is considered very critical. Many important characteristics have their genesis during this period such as : sex curiosity, dependence, aggression, regression, achievement motivation, sex-typing, anxiety and conscience. Some of these traits become stable and enduring early in life and are predictive of the future. For example a 5 years old who is anxious becomes shy when he is an adolescent or adult. The child's personality develops through the earliest complex social relationships in family.

### Sex motive

Sex motives are wishes related to genital organs. Sex play occurs in young children of both sexes. Stimulations from genitals also become more intense during the preschool period. Questions about sex, particularly about the origin of babies and anatomical sex differences are common between the age of 2 and 5. Instances of exhibitionism (exposing genitals), voyeurism (looking at others' genitals) and curiosity about anatomy of opposite sex are very common. Malinowski observed that sex play is very common in Trobriand Island where as it is very restricted in Western as well as in Indian culture. These usually create conflicts and anxiety and they anticipate punishment. A child is not likely to develop anxiety associated with sex and sexual behaviour if parents handle the sex curiosity of their children with little realistically. In fairness, the parents should answer questions frankly, quickly, truthfully and without showing any sign of embarrassment. Sex education is now recommended in schools.

### Aggression

Behaviours are actions that are intended to cause injury or anxiety to others including certain physical symptoms such as hitting, kicking, destroying property, quarreling, attacking others verbally and resisting requests. These behaviours have an innate biological basis. Lorenz speaks of aggression as a species preserving instinct in humans and as well as in animals. Aggression in human beings can be maintained by mediating cognitive structure and to a smaller degree is stimulus bound. Children who are more active are also more aggressive. Aggressive behaviours of children depend upon many factors :

- (a) the motivation or desire to hurt others;
- (b) degree of environmental frustration;
- (c) observation and imitation of aggressive models;
- (d) anxiety and guilt associated with the expressions of aggression.

Aggression is a reaction to frustration. Frustration arises when the path to the goal is blocked, self-esteem is threatened or the children are deprived of the opportunity to fulfil their motives. Children differ in their assessment of how frustrating a particular incident is.

A highly dependent child may be easily frustrated by the absence of his mother. Some children have low frustration, tolerance and others can withstand higher frustration. Children who have capacity to tolerate are not easily frustrated by minor frustrations. Aggressive response to frustration is learned. Aggressive actions eliminate frustration and evoke pain in the individual causing frustration. Hence, aggressive reactions are often repeated.

## **Regression**

Regression is an immature response pattern at the time of frustration. Barker, Dembo and Lewin (1941) observed behaviour of children under free play and frustrating situations. Frustration effect was measured in terms of 'productivity, creativity, and constructive activities. The child in a frustrating situation cries immediately. His productive activities are very low. He becomes less creative and more rigid. It has been found that if the parents are clearly permissive of rewarding of aggression, children are likely to show and behave highly aggressively at home and in other settings where they feel aggression is permitted, expected, and encouraged.

Exposure to an aggressive model is likely to elicit aggression in children. Bandura and Walters exposed aggressive real life or fantasy models to preschool children. Ninety per cent children imitated the aggressive responses of the model. Only observation of aggressive models is sufficient to stimulate aggressive behaviour in children. Frustration is not a necessary antecedent condition for the occurrence of aggressive responses on all occasions. There aggressive responses which are acquired by observing the model may also generalise to other settings. Frequency of aggressive acts increases after exposure to aggressive models and as a rewards for such responses. Punishment for aggression according to principles of learning lead to inhibition of overt aggression. If aggression is punished, the child inhibits these responses and he expresses fear and anxiety to the hostile objects. Sears observed these types of maternal punishment on child's aggressive behaviour, such as : high punitive, low punitive, moderate punitive.

When punishment becomes sufficiently severe it inhibits the specific actions which are punished.

## **Displacement**

It is a defense mechanism in which the actual object of aggression has been shifted to his appropriate substitutes. Homes rated high in both frustration and punishment produced children who manifested more frequent and more intense expressions of displaced aggression than children from homes rated low in both variables. The child while becoming angry with father hits a doll or breaks a toy.

Mothers who permit aggression on some occasion and punish it at other time are likely to have highly aggressive children. In consistency in discipline creates a frustrating situation which increases aggressive behaviour in children.



## Dependency

In early childhood children are dependent, Dependency is a motive. Children have the wish to be nurtured, aided, comforted and protected by others. The children want to be emotionally close to and accepted by others. They seek attention, recognition, approval, contact clinging to adult etc. But if dependency behaviours are punished children will not exhibit such behaviour with increase in age. The child undergoes training for independence. Only under very pressing circumstances he expresses dependency behaviour.

Sometimes dependency behaviour may be based on the desire to get attention, social prestige, rather than a desire for more help or assurance.

Research studies have shown that two year olds are more dependent on teachers. 4 year olds are more dependent on peers. Two year olds cling more often 4 year olds.

A mother who consistently and frequently rewards and rarely punishes dependent behaviours should produce a dependent child while punishment for dependency should discourage this behaviour in the child. In institutional setting dependency behaviour does not develop. The genesis of dependency depends upon early experiences of consistent gratification of dependency need.

Sears, McCoby and Levin (1957) observed some mothers of kindergarten children who punished their children for dependency and as well as gave attention when needed. Reward for dependency has tendency to increase dependency only when it was superior compared to punishment for the same behaviour.

Girls continue to be more dependent at this age than boys. Highly dependent children become more aggressive when their direct attempts to get help from others are frustrated. Such dependent children are not popular in school. But children who are dependent upon peers are more compliant when peers requested them to do something and are sympathetic and helpful to other children.

Dependency on adults has one advantage as their children learn faster when they are rewarded by adults. Experiments have shown that child's need for getting attention and nurturance are increased if they experience nurturance and their withdrawal of it. Praise after withdrawal was particularly an effective reward and it led to harder work and faster learning. Nurturance from a woman was worth more to a preschool boy than nurturance from a man but nurturance from a man was more effective with preschool girls. Those boys who are more dependent upon their mother do well in early years if they get teacher's praise.

### **Achievement motivation**

Competence motivation is an attribute of personality. It is closely related to mastery and achievement in reading, writing and painting etc. Mastery motivation is limited to physical and intellectual achievement. Children learn competence motivation quite early in life. Nursery school children who spend most of time in achievement activities and are less dependent and do not need much emotional support from others.

Early reward and encouragement by mothers lead to greatly competence and achievement motivation among children compared to ignoring the child's behaviour. Winterbottom has stated that mothers who are selfreliant and independent, their children become more achievement oriented. Yarrow very clearly demonstrated that early training for independence and mastery, contributes to the development of achievement motivation.

### **Anxiety**

Anxiety influences the activities of children as well as adults. Minimum anxiety acts as a spur to creativity, problem solving and inventive activities. Anxiety in children arise primarily due to :

- (a) less of parental love on the appearance of new baby,
- (b) real of imagined rejection by parents,
- (c) real or imagined rejection by peers,
- (d) severe punishment and restrictions,
- (e) parents put too high standards for children,
- (f) harsh or negative evaluations of the child's behaviour,
- (g) in-consistency in parental treatment of the child and frequent changes in mood and reactions to children.

Sarason (1957) and others observed the antecedents and consequents of anxiety in young children by questionnaire technique with regard to test taking situation in school.

But in preschool it is difficult to measure children's anxiety by questionnaire. Hence, teacher's rating and exposing the child to strange situations are used as methods of breaking anxiety. Anxiety affects social behaviour and cognitive functioning in adults. Highly anxious children are less active, more dependent, they feel inadequate and insecure in play and prefer immature plays.

With regard to cognitive functioning, anxiety may facilitate learning, if learning task is simple. But if the task is difficult and the well established response is incorrect, then anxiety interferes with learning. In verbal learning experiments and tasks children make more irrelevant and intervening responses, if the children are highly anxious.

In general anxiety impairs children's performance on :

- (a) verbal tasks
- (b) difficult tasks
- (c) language pronunciation and comprehension
- (d) learning of concepts

Since school learning becomes more difficult gradually, anxious children suffer more because of their anxiety in higher grades. Anxiety scores become increasingly and negatively related to indices of intellectual and academic performance, over time.

Children use certain defence in frustrating situation. There are learned responses used to avoid or reduce feelings of anxiety and live reasonably comfortably. Every one uses defence mechanisms. But defence mechanisms may have consequences that are extremely deleterious for mental health and adequate emotional adjustment.

Defence mechanisms may be constructive or destructive, but certain defence mechanisms are common in preschool children.

1. Withdrawal — The child withdraws from any situation which appear threatening.
2. Regression — Primitive and earlier responses *i.e.* their sucking, nailbiting.
3. Denial — The child insists that the incident is not there.
4. Repression — The child forcibly forgets the unpleasant incident.
5. Projection — The child attributes his undesirable thoughts to others.

### Identification

Many activities of children such as motives, attitudes, moral standards, etc. cannot be explained in terms of rewards, punishment and imitation. A more subtle process *i.e.* identification is involved.

Originally introduced by Freud, it is a process that leads the child to think, feel and behave is through the characteristics of another person, usually a model. Identification is not a consciously initiated process like learning.

The child observes his parents doing or displaying some activities. He acts as if he or she possessed those characteristics, feelings or emotions of the parents, with whom he has identified. Identification with parent is a very important source of security for a young child. On the other hand, the child identified with an inadequate model feels less secure and more anxious.

Identification is a process in which the child incorporates or observes

some of the models, complex integrated patterns of behaviour, personal attributes, characteristics and motives. Those are imitated spontaneously without any specific training or direct reward for imitation. They are generally more stable and enduring. Identification is a basic process in the socialization of the child. Two conditions influence the development of identification.

- (a) motivation to process the model's attributes,
- (b) the belief that he and the model are similar in some ways.

Most children feel that their parents have many desirable qualities which they would like to have. The discrepancy between himself and adults enable him to acquire parents attributes. The children identify with the parents and the parents serve as models because of :

- (a) power over the child and other people,
- (b) mastery of the environment,
- (c) love

The process of Identification if facilitated, where the model is a highly desirable and attractive person. A nurturant parent is more likely to be identified than a rejecting one because a nurturant parent stands for pleasure, reward etc. For example a 3-years old girls may care for her toy in the same way her mother cares for her. When parents are warm and accepting their behaviours are easily identified.

Further more, the child imitates the parental behaviours in order to increase the basis of similarity between himself and parents' traits. The child tries to make himself similar to father or mother. Each time the child perceives similarity with model, identifications are strengthened. The development of identification is perception of similarity with the model either derived directly or from communication with others. He feels that he is similar to his parents.

When both parents are perceived as warm, powerful competent, the child will identify to some extent with both of them. Typically identification will be more with parent of the same sex.

As the child's social contact become wider and wider he tries to identify with adults and peers. Of course, it is difficult to state how much is due to learning with reinforcement and how much is due to identification. But the fact remains that identification is the central process in the acquisition of a very wide range of behaviour and attributes of personality.

Freud described two major products of identification (a) Sex typing  
(b) Conscience development.

### Sex typing

Sex typing figures prominently in the socialization of the child. Most parents pay considerable attention to sex appropriateness of their child's behaviour, rewarding behaviours that are appropriate to his sex and discourage those that are not, that is, if a boy cries after defeat in play he is punished but if a girl cries she is rewarded. By age 4 & 5 children prefer toys appropriate to their own sex. Social pressure also fosters sex typing of behaviour. The culture rewards for accepting sex appropriate behaviour *i.e.* the boy after his father and the girls after his mother. Sex typing are acquired at home largely through identification with and imitation of the parent of the same sex. The ideal situation for sex appropriate behaviour are :

- (a) When same sex parent is warm, and rewarding and possesses desirable characteristics, and
- (b) When both parents rear consistently sex appropriate behaviour.

Identification stems from a warm parental relationships. Mussen did a study on sex role preference of 5-years old boys using a projective test : 10 high masculine and 10 low masculine boys were asked to complete stories in a doll play. It was found that the high masculine boys perceive their father as more nurturant and warm. Femininity in preschool girls seem to be related to warm-mother daughter relationships. Kohlberg offered a new cognitive interpretation of the sex typing behaviour of children. According to him, the most significant factor in sex typing is the child's cognition, his selection and organisation of perception, knowledge and understanding of the sex role concept.

Sex typing is initiated by the sex labelling of the child as a boy or a girl, which occurs early in life. That he is a boy or a girl influences his values, attitudes and motives. For Kohlberg sex typing is not a production of identification and is a consequence of sex role. Boys model themselves after males because of their masculine interests. Hence they behave, think, and feel as men. So child's understanding of the environment strongly influences his sex typing behaviours. Freud's understanding of the environment strongly influences his sex typing behaviours. Freud's view is different from this.

### Development of Conscience

During the preschool years the child gives evidence of learning some moral standards, he feels guilty for his wrong activity, if he violates anything, Freud regarded the development of conscience or Super Ego as a product of identification. He learns the parental moral standard and conduct *i.e.* being honest, obeying rules, right and welfare of others.

Anxiety about punishment or loss of love may motivate the acquisition of moral standards and behaviours that please the parents.

Parental discipline and affectionate relationship with the child are likely to foster the development of internalised reactions to transgression *i.e.* feeling of guilt, confession etc. Warm relationship between the parent and the child contribute to moral and conscience development in children. Especially maternal warmth and acceptance were found to be positively related to conscience development.

The use of withdrawal of love as a technique of discipline was also associated with strongly developed conscience among young children. But it is one of the many factors influencing conscience development in children. For Kohlberg, the level of the child's cognitive development is one of the crucial determinants of his moral judgement and behaviour.

We describe the changes in relation to the processes of change, influencing factors for change and the period during which changes take place.

Large number of studies concerning the relationship between family atmosphere, parental attitudes and the personal and social adjustment of children are reported. Parent child relationships affect the development of specific traits and motives and the general pattern and structure of personality of children in the preschool period to a considerable degree.

### Family

Baldwin at the Fels Research Institute obtained some reports from home visitors regarding the general family atmosphere and parent child relationship. Two patterns of relationships emerged from these observations.

- (a) Democratic
- (b) Autocratic

Democratic atmosphere is characterised by general premissiveness, avoidance of arbitrary decisions, greater verbal contact between parents and children. Authoritarian or autocratic home atmosphere emphasize clear cut restrictions on behaviour with a strong and rigid discipline system.

Children who are brought up by democratic atmosphere are generally active, competitive, outgoing, non-conforming, disobedient and highly aggressive. Children from autocratic homes showed less of aggressiveness, disobedience, playfulness, tenacity or fearlessness and are non-aggressive.

The democratic homes seemed to produce greater intelligence curiosity, originality and constructiveness.

Baldwin stated that the democratic techniques can only be effective if they are consistent with parent's personality and attitudes. If rigid,

authoritarian parents attempt to employ democratic procedures, they are likely to find these difficult and frustrating and producing tensions that may be detrimental to the emotional health of the child during 3 to 5 years of age.

In democratic home the child is rewarded for curiosity and independent activity, for free expression of ideas, and for participation in decision making. These responses are rewarded and are generalized to other situations. Children who are brought for compliance and conformity show obedience in school years.

The child who is overprotected, and is not rewarded for independent action becomes timid, awkward, and apprehensive.

### School

The family continues to be the primary agent of socialization but the people outside the family begin to have significant impact on the child's behaviour. School and the peers begin to play a more important role in the child's life and they serve as reinforcers and as models for imitation of new and different responses.

The school introduces the child to a new and different social environment such as teachers and peers.

The teachers attempt to enhance the child's personal adjustment and at the same time increase their social skills and sensitivity. They enforce certain behaviours and discipline, ignore or punish other kinds of behaviours. At the same time the child must adjust to his peers with whom he spends more time and they inevitably become agents of socialization.

In Nursery schools the objectives are not set for cognitive development but more in terms of personal and social adjustment. Nursery schools contribute mainly to the differences in sociability, self-expression, independence, social adaptability and interest in the environment. These characteristics are present for some time after entering the nursery school. Most children make rapid gains in social participation compared with peers who do not attend school. They become less inhibited and more spontaneous, independent, selfassertive, selfreliant, curious, and interested in the environment.

If the teachers pay individualized attention it reduces the maladaptive reactions such as withdrawal, regressive and submissive behaviour and raises the child's self confidence and frustration tolerance.

### Peers

Peers become agents of socialisation by enforcing certain kinds of child's responses and by serving as models for institution and identification.

As children advance in age they spend more time in social interactions with peers and less time in idleness and solitary play. Four year old's reinforce peers behaviour more than 3 years old do using attention, approval, affection and acceptance as well as giving objects as reinforcements.

Almost all children manifest some problem behaviour but most problems disappear after a while. Behaviour therapy eliminates some of the problems relating to infantile autism.

The child comes to nursery school with little or no experiences in interacting with large group of children for long period of time. The child is introduced to society at large where he learns to adjust to groups. He soon becomes interested in his peers.

As children grow older they spend more time in social interactions of an associated or cooperative sort and less time in idleness and solitary play.

Between age 2 and 3 there is generally an expansion in the number of playmates. After this age there is an increase in the strength of friendship rather than in the total number of friends.

Academic behaviour and peer interactions also increase during the pre-school years while submissiveness diminishes. The extent to which peers would influence each other depends upon :

- (a) his attractiveness to the child.
- (b) the degree of affection between them.
- (c) his tendency to submit or dominate.
- (d) his ability to satisfy the child's motives *i.e.* giving help and support when needed.

Peers have significant impact on the child's learning. Hartur and his associates did many works on peer's reinforcing value. In one study 4 kinds of peer reinforcement were recorded.

1. giving attention and approval
2. showing submission
3. token giving
4. giving affection and or acceptance.

It was found that peer reinforcements resulted in substantial change in the personality of the child. Peers act more efficiently as reinforcing agents than adults.

Peers serve as very good models. Peer aggression is likely to be imitated. This was shown to children and then the children were taken into an experimental room which contained a variety of materials some of which could be used for imitative aggression. The results showed that :

- (a) peers aggressive behaviour was imitated easily.
- (b) boys showed more of imitation than did girls.



- (c) peers acted more as a model than did adults.
- (d) exposure to an unselfishness model will result in increase in the child's responses.

Peers can serve as effective models for behaviour modification. They can serve as models of calm, approach responses to stimuli that the child fears, and repeated exposure to such a model reduces the observers fear and avoidance behaviour.

Peers can serve more general functioning than those reinforcing and modelling. They can become chief objects of the child's attachment and emotional dependence. Among orphan children such attachment is more clearly seen. The children's unusual emotional dependence on each other was borne out further by the almost complete absence of jealousy, rivalry and competition which are normally seen among others or normal children.

### **Infantile Autism**

Autism refer to profound and enduring symptoms of emotional disturbances. These children are characterised by an extreme degree of isolation and absence evident from early infancy. They do not make anticipatory responses to adults, their communication system are badly impaired, and speech is not ordinarily used in interaction with others. They are sometime mute. They repeat speech of others *i.e.* they have echolalic speech. They exhibit anxiety in new and unfamiliar environments. They become engaged in repetitive ritualistic behaviour. They are interested in objects but not in people.

Lovas, one of the authority in the field stated that autistic behaviour can be eliminated by the following procedures of behaviour.

1. Punishing those behaviours when they occur.
2. Isolating the child or administering a painful shock each time he reveal the behaviour.
3. Autistic children may also be taught to approach others by reinforcement, by instruction to imitate other behaviour etc.

### **What parents should do**

1. Provide access to as much as possible so that the child has the maximum opportunity to exercise his curiosity and explore his world. Opportunity to explore the world around the child is basic to the nourishment of his curiosity and instrumental to the development of social relationships as a natural outcome.

2. Provide a wide range of materials for the child to explore. Common household objects such as plastic jars with covers, large-containers, filled

with smaller interesting objects, a baby-proofed kitchen cabinet with pots, pans, and canned goods, are all perfectly suitable for a child between 7 and 18 months of age. The newly crawling child will, for several months, have a very special interest in the physical properties of small objects and the characteristics of motion they display when pushed, dropped, rolled, etc.

3. Be available to your child for at least half of his waking hours. Do not hover over him constantly but be available to provide attention, support or assistance as it is needed. A child needs the direction provided by a more experienced person to support his curiosity, to instruct in the area of language, and to encourage the development using and interacting with other people.

4. Utilize the following pattern of response to the degree it is possible when your child begins to make overtures to you from age 9 to 10 months on :

- (a) Respond promptly as often as possible.
- (b) Respond favourably as often as possible.
- (c) Make some effort to understand what the child is trying to do.
- (d) Set limits; do not give into unreasonable requests.
- (e) Provide encouragement as often as possible.
- (f) Provide enthusiasm as often as possible.
- (g) Provide assistance as often as possible.
- (h) Use words as often as possible.
- (i) Use words child understands or words that are a little too hard for.
- (j) Provide a related idea or two.
- (k) Do not prolong the episodes if a child to leave; the interchange will usually last less than one minute.
- (l) Encourage make believe or pretend activities.

5. If the child seems bored, and if it is convenient, provide things for him to do.

6. If a child is misbehaving, discipline him firmly and consistently. Children require that limits be set to their behaviour in order to develop into socially acceptable individuals who feel comfortable with other people.

Allow a child to try to do something that seems somewhat unsafe but not be unsafe if he were closely supervised. Give the child the chance to try the activity, under supervision, rather than stop him completely. The child wants to try a new activity, it probably is a naturally interesting and a potentially beneficial one. Such activities, when encouraged, lead to better development.

#### **Don'ts for parents**

- (i) Cage the child or confine him regularly for long periods during the day.

- (ii) Allow him to concentrate his energies on the primary caretaker to the point where he spends most of his time following that person around or standing nearby, especially during the second year of life.
- (iii) Allow tantrums.
- (iv) Worry that he will not love the primary caretaker if the primary caretaker says 'no' from time to time.
- (v) Try to win all the fights with him, especially from the middle of the second year on, when the baby may start becoming negative.
- (vi) Try to prevent the baby from cluttering the house. It is an inevitable sign of a healthy, curious creature.
- (vii) Be overprotective. Besides are more careful that what people think.
- (viii) Overpower the child. Let him do what he wants to do as often possible.
- (ix) Take a full time job or otherwise make yourself unavailable to the baby during this period of life.
- (x) Bore the baby if it can be avoided.
- (xi) Worry about when the baby learns to read, count numbers, or say the alphabet, or even if he is slow to talk as long as he seems to understand more and more language as he grows.
- (xii) Try to force toilet training. By the time he is two and a half, it will happen rather easily.
- (xiii) Let the baby think the whole world was made, just for him.

There are certain behaviours shown by parents which can certainly make a child goonda, a problem, a delinquent.

### **What Really makes the Child a Problem ?**

Mostly parental behaviours. These are :

1. From babyhood give the child everything, he or she likes to have. In this way the child will grow in conviction that everything is due to him from the world.

2. When you hear the child using 'bad' words, laugh so that he may think, it is witty. You will encourage the child in this way to use yet worse words, that you be able to roar with laughter.

3. Avoid speaking that your child did something wrong in order not to create in him a complex of guilt. Due to this when your child will be arrested one day for theft of a motor car will be able easily to think that the society is against him and prosecutes him.

4. Never speak with him on moral or religious matters. You wait till he will be an adult and he will be able by himself to decide whether these things matter him.

5. You collect after him everything what he throws about : books, shoes, clothes etc. Do everything. He will be able to accustom himself to throw whole responsibility on others.

6. Allow him to read any prongraphic and bad book whichever he wishes. Take care only of the utensils, the child uses, that they be clean. Then his mind will live on rubbish.

7. Have quarrel with each other (Husband & Wife) in the presence of your children. In this way they will not be surprised when one day your marriage will be broken and imitate your behaviour.

8. Give the child whatever money he wishes to have for different petty things. Do not allow that he should earn the money for it. Why child should not have better life than you had when you were once of his age ?

9. Fulfil his every whim in regard of food, drink or any other pleasure. Remember, that every sensual wish be at once fulfilled. Refusal may awake in him harmful complexes.

10. In presence of the strangers take always child's side : everybody is prejudiced towards your child.

11. When he afterwards turns out to become a criminal, excuse yourself, speaking : I never could achieve anything with him.

### **Middle childhood**

Certain differences are observed in the personality development of children during age 6-12 years.

Parents differ in the way they bring up their children. Schaffer observed that parental behaviour is not unidimensional. The child of warm permissive parents is likely to be active, independent, friendly, socially assertive but may also be somewhat aggressive, bossy and disobedient. The child of warm-restrictive parents is likely to be more dependent, obedient, less creative, less dominant and competitive, more conforming, polite and neat. Hostile parent raise counter hostility in children and when combined with restrictions they tend to maximise self-aggression, social withdrawal and internal conflicts. Hostile permissiveness maximise aggressive and delinquent behaviours among children.

The child's development of self-esteem is high if the parent's self-esteem is high. It is also positive in case of children whose parents are warm, accepting and interested in the child's activities, who encourage autonomy, apply consistent discipline, and respect the rights and opinions of children.

Absence of either father or mother from home may make the child's adjustment and development of sex role identification more difficult

particularly when parental absence occurs early in life and when the same parent is absent.

Middle class mothers tend to more affectionate and less punitive than those of lower classes and the children have more favourable perception of their parents. Parents teach values and beliefs appropriate to their own class.

Sibling's social status influences the child's development of personality. Oldest children are more likely to achieve eminence and to identify more closely with adults, they are more likely to be anxious, over-sensitive, and fearful. Younger children tend to be more gregarious, defiant, and eager for showing attention.

Sex role standards are increasingly fostered during middle childhood. Boys are expected to be strong, courageous, ambitious, and active while girls are sociable, well mannered and neat and inhibit verbal and physical aggression. There are a set of culturally approved characteristics for males and females. The middle childhood represent critical period in child development.

According to Piaget before age 7 or 8 child's concept of justice is based on rigid and inflexible notions of right as wrong learned from parents.

7 to 8 Concept of right and wrong

8 to 11 Concept of equality

11 to 12 Concept of justice

Conscience development is based upon child's level of cognitive orientation and upon parental identification and other influences.

The following conditions are conducive for optimal development of conscience in children.

- (a) Parents own conscience and moral standards are matured or reasonable but not rigid and harass.
- (b) Adoption of parents standard are based upon positive identification and modeling.
- (c) Love oriented discipline appears more effective in fostering conscience development than physical punishment.

In middle childhood the agents such as : peers, adults, newspapers, movies, books, magazines, contribute to sex typing. The growing child gradually adopts the more appropriate adult role relating to his sex.

The four years old judge can act as good or bad in terms of its reinforcement rather than in terms of the rule. By age 5 to 7 the children evaluate in terms of the reinforcement history *i.e.* whether or not it leads to positive consequences. Kohlberg and Piaget almost agreed in their views of moral development in children. They just differed in some specifics.

Becker (1964) noted that parents who talk to the child about his misbehaviour are more likely to provide the child with a close understanding of what he did wrong. Aronfreed suggested that explanations and reasons provide the child with internal resources of evaluation of his own behaviour. Thus the child gets explicit training in making moral judgements.

Parental interest in school and reward for school achievement occur more frequently among middle class than lower class parents. Having faced higher level of intellectual activity in home he is likely to enter school better prepared to profit from the learning experience.

Deutsch and Havighurst believed that lower class children lack the ability to perceive the relationships between academic achievement and success in life, consequently are likely to adopt a so-what attitude toward the school. Their parent also feel indifferent and fearful to the school situation.

Parents who create a high level of anxiety in their children and strong concern for failing in school may affect not only their overall adjustment and self concept but their intellectual performance and academic achievement as well. Many children have normal fear of failure. They doubt their own ability to pass and solve problems. This anxiety can hinder his thinking and results in withdrawal of interest from academic tasks. Strong anxiety interferes in the performance on tests and makes the concentration difficult and learning becomes poor.

Feldhusen and others have found negative relationship between high anxiety and achievement test scores for reading and arithmetic and school performance. The strength of these relationships increase with age. So for children who become more anxious in these cases, performance declines and for whom anxiety is low and performance is high.

### **Personality Development**

Anxious childrens are nervous in problem solving situation and therefore, performance is adversely affected. Anxiety is a painful and distracting feeling that can interfere with solution of problems and clear thinking, especially when problems are difficult in nature.

The child's contact with his peers also greatly expand during the school years. The peer group provides an opportunity to :

- (a) Interact with age mates
- (b) deal with hostility and dominance
- (c) relate to a leader
- (d) lead others
- (e) deal with social problems
- (f) develop a self-concept.

The child whose interactions with peers are rewarding, develops good self image, increased competences, and enhanced self-esteem. Unfavourable relationships create conflicts, anxieties, and poor self-concept.

During the early years of middle childhood the gang predominates. Between 10 and 14 children groups are highly structured and at 7 to 8 children associate with same sex peers. Boys tend to be more involved in gang and other peer group activities. Girls develop more intimate individual personal relationships.

Children having high status tend to be socially more aggressive, outgoing, cheerful, enthusiastic, intelligent and as well as friendly. Low status children possess anxiety, social indifference, withdrawal and hostility.

Peer group status is related to social class. High social status children have high peer group status and low SES children have low peer group status.

Depending upon the particular values of the peer group the child's motivation for scholastic success may either be strengthened or reduced. In middle class peer's scholastic success is valued and is retarded. Studies have shown that children who were popular are also better students and were more co-operative and intelligent as well as creative.

Throughout the middle childhood years, age as well as sex play an important role in determining the nature of the peer group relations. Both boys and girls tend to associate primarily with the peers of same sex but prepubertal girls begin to show interest in older boys.

Linton (1936) a specialist in personality and culture observed these attachments and said that these are not mere accidents but similar groupings exist throughout both literate and preliterate societies. The average time spent in family decreases as the child grows older and time spent in peer sittings increase, and so also peer group interdependence.

Sex linked interests and activities appear increasingly in school years. Girls show increasing interest in masculine games between grades 3 to 6 *i.e.* age 9 to 12. In general, boys are found to be more doers and girls are takers. Girls are interested in social relations and boys are in mechanical activities.

There are certain popular children in school who are good. They influence peer group status. They are friendly, good in sports, intelligent and creative. They come from high socio-economic status, and achieve high achievement in life. Body build and athletic ability also contribute to the development of high status. In low SES groups hostile, anxious, socially indifferent, rebelliousness behaviours are dominant. They are poor and mostly they withdraw from situation.

Adults do influence the outcomes of peer group efforts by steering their activities, defining behavioural possibilities and setting the tone of effective relations. They obviously provide the opportunity for the child to gain many immediate satisfactions. He finds others of his own level of intellectual and social development with whom to talk and to compare notes. He finds the members for group sports and game. The peer group strengthens existing attitudes, establishes new one and weakens those which are in conflict with the peer group values. The child who comes from a rejecting home finds solace in peer group and is influenced by peer group values most. If the child has not developed proper sex role identification it is because of the peer group values. Peers thus exercise greater influence in the socialization of the child. Rejected children in homes are greatly influenced by peer groups.

The most important tasks for the child during 6-12 years or middle childhood are :

- (a) development of various intellectual skill and academic skills.
- (b) motivation to master them
- (c) learning how to interact with peers
- (d) crystalization of sex role identification
- (e) increased autonomy and independence
- (f) development of moral standards and conscience
- (g) learning to deal with anxiety and conflict.

School becomes a world for the child. It occupies also most half of his waking hours. It plays an important part in helping the child to reduce his dependencies on his home. The school helps the child develop intellectual competence, acquire pride in one's work, persevere in solving problems, formulate long range plans, and establish meaningful relationship with age mates.

Teacher pupil relationship and teacher behaviour are important in school setting. The kinds of teachers a child has will determine in great measure whether his school experience will further increase his difficulties and frustrations. Children generally prefer teachers who are kind, cheerful, fair and consistent in discipline and enthusiastic. Some children may progress better with self-controlled teacher.

High competitive and anxious children respond to highly structured teaching methods than low anxious and low competitive children.

Optimal academic and personal growth will not be stimulated in most students by the teacher who is rigid, authoritarian, hostile, unresponsive, poorly trained, narcissistic or too much occupied with anxieties of personal problems. A democratic teacher is more successful in helping the child to develop his skills.



### Parental influence on IQ and achievement

Guilford, Piaget and others have suggested that intelligence is the ability to benefit from experience, the ease with which the child learns a new idea, or a new set of behaviours and the limit to which a person might learn from experience. Using standard tests of intelligence.

IQ can be obtained by using  $IQ = MA/CA \times 100$

MA — Mental age

CA — Chronological age

IQ — Intelligence quotient.

A child's IQ score is related to the desire to improve his knowledge and problem solving skills. Family experience encourages the development of this motive *i.e.*, to master intellectual tasks which would also increase IQ and motivation for intellectual mastery.

In a study, 20 boys and 20 girls were given various tests in a freeplay situation. Their parents were interviewed. It was found that some girls showed much greater interest in intellectual activities and these girls had parents who encourage intellectually oriented behaviour. For boys the relationship was also positive.

Fathers who told many achievement stories to their children, produced greater achievement and mastery of intellectual tasks than children who did not listen to such stories.

The mothers of high achievement children felt close to their sons, wanted them to be competent, and made demands for achievement. Boys with greater achievement had greater autonomy and freedom. Boys with low achievement motivation experienced greater degrees of rejection from both parents than the high achievement boys. Parents set high aspiration for boys and as they progress they tend to react to their performance with warmth and approval. The mother disapproves if the child performs badly. Middle class mothers who are permissive, affectionate and who encourage school achievement, their children obtain good grades in school.

The girls who do well in school have mothers who are not overtly affectionate and they push their daughters towards independent behaviours.

Poor achievers appear to have comparatively limited place in the home. There does not appear to be so much of affection or mutual respect and desire to move upto expectations. Even expectations are limited for low achievers.

With regard to IQ, there is a positive relationship between maternal concern with the child's early developmental progress and the amount of IQ increases in girls. For boys it was positive but very low. Mother's concern for intellectual mastery influences both boys and girls but the effect is greater

for girls and than for boys. Mother's IQ is also a better predictor of girl's IQ than of boy's IQ. But maternal education are positively related. Well educated mothers are more sure to encourage mastery of intellectual skills than poorly educated mothers.

Increase in IQ score, desire to master intellectual problems and superior school performance are influenced by parental emphasis on an reward for intellectual achievement as well as for the establishment of independence.

Achievement primarily depends upon

- (a) child's IQ
- (b) parentalk expectations of the child's achievement
- (c) child's motivation
- (d) child's expectancy of success
- (e) child's anxiety level.

The greater the parental emphasis on intellectual mastery the stronger will be the child's motivation to master these skills. If intellectual competence is one of the model's central attribute the child will attempt to increase his mastery in order to increase his similarity to the desired model.

As the child becomes 3 years old he seeks to avoid unpleasant things that aimed at failure. He develops expectancy of success for varied class of problems.

Finally, anxiety associated with intellectual mastery is important. Anxiety is likely to appear under two conditions :

- (a) when expectancy of success is moderate
- (b) when motivation is high but expectancy is low

In the first case uncertainly creates anxiety. The child does not know for sure whether he will pass or fail. In the second case, the child perceives the discrepancy between the valued goal and the possibility that goal cannot be attained. This creates anxiety.

High anxiety leads to inhibition of intellectual activities where as low anxiety is helpful for similar tasks but not for difficult tasks. Performance in case of the latter becomes more.

## MEASUREMENT OF PERSONALITY

Projective techniques are not tests in the true sense because there are no right or wrong answers. These are indirect way of assessing the personality of the individual. They have their observations in-everyday observations and have originated within the clinical setting. There are different types of projective tests.

### Rorschach ink Blot Test

The Rorschach is one of the basic diagnostic tools of most psychologists.

It was developed by Herman Rorschach, a Swiss Psychologist in 1921. It consists of 10 cards, each having a different inkblot, five are printed in black and white and five in colour.

The individual child or adult is shown one card at a time and is asked to tell what the inkblot makes him think of and what it may mean to him. He collects information by using all the 10 inkblots. The responses are recorded and analysis is made on the basis of standard norm. This requires great deal of training and experience and as such should not be used by a teacher, a psychologist or researcher without having initial training.

Scoring of the subject's responses is done according to Human like action (M) animal like action (FM) abstract movement (m) shading (k) color (c) Responses are also scored according to location of the response.

Whole inkblot is indicated as 'W', part of the inkblot is devoted as 'D', if it is a small unusual part it is 'Dd'. White space is devoted as 'S'. The third category is in terms of content. The content responses are : Human figures (H), human details (HD), animal (A), Animal Parts (AO) etc. Responses are also scored in terms of popular or original response.

Certain specific interpretations can be given here :

Frequent M = high intellectual endowment

M = FM = sign of self acceptance

C, shading = Emotional life

and similar interpretations are made for others

The Rorschach is a very difficult instrument on which to establish statistical validity and predictive validity.

### **Thematic Apperception Test (TAT)**

TAT is another widely used projective technique introduced by Murray and Morgan in 1938 at the Harvard Psychological Clinic. It consists of a set of pictures showing human figures in different poses and actions. Some of the pictures are only for boys, for girls, for females and for all. There are nineteen pictures for a particular age and sex and a blank card. One need not administer all the cards but one can select out of the 20 in terms of requirements.

The individual tells a story based on the picture. The story has past, present and a future. The stories are recorded. The scoring of the TAT is not quite as time consuming as that of the Rorschach. Content analysis of the story is done in terms of complexes, defenses and conflicts.

### Word Association Test

Word Association Test is an attempt to reveal associative connections between the words and verbal responses of the subject.

It dates back to Galton and Wundt but it is known after the name Carl Jung (1910). Jung used 100 words that were common to emotional fixations. The response word, Latency of response and minimum scores were all noted to each word. Kent and Rosanoff (1910) used a revised word list to understand the basic personality. More teachers are available for interpreting the response in terms of defences. Rappaport has also developed a sixty word list. The main issue is to analyse the built in associations. This is a test which is widely used and easily administered but requires skill to interpret.

### Sentence Completion Tests

Rotter has developed the sentence completion test for High School, College and Adults. The individual is asked to express his true feelings in completing each stem. The scoring is done in terms of conflict, unhealthy responses, neutral responses and healthy responses. There is no time limit.

### Draw a Person Test

Karen Machover (1949) has developed this draw a person test which is projective in nature. Administration of the DAP is relatively simple. Interpretation of the DAP is based upon psychoanalytic theory.

### Bender Gestalt Test

It is a stylistic test. It is based on the classical teachings of the Gestalt school of psychology. Bender (1938) chose nine of the original Wertheimer patterns for her test.

It is aimed at evaluating intelligence, maturation, psychological disturbance and brain damage. Each of the nine design is in cards and the individual is asked to copy the design from his mind. The test is also standardised for use with children in the age group of 5 to 10. This test meant

<i>Junior High Level</i>	<i>College and High School Level</i>
1. Health and Physical development	1. Health and Physical development
2. School	2. Finances and employment
3. Home and family	3. Social and recreational activities
4. Money, work and future	4. Social and psychological relations
5. Boy and girl relations	5. Courtship, sex and marriage
6. Relations to people in general	6. Home and family
7. Self centered concerns	7. Moral and religion
	8. Adjustment to college/school work
	9. Future vocation and education
	10. Curriculum and teaching procedure.

for children has a high degree of validity for measuring school readiness with mentally retarded children (Koppitz, 1975).

The projective tests in general do not have statistical validity but psychiatrists and clinicians have demonstrated its effectiveness as a projective method.

### **PERSONALITY INVENTORIES**

Personality inventories are objective self reports as contrasted with projective techniques which are generally administered individually and require subjective interpretation of objective stimuli by the individual. The personality inventory is structured and is usually presented in an objective format. There are many personality inventories but only a few of them will be presented here.

### **THORNDIKE'S DIMENSION OF TEMPERAMENT**

It measures personality in terms of 10 dimensions. It aims at describing a person. It is applicable to high school, college students and adults in reusable booklet form. The booklets presents 20 sets each containing 10 items. The students reads all and selects three which do not describe him. Norm tables are available for interpretation. The dimensions measured in this test are : Sociable, Ascendant, Cheerful, Placid, Accepting. Tough minded, Reflective Impulsive, Active, Responsible.

### **MOONEY PROBLEM CHECK LIST**

Mooney and Gorden (1950) stated that the usefulness of the problem check list approach lies in its economy for appraising the major concerns of a group and for bringing into the open the problem of each student in the group.

The Mooney problem checklist has four forms to be used for different levels junior high school, high school, college and adults. They are self administered and measure concerns of students as follows :

There are 210 items and the students write in their own words about the problems troubling them.

### **Sixteen Personality Factor (16 PF)**

The 16 PF provides measures on 16 cattell. There are various forms of 16 PF and each one is developed in terms of factor analysis. The factors are not independent but correlated. The traits named are : Reserved Vs. Outgoing (A) less intelligent Vs. more intelligent (B) Affected by feelings Vs. emotionally stable (C) Humble Vs. Assertive (D) Sober Vs. Happy golucky (E) Expedient Vs. Conscientious (F) Shy Vs. Venturesome (G) Tough minded Vs. Tender minded (H) Trusting Vs. Suspicious (L) Practical Vs. imaginative (M) Forthright Vs. Shrewed (W) Placid Vs. apprehensive

(O) Conservative Vs. Experimenting (Q<sub>1</sub>) Group dependent Vs. self sufficient  
(Q<sub>2</sub>) Undisciplined Vs. controlled (Q<sub>3</sub>) Relaxed Vs. Tense (Q<sub>4</sub>).

### **Maudsley Personality Inventory (MPI)**

The MPI consists of 48 items and provides scores on two traits; neuroticism and extroversion-introversion. It has also a short form of having only 12 items. The test was developed by Eysenck. It is a reliable instrument which has been quite extensively used in research studies.

### **Edwards Personality Inventory (EPI)**

The test measures a number of personality traits in which normal individuals vary. It consists of five booklets IA, IB, II, III, IV. Each booklet consists of 3000 items in True-False format. Booklets IA and IB measure 14 scales of personality, Booklets II, III, and IV measure 11, 13, and 13 scales respectively. In this scale there is no offensive items like other scales. There is no item relating to religious and political beliefs nor there is any item relating to individual's health and body functions.

### **Edward Personal Preference Schedule (EPPS)**

This test was developed by Edwards (1959) and used the forced choice technique. The items were paired and the individual is asked to indicate which of the item in pair is true? There are 210 pairs of statements in the E.P.P.S. and scores are derived in terms of 15 scales. The EPPS scales are: Achievement, Defence, Order, Exhibition, Autonomy, Affiliation, Intraception Succorance Dominance, Abasement, Nurturance, Change, Endurance, Heterosexuality and aggression. The scores on all the test will sum upto 210.

### **Minnesota Multiphasic Personality Inventory (MMPI)**

This is one of the most widely used clinical test and has many variations and forms. It is mostly used in clinical practice. The clinical forms are:

Hypochondriasis, Depression, Hysteria, Psychopathic, Deviate, Masculinity and Femininity, Paranoia, Psychasthenia, Schizophrenia, Hypomania, Social Introversion.

There are also additional MMPI scales as much as the number is 200. These scales are empirical as well as rational scales.

There are many personality scales and inventories and can select depending upon the purpose and use.

From the above discussions it is clear that personality development takes different turn at different age levels. The traits that children develop are a joint function of the situations prevailing in family, school, peers groups and

society at large. Achievement and intellectual attainments are also influenced by these sources but mostly by parental expectations and abilities and characteristics of children which develop during these formative years of life.

### REVIEW EXERCISES

*Answer each questions within 500 words each :*

1. Discuss the reward value of the mother and cite Harlow's observations on infant monkeys in this context.
2. Describe the nature of anxiety in children.
3. What is socialisation ? Discuss the role of imitation and identification in the socialisation of the child ?
4. Briefly describe the role of attachment on human behaviour.
5. Write a descriptive note on the development of conscience in children.
6. What is role of family on the development of personality ?
7. What child rearing practices are good enough for a healthy development of personality ?
8. What is the role of school and peers on the development of childhood characteristics ?
9. What are some of wrong activities that parents do which drive children away from normal development ?
10. What are some of the behaviour problems of early childhood ? How are they dealt with ?
11. Describe the relationship between parents and IQ and achievement of children.
12. What factors are generally associated with development of personality of children ? Explain.

*Distinguish between (50 words) :*

1. aggression and regression
2. rationalisation and projection
3. stranger anxiety and separation anxiety
4. deprived and enriched setting.

*Write notes on : (50 words) :*

1. Dependency
2. Achievement motivation
3. Displacement
4. Sex motive
5. Maternal deprivation
6. Sex typing.

*Mention the contribution of : (50 words) :*

1. Spitz
2. Harlow
3. Gewirtz
4. Sears
5. Winterbottom
6. Yarrow

7. Freud
8. Sarason.

**Write notes on : (50 words) :**

1. Infantile Autism
2. Self esteem
3. Culture and personality

**Write whether the statements are True or False :**

1. Withdrawal from frustrating situations are quite common.
2. Stronger anxiety is rarely seen.
3. Children are malleable.
4. Lack of varied stimulation retards IQ.
5. Overprotection leads to dependence.
6. Mother plays a greater role in the development of children.
7. Neglect of children by parents leads to aggression.
8. Environment seldom plays a part in personality development.
9. Father absent homes leads to better personality development in a male child.
10. Sex typing is desirable.

**Fill in the blanks :**

1. Behavioural relationship between mother and child refers to.....
2. ....is the pioneer researcher in the field of attachment behaviour.
3. Isolation effects in early childhood were studied by.....
4. ....demonstrated ill effects of institutionalisation.
5. Imprinting is a type of.....



## Moral Development

During the past two decades there has been considerable research on moral development by Piaget (1932) and Kohlberg (1964). Such researches have led to defining what is moral behaviour? What factors do influence the development of moral behaviour? What are the phases of moral development and related factors?

### WHAT IS MEANT BY MORAL BEHAVIOUR?

Moral behaviour means behaviour in conformity with the moral code of the social group. Etymologically moral is derived from the Latin word 'Morea' means manners, customs and folk ways. Moral behaviour refers to behaviour of the members of a given culture which has been accepted and followed. It is not unsocial or immoral behaviour.

Children cannot be expected to know all the mores of the group that is expected to behave in a moral way at once. It is developed through socio-cultural conditioning. It is a feeling of personal responsibility that grows for one's acts. True morality is rarely found in children but it should appear occurring adolescence.

Moral development has both an intellectual and impulsive aspect. It refers to what is Right and Wrong. At birth, no child has a conscience or scale of values. Learning to behave in a socially approved manner is a long slow process which extends into adolescence. Children learn to conform to group behaviour no matter whether they agree or not.

'Moral' or 'Pro-social' behaviour are now used in the literature quite often. It means, behaviour which refers to actions that are intended to aid or benefit another person or group of people without the anticipation of external reward.

There are certainly a set of core behaviour which are moral and another set of behaviours (Stealing etc.) whose tacit disapproval is also moral. But what constitutes morality is a subject of great interest.

According to Kohlberg (1964) justice is the ultimate value. True moral behaviour seems to arise from a conception of morality which is based on a consideration for the feelings of other people, and an appreciation of their needs and rights, and that is stern morality, moral knowledge, moral behaviour and moral feeling but seldom they are related to each other. The process of development changes with increasing age and is influenced by internal and external events.

Kohlberg (1964) states : "It seems obvious that moral stages must primarily be the products of the child's interaction with others, rather the direct unfolding of biological or neurological structure.....The fundamental factor causing a structuring of a moral order is social participation and role taking".

Moral development has 4 essential elements.

- (a) Learning of laws, customs, and rules of society
- (b) Developing a conscience
- (c) Feeling of shame and guilt
- (d) Social behaviour in the group interaction.

The child to learn what are the expectations of the group in terms of certain *laws and rules*, the sense of right and wrong, the prescribed pattern of conduct; the rules of social life.

The second essential thing is the development of a conscience to act as an internal control over the individual's behaviour. Conscience is developed and this is a characteristic of a child. It is called an "inner light, super ego, and internalised police man". Conscience ceaselessly keeps an eye on the individual's activities and gives him a sharp treat whenever he deviates from a path of duty. It is an internal standard which controls the behaviour of an individual.

*Guilt* is a negative self evaluation. Which occurs when an individual's acknowledged the behaviour is at variance with a given moral value. Similarly, *shame* is an unpleasant emotional reaction of an individual to an actual presumed negative judgement of himself by others resulting in self depreciation vis-a-vis the group. It relies on external sanction alone. Guilt must be present in true morality. It is one of the most important psychological mechanism through which an individual becomes socialised in the ways of culture.

Social interactions play an important role in moral development. It provides the standards of social behaviour and a source of motivation.

Children learn social behaviour by interacting with family members and peers, neighbourhood, and the group at large. They learn new rules when they go to school. School has stealy influence on moral development of

children. Hence, it depends upon what kind of social group the child has or is interacting with.

Moral development is intimately linked with stages of intellectual development. The two most important studies in this area are those of Piaget and Kohlberg. They have shown how the ability to moral judgement and behaviour that conforms to approved social standards follow a predictable pattern related to the sequence of stages in intellectual development.

### STAGES OF MORAL DEVELOPMENT

Intellectual and moral development are quite related. However, a brief description of stages may prove a better beginning for analysis of moral development.

According to Piaget, moral development occurs in two clear cut stages :

- (a) Stages of moral realism or morality by constraint,
- (b) Stages of autonomous morality or morality by reciprocity or co-operation.

In the first stage children behaviour is characterised by automatic obedience to rules without reasoning and judgement. They follow parents and authority blindly. In the second phase they judge moral behaviour in terms of underlying intent. This stage usually begins by 7 or 8 years of age and extends upto 12 years or more. The rigid notions of right among learned from parents. It corresponds with the period of formal operations.

Kohlberg (1964) has extended Piaget's line of thinking in moral development. He conceived 3 stages of moral development.

**Level I : Preconventional morality.** The child's behaviour is under external control. At first the child is obedience and punishment oriented. Then he learns to conform to social norms to get reward.

**Stage 1.** Heteronomous morality. The obedience-and-punishment orientation.

**Stage 2.** Individualism, instrumental purpose, and exchange. The egoistic stage, which aims at considering self first. But recognises the fact that others have rights.

**Level II : Conventional morality.** He learns conventional rules and conformity. Then in the later stage he learns not conforming to standards would lead to social disapproval.

**Stage 3.** Mutual interpersonal expectation, relationships and interpersonal conformity. The Golden rule morality in which other's approval is sought by behaving correctly.

**Stage 4.** Social systems and conscience. Respect for authority and the social-order expectation of others with a need to support the system.

**Level III : Post-conventional morality.** Morality of self accepted principles. The child becomes flexible but develops social standards to avoid self condemnation.

**Stage 5.** Social contract or utility and individual rights. Legalistic orientation that recognizes the rights of others and majority rule. At this stage, the individual accepts majority rule but also work to change rules that he or she feels are unfair or unjust.

**Stage 6.** Universal ethical principles — Conscience or principle orientation in which the individual follows self-chosen ethical principles in a situation of mutual respect and trust.

Research has shown that people move through the same stages of moral development in a sequentially invariant manner.

Freud's ideas regarding moral development have concerned themselves with the internalisation of moral feelings and with the development of conscience which includes a sense of guilt. There are also positive aspects of how children come to assume the values of the people they love. Morality develops in children because of parental authority and subtle fear of loss of parental love.

Piaget (1932) has approached the study of moral development basically in two ways. One was to see how children's understanding of rules of behaviour becomes modified with age until genuine moral development has taken place; the other was to see how children learn to understand with increasing age the reason for behaviour where a question of morality is involved and thus they learn to make moral judgements.

According to Piaget, the young child under 4-1/2 years of age does not usually play co-operatively, but he plays in parallel with other children. As he approaches five years of age he begins to be aware that other children play with rules, but rules are not important for him. The child is still morally egocentric at this stage. After 5 children enter to the stage of heteronomous morality or moral realisation, or the authoritarian stage. The child does not know how the rules are framed, who did these rules those have existed. They play a lot of the games with rules. After 8, the child accepts that it is permissible to alter rules provided the other player agrees with it. This is the stage of autonomous, reciprocal, or equality stage. The final stage is equity which is reached around 12 years of age a stage of mutual respect, co-operation, understanding of rules, consideration the right of others. Hence the autogenetic development mirrors the phylogenetic development of man's ideas of jurisprudence.

Piaget (1932) reasoned that children's use of rules provided the foundation for their moral development. He observed the ways that children understood and used rules of games they were playing. As a result of his observations he was able to identify four stages of moral development.

1. **Egocentrism (infancy to school age).** The child is moral and motivated mainly by his or her own rules not easily accepting other's wishes before his or her own.

2. **Heteronomy (early elementary school age).** The young child understands that his or her needs and wishes are subject to another's law or authority. The child recognizes that there are rules of behaviour and follows them because there is an authority figure to praise or to punish as the occasion warrants.

3. **Transition (later elementary school age).** The child understands rules and begins to appreciate how rules make things function.

4. **Autonomy (adolescence).** The individual acts in accordance with his or her own code of ethics, which has been developed through experience at earlier stages.

Piaget believed that an individual moves through stages in a fixed order and as a result of meaningful social experience coupled with significant cognitive development. These stages overlap and an individual can display behaviour and thinking across stages.

Besides these levels there are two distinct phases of moral development :

(a) Development of moral behaviour.

(b) Development of moral concepts.

Knowledge of moral development does not necessarily mean practice of moral behaviour because behaviour is motivated by various factors.

### **DEVELOPMENT OF MORAL BEHAVIOUR**

Children can learn to behave socially by trial and error, direct teaching, or through identification. The last two methods are most effective and widely used. Trial and error are not effective but time taking.

The child must first learn to make specific correct responses in specific situations. This they do by conforming to the rules set down by parents and authority. Children transfer their behaviour from one situation to another.

When children identify with people they imitate the pattern of behaviour they observe in these people. A model therefore is good thing of development of moral behaviour.

### DEVELOPMENT OF MORAL CONCEPT

The second phase of moral development consists of the learning of moral concepts or the principles of right and wrong in an abstract verbal form. This is different, therefore, the child has to wait till he develops that level of mental capacity to learn and transfer moral concepts.

Studies reveal that moral concepts are first specific, generalisations emerge later on depending upon how soon the child recognizes common elements in a variety of situations. Pre-school children for example, display good behaviour by obeying mother, and helping mother. By 8 or 9 their concepts become more generalised. They realise "stealing is wrong", it is wrong to steal. These social values are reflected as moral concepts. They tend to change as children's horizon and values change. However, by adolescence, moral values are well formed.

### FACTORS INFLUENCING MORAL DEVELOPMENT

**Discipline.** The popular meaning of the term discipline is punishment. Discipline is the society way of teaching the child the moral behaviour approved by the group.

The goal of all discipline is to mould behaviour so that it conforms to the roles prescribed by the cultural group with which the individual is identified. This varies from culture to culture.

As Spock points out "some people believe that there are only two ways to raise children.

1. Overpermissiveness
2. Overstrictness producing good citizen.

Both are wrong premises and practices. These are also negative approaches. The positive concept of discipline is synonymous with education and counselling in that it emphasizes inner growth — self discipline - self control, maturity, restraint, channalisation of energy in a social way.

Discipline gives children feeling of security : Social approval, social acceptance, successful adjustment and happiness, ego boosting, motivation, conscience, but the nature and type of discipline determines in learning of moral behaviour.

There are four guidelines for behaviour :

- (a) Rules and guidelines for behaviour
- (b) Consistency in these rules and the techniques used to teach and enforce them
- (c) Punishment for wilful breaking of the rules
- (d) Rewards for attempts to model behaviour among social approved lines.

**Punishment** is another factor in the development of moral behaviour. This is the second essential discipline derived from the latin word *punire* means to put a penalty for offense.

Children have been taught what is right and wrong. Consequently it is assumed that any misbehaviour is intentional. Punishment for wrong thing has been justified if it has educational value, but for grow up children verbal explanations (that this is wrong, do not do this) is to be replaced.

Punishment plays three important roles in moral development.

1. The first function is restrictive — It does not allow to repeat socially undesirable activity. Children refrain from doing unsocial acts because of fear of punishment.

2. Function of punishment is educational — Before children understand Right/Wrong they learn it by differential reinforcement *i.e.*, punishment for wrong, no punishment for doing right. Then they learn by direct teaching which is reinforced by punishment for wrong activities. But punishment should be consistent. Severity of punishment is related to seriousness of the wrong act.

3. Motivation to avoid socially disapproved behaviour is the third function of punishment. The child is motivated to avoid the wrong punishment. Hence, it has a strong motivating factor.

### **Punishment may be different types**

Corporal punishment, verbal insult or reproof, withdrawing positive attention. Spare the rod spoil the child is a popular slogan which is no longer true.

Punishment must be developmentally appropriate. If the child does not understand the act, punishment has nothing to do it. He must be able therefore to understand relationship between the two : Punishment and Act. As the child grows this understanding grows. Secondly punishment should fulfil the three functions : restrictive, educational and motivational.

Corporal punishment is least useful changing behaviour of young children. The most effective form of punishment for young children are : insulting, depriving the privileges given, isolating from family members, or playmates.

Punishment in order to be effective must be contingent upon behaviour. If a child throws food on the floor in a fit of temper the child must be made to clean it up immediately.

Punishment be consistent so that the child will know the consequent effect if he does wrong.

Punishment should be impersonal.

Punishment must be constructive so that it motivates individual to act accordingly *i.e.* to avoid unsocial acts.

Punishment must be fair and just.

Punishment be meant for conscience building and control of behaviour. It must not humiliate the child or it must not arouse resentments.

## REWARDS

The third essential factor is Rewards. It means opportunity for the attainment. It does not have to be maternal. It can be approval, a smile or pleasing remark.

Rewards follow attainments. Rewards act as motivation to do work in a socially accepted manner. Rewards play three important roles in teaching children to behave in a socially approved way.

1. They have an educational value. Children know that they have done it correctly or their behaviour is good.
2. Rewards serve as motivation to repeat socially approved behaviour.
3. Rewards serve to reinforce socially approved behaviour and absence of rewards weakens repetitions of social behaviour.

Rewards may be tangible or verbal. The simplest rewards is social recognition. Social recognition and praise be used judiciously. Gifts are sometimes given as rewards for good behaviour. Sometimes special treat is given when someone develops good moral behaviour.

It can be stated that when balanced praise and encouragements are used positive social behaviour outweighs undesirable behaviour in the ratio of 46 : 1. As they grow older, it serves as a powerful force for motivation to try to live upto expectation. Rewards have a tremendous value on learning of social behaviour and they have thus reinforcing value.

These are the factors which influence moral development but besides this the culture and traditions are significant factors.

However, there are certain factors which hinder the development of moral behaviour.

*Low level of intelligence* makes it difficult for a child to acquire moral concepts taught to them. They are unable to immitate automatically good models.

*Defective teaching.* Many times they are taught what not to do than what they should do.

*Changes in social values* are sometimes more confusing to a child than to an adolescent.



*Different moral codes.* Inconsistencies in values are learned. Parents and teachers are responsible for slow development of moral values.

Moral development is a fundamental characteristic of each child. The child gradually learns moral behaviour through a process of socio-cultural conditioning and learning under different influencing factors such as discipline system, rewards, punishment, conscience development. The child learns to be social and the process is complete by the time child reaches adolescence and passes through it. There are cultural variations and the moral behaviour is nothing but a reflection of the society and family in which one lives.

### REVIEW EXERCISES

**Answer each question within 500 words each :**

1. What is moral development ? What are the stages of moral development ?
2. What is Kohlberg's view on moral development ?
3. What is Piaget's idea of moral development ?
4. What factors do influence moral development ?
5. Discuss the role of reward and punishment on moral development.

**Answer the following within 50 words :**

1. Discipline
2. Punishment
3. Reward
4. Conscience
5. Moral behaviour
6. Moral concepts.

**Write whether the statements are True or False :**

1. Overstrictness produces good citizen.
2. Overpermissiveness produces dependence.
3. Double discipline kills conscience development.
4. Punishment is most effective for the child to learn.
5. Rewards motivate and sustain socially appropriate behaviour.

**Fill in the blanks :**

1. ....extended Piaget's line of thinking in moral development.
2. ....originally talked of moral development in children.
3. Moral development is linked with.....development.
4. Punishment should be.....
5. Changes in social values are sometimes more confusing to a ..... then to an adolescent.

# 19

## Mentally Retarded Children

A child's intellectual capacity can range from the level of genius to profound retardation in ability to learn. One of the early definitions of mental retardation was made using the classification levels of mental deficiency : idiot, imbecile, feeble-minded and moral defective. It was a condition of arrest or incomplete development of mind existing before the age of 18 years.

The mental deficiency Act of 1921 in England considered "Mental defectiveness as a condition of arrested or incomplete development of mind existing before the age of eighteen years, whether arising from inherent causes or induced by disease or injury.

According to Doll (1941) there are six different characteristics of mental retardation. These are :

1. Social incompetency
2. Mental subnormality
3. The deficiency is developmentally linked
4. The retardation finally onsets in maturity
5. Retardation is of constitutional origin
6. It is essentially incurable.

The Encyclopedia Britannica defines mental deficiency as "A state of subnormal evaluation of human organism in consequence of which the individual affected is incapable of assuming these responsibilities expected of a socially adequate person, such as self-direction, self-support and social participation.

Sarason and Dorris (1969) defined, "Mental retardation refers to individuals who for temporary or long standing reasons function intellectually below the average of their peer groups but whose social adequacy is not in question or if it is in question, there is little likelihood that the individual can learn to function independently and adequately in the community.

Tredgold (1962) defined, "mental deficiency or amentia is a condition in which mind has failed to reach complete or normal development".

All these definitions were prevalent at different times and in different countries. But none of them are adequate in explaining the concept of mental retardation. The characteristics pointed out by different authors are also unrelated to each other. Therefore, the American Association of Mental Deficiency set up a committee under the Chairmanship of Rick Heber to develop an adequate definition of the concept of mental retardation. According to Heber mental retardation is "significantly sub-average general functioning existing concurrently with deficits in adaptive behaviour and manifested during developmental period" (Grossman, 1973).

This was subsequently elaborated as : Mental retardation refers to significantly sub-average general intellectual functioning resulting in or associated with concurrent impairments in adaptive behaviour and manifested in the developmental period (AAMD, 1983).

This definition has three important and interrelated characteristics :

- (a) Sub-average intellectual functioning
- (b) Development in origin
- (c) Impairment in adaptive behaviour

A standard intelligence test is applied to assess the IQ of children. If the IQ falls below two or more standard deviations from the normal then the child has sub-average intelligence. In Stanford-Binet and Wechsler test the IQ points are respectively 68 and 70.

The low intelligence manifests during the first 18 years of life, and the child in order to be categorised as mentally retarded must also show impairment in adaptive behaviour. Adaptive behaviour is defined as "the effectiveness of degree with which an individual meets the standards of personal independence and social responsibility expected for age and cultural group" (Grossman 1977). Adaptive behaviour means social adjustment which varies from simple self-help skills to that of personal social adjustment in adulthood. For example, during early childhood the emphasis is on maturational skills during school stage it is learning characteristics; and during maturity stage it is personal social adjustment. These are determined on the basis of scores on an adaptive behaviour scale developed by AAMD; Vineland social maturity scale; Adaptive behaviour Inventory of children.

A mentally retarded is one who is below average in intelligence, and who displays poor adaptive behaviour and all these are seen in the first 18 years of life. The degree of retardation would vary depending upon the amount of intelligence and adaptive behaviour.

As noted in the "The Six Hour Retarded Child" the students who perform poorly in school and in mental measures may function adequately at home, and within community. If they are able to meet family and social

needs in every area except in school achievement they are not retarded.

Interest in the study of mental retardation came from the pioneer work of Itard, the French Physician in his study on the care of The Wild Boy of Aveyron. Seguin subsequently focussed on appropriate educational placement and provisions for the low intelligent group of children. Recent years have seen many more progress in this field : legal, organisational and educational, because of interest groups and National Associations in U.S. and U.K. In our country special educational and rehabilitation programme for the handicapped have already been introduced through integrated education programme and special shools.

### IDENTIFICATION

How to know who is really mentally retarded ? Despite the controversy over the term of IQ, IQ continues to be a criterion for identification of retardation and their classification. Two most well known used IQ tests are : Standford-Binet, and Wechsler scales. These tests offer deviation IQs.

In addition to the criteria of IQ, the concept of adaptive behaviour is used in the classification and identification. It refers to the effectiveness with which an individual copes with the natural and social demands of his environment.

### IDENTIFICATION OF THE MENTALLY RETARDED

There are certain behavioural signs which might give an indication about the presence of mental retardation among children.

1. General academic retardation characterised by slow rate of learning, poor problem solving skills, slow reaction to the environmental demands.
2. Poor memory ability. Inability to retain things for a longer period.
3. Difficulty in developing concepts especially abstract concepts.  
✓ Absence of clarity.
4. Inability to arrive at generalisation and see common elements among different objects or events.
5. Slow language development—usually the language is limited in terms of vocabulary and variety.
6. Below average in imagination and creative thinking.
- ✓ 7. Inability to delay gratification and satisfaction by immediate reward.
- ✓ 8. Short attention span and intolerance to frustration.
9. Limited play and social interests.
- ✓ 10. Lack of concentration, heightened distractibility and incapacity for comprehension.
- ✓ 11. Lack of coordination in self-help skills (sucking, chewing, eating, use of hands, legs, fingers etc.).

Levels of Adaptive Behaviour from Birth to Adulthood

<i>Description Terminology</i>	<i>Preschool Age (0-5) Maturation and Development</i>	<i>School Age (5-21) Training and Education</i>	<i>Adult (21 and over) Adequacy</i>
Mildly retarded	Can develop social and communication skills, minimal retardation in sensori motor areas, rarely distinguished from normal until later.	Can learn minimal academic skills (third-through sixth grade level) by late teens; needs special educational, particularly at secondary age school age levels.	Capable of social and vocational independence with proper education and training; some need supervisions and guidance.
Moderately retarded	Can talk or learn to communicate; poor social awareness; may learn to walk and feed self. Toilet training is minimal.	Can learn academic skills through third grade by late teens if given special education, although still functionally illiterate.	Capable of self maintenance in unskilled occupations, but needs supervisions and guidance.
Severely retarded	Poor motor developments speech is minimal; generally unable to profit from training in self-help; little or no communication skills; may learn to walk.	Can talk or learn to communicate; can be trained in elemental health habits; cannot learn functionally academic skills; profits from systematic habit training.	Can contribute partially to self support under complete supervision as by developing skills to a minimal useful level in sheltered workshop, needs permanent care.
Profoundly retarded	Gross retardation; rarely develops feeding, speaking, toilet, or other self-help skills, often bed bound.	Some slow motor development; are bed bound; cannot profit from training in social helps, needs total care.	Little motor or speech development totally incapable of self maintenance, needs permanent care.

12. Some have physical features like small or large head, small eyes, straight hair, fissured tongue, low set ears and small stature, physical deformities and paralysis of one or more limbs.
13. In case of school going children there is repeated failures and inability to cope with the lessons.

Delay Some of the normal milestones of development and average age range at which they are attained are :

1. Responding to name/voice	1-3 months
2. Smiling at others	1-4 months
3. Neck control	2-6 months
4. Sitting without support	5-10 months
5. Standing with support	9-14 months
6. Walking independently	10-20 months
7. Talking in 2-3 word sentences	16-30 months
8. Eating and drinking by self	2-3 years
9. Telling one's name	2-3 years
10. Toilet control	3-4 years
11. Avoiding simple hazards	3-4 years

Assessment is made on the basis of maturational and developmental skills in the areas of communications, motor ability and self-help in early childhood. In later period, learning and social skills receive greater significance and emphasis. During adolescence, social and vocational adjustments are emphasised. AAMD adaptive behaviour scale and the Caine-Levine Social competency scale are quite well known tests of measuring adaptive behaviour. The adaptive behaviour dimensions according to AAMD behaviour scale are related to the following dimensions—ABS Manual (1975).

### COMPONENTS OF THE A.A.M.D. ADAPTIVE BEHAVIOUR SCALE

#### Part 'A'

Independent functioning—Eating Toilet use, Cleanliness, Appearance and Care of clothing, Dressing and Undressing Travel, General independent functioning;

Physical development—Sensory, Motor;

Economic activity—Money handling and Budgeting shopping skills;

Language development—Expression, Comprehension, *Social language*

#### Part 'B'

Violent and Destructive behaviour;

Antisocial behaviour;

Rebellious behaviour;

Untrustworthy behaviour;

development;

Number and time;

Domestic activity—Cleaning, Kitchen duties, other domestic activities;

Vocational activity;

Self-direction—Initiative, Perseverance, Leisure time;

Responsibility;

Socialisation.

Withdrawal

Stereotyped behaviour and odd mannerisms;

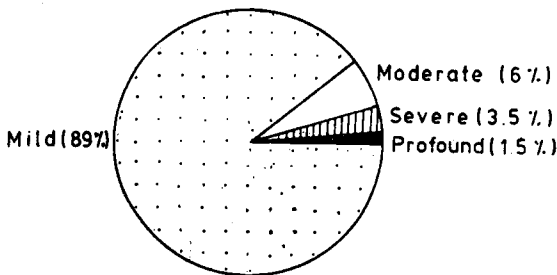
Inappropriate interpersonal manners;

Unacceptable vocal habits;

Unacceptable or eccentric habits;

Self-abusive behaviour; Hyperactive tendencies; Sexually aberrant behaviour; Psychological disturbances; Use of medication.

Sub-average intelligence and impairment in adaptive behaviour are seen before age 18 years. In India, Palit (1969) tried to find retardation being intimately connected with the planets like Mercury, Moon and Saturn. Jain (1972) found that family history and retardation had high association. Birth order and spacing between births have association with retarded condition. Those born as first born to mothers below 19 years of her age, had more chances of being retarded. Teja *et al.* (1970) found retardation having strong association with rural areas and family history of retardation or organic psychosis. Kuppuswamy (1968) did a survey in middle schools of Mysore city and found existence of 1.41 per cent cases of mental retardation. He also found caste as a variable in retardation. De Souza and Iyer (1969) found that among mentally deficient 36 per cent had primary and 61 per cent had secondary mental deficiency.



Percentage of Mental Retardation

There are different methods of classification of mental retardation. The medical classification is based on the cause, the psychological classification

on the level of intelligence and the educational classification on the current level of functioning of the mentally retarded person/child.

### CLINICAL CLASSIFICATION OF MENTAL RETARDATION

<i>Medical</i>	<i>Educational</i>	<i>Psychological</i>	
1. Infections and Intoxications	1. Educable IQ 60-85	1. Mild Wechsler 55-69	Stanford Binet 52-67
2. Trauma or Physical agent	2. Trainable IQ 30-59	2. Moderate 40-54	36-51
3. Metabolism or Nutrition	3. Custodial IQ Below 30	3. Severe 25-39	20-35
4. Grossbrain disease (Post natal)		4. Profound below 25	below 20
5. Unknown prenatal influence			
6. Chromosomal anomaly			
7. Gestational disorder			
8. Environment influence			

The various classification provide an understanding of the level at which the mentally retarded person functions with respect to his education, appropriate behaviour and the degree of his independence. The characteristics of the mentally retarded persons vary depending upon the level of retardation, country, age, culture etc. The terms currently used to describe the various degrees of mental retardation are mild, moderate, severe and profound. Table-II describes the characteristics of persons with various degrees of mental retardation.

On the average 2.5% children are mild and moderately retarded and .5 per cent are severely retarded. However, there is no systematic National Survey conducted to determine the prevalence of mental retardation in India. Recently, it has been estimated that in India, there are about 20 million persons who are mildly retarded and about four million persons who are moderately and severely retarded. The figures of prevalence of mental retardation in India vary from 0.22 to 32.8 per thousand population.



## CAUSES OF MENTAL RETARDATION

There are several causes leading to Mental Retardation.

### GENETIC

One of the most visible condition associated with mental disorder is Down's syndrome. Mongolism was also used to explain this symptom because of similarity in physical features. Down's syndrome doubles when the mother's age exceeds 30 years. Down's syndrome contains non-sex determining chromosome. Chromosomal anomaly explains many forms of mental disorders. In nondys-junction Down's syndrome one pair of genes fails to separate at conception, resulting in an extra or 47th chromosome after fortysix (trisomy no. 21). This is related to older age of the mother.

Translocation is common. It occurs because of faulty cell division in which one chromosome is attached to another. In Mosaicism, the cell receives an extra twenty first chromosome, but there are fewer abnormalities in this form of Down's syndrome.

The child with Down's Syndrome has small ears, protruding tongue with deep fissures, slanted eyes, broad hands with short fingers, short stature and underdeveloped genitalia. Congenital heart disorders and respiratory complications are quite common.

Degree of retardation in such cases varies from mild to severe. Treatment would involve special educational provisions and medication.

Turner's syndrome results from the absence of an X-chromosome in the female (XO). Learning problems are usually seen, including loss of hearing. Treatment includes use of female hormones to develop female sex characteristics. Klinefelter's syndrome is seen in male due to the presence of an additional X-chromosome (XXY) and chromosome count of 47. The male usually develops female characteristics. Mental retardation due to this factor remains within the moderate range.

### CONGENITAL DEFECTS

Microcephaly and Hydrocephaly are two types of disorders which involve cranial and congenital defects. These are due to unknown origins and they exist before birth. Primary microcephaly is inherited whereas secondary microcephaly is acquired. In the case of primary microcephaly the brain tissue is underdeveloped but in relation to size of the cranium. Retardation ranges from mild to severe.

Overproduction or under absorption or cerebrospinal fluid is termed as hydrocephaly. The head is globe shaped, the bridge of the nose is flat and

the eyes are pushed downward, and become more widely spaced. It is not hereditary. Surgery is applied to prevent further disorders.

### **GESTATIONAL FACTORS**

Gestational disorders like prematurity also causes mental retardation. Even post maturity is also harmful in sense that surgery is applied for birth and because of extra growth, there is prolonged labour and consequent adverse effects on the brain of the new born.

Severe environmental deprivation, special sensory handicaps (deafness and blindness) contribute to retarded development. Multiple handicaps such as epilepsy, and cerebral palsy also account for some degree of retardation. After birth the child can contract diseases such as meningitis and encephalitis which can also result in retardation.

### **LEAD POISONING**

Today most victims of lead poisoning are infants and toddlers who are likely to take edible objects into their mouths. Common source of lead poisoning is use of lead paints in the wall, furniture, crib rails, toys, battery cases, chewing of lead pencils etc. The symptoms of lead poisoning include weight loss, anemia, stomach cramps and constipation. Other symptoms include mental depression, irritability, and convulsions. Lead poison is retained in the body and leads to permanent brain damage, and mental retardation. Lead poisoning is treated by using medicines *e.g.* 'EDTA' and maintaining a healthy diet. Lead free environment is to be ensured. Prevention is most important since it leads to permanent damage of the brain.

### **INFECTION AND INTOXICATION**

During the prenatal period the fetus is susceptible to damage from maternal infection and intoxication. Within the first three months of pregnancy, the mother's infection of rubella can lead to serious complications, such as : mental retardation, heart disorders, seizures etc. About 10 to 85 per cent of rubella babies suffer from these types of ailments. Mental retardation occurs due to congenital syphilis, although syphilis can be controlled. Postnatal infections caused by viruses, bacteria, parasites and fungi may also lead to mental retardation. Toxic agents cause damage to the fetus. Mother-fetal blood group incompatibility can lead to death and spontaneous abortion of the fetus. This is inherited.

Exposure to X-ray in the early months of pregnancy, using harmful drugs especially those used in treatments of cancer, antiepileptic drugs and hormones can damage the growing fetus. Untreated fits of the mother, and accidents from falls resulting in injury to the abdomen can damage the growing fetus and lead to mental retardation.

**TRAUMA**

Prenatal, Perinatal and Postnatal injury cause trauma. Radiation cause prenatal injury which leads to retardation. Mechanical injury or birth injuries cause brain damage. Anoxia is responsible for mental retardation. Postnatal anoxia are caused by shock, respiratory difficulties. The extent of brain injury will determine the degree of retardation.

**METABOLIC AND NUTRITIONAL DISORDERS**

Galactosemia is a carbohydrate disorder which is transmitted genetically. In such cases, the infants fail to metabolise the galactose in milk. Unless the child is placed on a low lactose diet mental retardation onsets. Similarly, when the body fails to change phenylalanine into tyrosine, it leads to phenylketoneurea. (PKU) which can be detected easily by urine culture or blood analysis. Low protein diet acts as prevention to such disorders. Hypothyroidism or Cretinism is a common disorder leading to low IQ. Use of Thyroxin can lessen cretinism.

**POSTNATAL**

Neurofibromatosis and Tuberous sclerosis are two examples of gross brain disease. Neurofibromatosis is hereditary and is characterised by brownish spots on the skin, and tumours in the brain and nervous system. Tuberous sceleris is characterised by reddish-orange nobules in a butterfly pattern in the face and cheeks. This is hereditary. Its treatment consists of removal of tumours wherever possible and use of anticonvulsants in case of seizures.

Postnatal grown brain disease includes genetic disorders such as neurofibromatosis and tuberous sclerosis. Hutington's chorea is a condition that does not appear generally until a person is in the mid thirties, at which progressive deterioration of the brain occurs. Preventive measures include sterilisation.

**Percent of Mentally Retarded new patients in Mental Retardation clinics in the United States by Medical classification and subgroup by 1971**

<i>Primary Medical diagnosis of condition Causing or Associated with Mental Retardation</i>	<i>Percent</i>
Total Mentally Retarded	100.00
Infection	<b>6.19</b>
Prenatal infection	2.70
Postnatal cerebral infection	3.49
Intoxication	<b>3.20</b>
Toxemia of pregnancy	1.19
Other maternal intoxications	0.37
Bilirubin encephalopathy (Kernicterus)	0.87
Post-immunization encephalopathy	0.10

Other	0.67
Trauma or physical agent	<b>11.72</b>
Prenatal injury	1.40
Mechanical injury at birth	2.12
Anoxemia at birth	5.76
Postnatal injury	2.44
Metabolism, growth or nutrition	<b>3.76</b>
Cerebral lipoidosis, infantile	0.13
Other disorders of lipid metabolism	0.17
Phenyleketonuria	1.03
Other disorders of protein metabolism	0.24
Galactosemia	0.12
Other disorders of carbohydrate metabolism	0.20
Arachnoactyly	0.04
Hypothyroidism	0.53
Gargoylism (Lypochondrodystrophy)	0.23
Other	1.07
New growths	<b>1.32</b>
Neurofibromatosis	0.62
Trigeminal cerebral angiomas	0.07
Tuberous sclerosis	0.43
Intracranial neoplasm, other	0.20
Prenatal influence	<b>24.72</b>
Cerebral defect, congenital	7.20
Cerebral defect, congenital associated with primary cranial anomaly	2.56
Laurence-Moon-Biedl syndrome	0.07
Mongolism	8.15
Other	6.74
Unknown cause-structural reactions manifest	<b>16.85</b>
Diffuse sclerosis of brain	0.29
Cerebral degeneration	0.28
Prematurity	6.30
Other	9.98
Uncertain cause—functional reaction alone manifest	<b>32.23</b>
Cultural familial	8.78
Psychogenic, associated with environmental deprivation	4.26
Psychogenic, associated with emotional disturbance	4.03
Psychogenic (or major personality) disorder	2.03
Other	13.13

**Source:** U.S. Department of Health & Welfare, Mental Retardation Clinic Services, 1971.

Chromosomal anomalies can now be detected prior to birth through a surgical technique known as aminocentesis. In this procedure a sample of the amniotic fluid surrounding the fetus is examined and if chromosomal abnormalities are present it can be determined that the child will be affected. A decision can then be taken to abort the fetus.

Environmental influences explain by far the greatest number of cases for which an etiological classification is given. Prevention focuses upon the enrichment of impoverished environment and the provision of high quality educational and social services.

Vergheese and Rao (1961) have discussed in some details some aspects of pathology, diagnosis, and management of mongols. Mothers of the mongols were 10 years older than the mother of the normals. Immediate elder of a mongol was three years older than the immediate elder of the normal. The average position of the mongol child in the family was eighth.

### Preventive Measures

1. Vaccination against rubella.
2. Surgical procedure to correct hydrocephaly.
3. Amniocentesis to detect chromosomal aberrations in the fetus.
4. Use of drugs to control the effects of childhood illness.
5. Blood transfusion of Rh-factor babies and vaccination of Rh-sensitised mothers.
6. Laws that prohibit the use of lead based paint on baby toys and furniture.
7. Dietary treatment of PKU and galactosemia.
8. Improved maternal nutrition and parental health care.
9. Genetic counselling for persons who are carriers of potential genetic defects.
10. Enrichment of impoverished environments.

## CHARACTERISTICS OF THE MILDLY MENTALLY RETARDED

### Learning and Memory

Mildly retarded children have poor learning ability and they forget quickly. Learning difficulty in the subnormal could be partly overcome by manipulating the rate of presentation. Sen and Sen (1967) in a comparative study of two significantly different mental age groups or retardates found that low M.A. group learnt very slowly but on recall test after a fortnight the difference between the two groups was not found significant. In another experiment Sen, Clarke, and Cooper (1968) found that no difference in recall after one month interval although they found that in serial learning control group was significantly faster. Sen and Sen (1969) found negative correlations between speed of learning and intelligence. Sen and Sen (1969) in an experimental study tried to determine the effect of prior learning on subsequent learning. The results showed that the high degree of prior learning, led to a positive transfer in learning of the second list. Sen and Patnaik (1973) study demonstrated that transfer from one task to the other

equivalent task was sufficient enough to alter the second learning situation in such as that mastery of the transfer task was rapid. In a study of reminiscence in retardates Roy (1971) found that there was improvement in the reproduction of new response. Over learning improves memory.

Das (1965) found that the retardation has longer reaction time. The retardates were found to be more sensitive than normal to evaluative verbal stimuli like "good" and "bad". Retardates could name colours faster than reading and words and showed relatively less interference than normals in naming the colours of words. Das (1961) found that intelligence level among the retarded was related to the ability to acquire and extinguish verbal conditioned responses. As the tasks became complex, this difference increased in proportion to intelligence. Same was true of classical conditioning (Narayana and George, 1970).

### **What is to be done to improve their learning and memory ?**

1. Use material that matches the developmental level of the pupil. Be sure that success is possible.
2. Limit the length of the learning task to be commensurate with pupil's attention span.
3. Present the task in small, sequential steps.
4. Introduce few elements of a concept in any period.
5. Present concepts in a concrete manner.
6. Provide repetition, especially distributed practice.
7. Provide for transfer of learning by presenting the same concept in a variety of settings.
8. Present learning tasks that are useful in real life situations.
9. Use creative repetition in presenting tasks by varying the presentation slightly to maintain student interest.
10. Use the principle of over learning to teach mastery and to ensure long term memory of the material.

### **PERSONALITY**

Certain basic differences are observed in Mildly retarded and normals. The retarded scored higher on extraversion and lower on neuroticism scales. Retardates are more extraverted than normals. Mohan (1972) found that the retarded and gifted did better on persistence test than the normals. The subjects who were high on extraversion and neuroticism and low on intelligence were found to be a more persistent. Retarded are very rigid both physiologically and in their personality make up. The retarded were also emotionally disturbed. Sircar (1975) found them to be more hostile than normals on diagnostic tests. They need help in resolving their conflicts.

Gandhi (1974) demonstrated that the retardates could learn a variety of social behaviours through social feedback. Banerji (1970) using sociogram method studied the relationship pattern of pairs of retarded children. Panda and Lynch (1973, 1974) found that retardates had greater faith in luck and failure situations' as compared to success situations.

Retarded children have a poor self concept and are very impulsive. They show a global style of looking at things. They do have an external locus of control (Panda & Lynch, 1971; Panda, 1971; Panda & Lynch, 1974).

**Physical Fitness.** How do educable mentally retarded children compare in physical fitness to their normal school age peers ?

The Francis and Rarick study (1959) was the first well controlled examination of the differences between normal and mentally retarded subjects in physical fitness. They tested 284 mentally retarded children with a CA range of from 7.5 to 14.5. Twelve of the 16 tests utilised in the study were measures of physical fitness.

The findings indicated that the mentally retarded children were markedly inferior to normal children of the same age in all tests and that the difference seemed to increase with age. It was also noted that the performance of the retarded subjects followed the same pattern as that of normal children, but at a lower level.

In considering the fact that retarded children as a group are extremely heterogeneous in many attributes. Auxter (1966) compared a group of 35 normal boys with three groups of differentially diagnosed mentally retarded boys on five tests of physical fitness. Based on the Riggs and Rain (1952) classification, 33 boys were classified non-brain damaged, 31 boys as brain damaged, and 27 as undifferentiated. The retarded boys ranged in CA from 9 to 11 years and in IQ from 50 to 79.

The results indicated that the normal boys were significantly superior to the three groups of retarded boys on tests of grip strength, vertical jump, and ankle flexion. No differences were found among the three retarded groups on any of the tests except the vertical jump, on which the non-brain damaged group outperformed the other two groups of retardates.

What is the relationship between motor skills proficiency and intelligence ? How do retardates compare in motor proficiency with normal children of similar chronological age ? And does motor skills proficiency have any relationship to peer acceptance or social class ?

Sloan (1951) administered the Lincoln Adaptation of the Oseretsky Test of Motor Proficiency (Sloan, 1948) to 20 institutionalised boys and girls and 20 normal boys and girls. Of the ten male retardates, five were further

classified by medical staff as familiar and five as undifferentiated. The same procedure was followed for the girls.

The results indicated that the retarded boys and girls were significantly inferior to their normal counterparts on all six motor proficiency factors.

Howe (1959) found that normal boys and girls performed significantly better than retarded children on 11 measures of physical ability. The tests used in this study included three fitness items, four gross motor items, and four fine motor items.

In general, it can be felt that educable mentally retarded children as a group may be expected to be inferior to children of normal intelligence and similar chronological age in physical fitness and motor skill proficiency.

The question of whether or not the motor skills proficiency of educable mentally retarded children can be improved was tried out.

Lillie (1966) administered 65 diagnostically based motor development lessons to a group of 16 preschool culturally deprived children. This was a subordinate study to the Hodges, McCandles and Spicker (1964) study. The lessons were evaluated in terms of a gross motor score and a fine motor score on the Lincoln Oseretsky Motor Development Scale. The contrast groups were a kindergarten control group and a home control group.

The results of this study indicated that all groups made significant gains in gross motor proficiency. However, the fine motor proficiency of the experimental group was significantly superior to that of the kindergarten group, which in turn was superior to the home control group.

Dempsey (1968) conducted a two hour a week programme of specially designed balance activities for a four months with elementary school age retarded children. She included only one control group that received a standard physical education programme during the usual period of time.

The results indicated that the experimental group made significantly greater gains than the control on several gross motor tests including all six balance tests on the Lincoln Oseretsky.

In short, Educable mentally retarded children, as a group, seem to be from one to two years behind their normal counterparts in physical fitness.

The physical fitness pattern of development for retarded children is similar to that of normal children, but at a lower level.

Mentally retarded children, as a group, are inferior in motor skill proficiency when compared than it is for normal children. Children classified as brain damaged and non-brain damaged do not appear to be significantly different on measures of physical fitness and motor skill proficiency.



Some of the research implies that retardates are more proficient in gross motor skills than they are in fine motor skills.

Based on the intervention research the following conclusions may be drawn :

1. Specially planned and implemented motor development programmes are beneficial in improving the gross and fine motor skill proficiency of educable mentally retarded children.
2. Specially planned programmes of physical education and physical conditioning are beneficial in improving the physical fitness of educable mentally retarded children. In some cases, such improvement compares favourably with the performance of normal children of similar chronological age.
3. No cause and effect relationship has been demonstrated between physical education programmes and improved intellectual functioning.

### CREATIVE THINKING

Early writers in this field have used such terms as, imagination and creativity to explain the phenomenon we now term productive thinking. According to Guilford (1959), divergent production is the creative component of thinking. Guilford's theoretical position explained in his model of the "Structure of Intellect" has provided the foundation for much of the research in this area.

Guilford's (1959) model describes the individual's ability to vary his thinking in different ways. This productive thinking has four major components; flexibility, originality, elaboration, and fluency. Flexibility is a measure of the ability to change one class of thinking to another. Originality indicates the uniqueness of a response. The response may be of high, medium or irrelevant quality. Elaboration is a measure of the number of ideas used to build into the basic response. Fluency is the number of relevant responses given within a specified time.

The great majority of the studies done in this field have been done with intellectually gifted children. It seems that most investigators have not considered the possibility that children of below average intellectual functioning may exhibit some degree of productive thinking ability.

How do retarded children compare with normal children in productive thinking abilities ? and (b) Can the productive thinking abilities of educable mentally retarded children be improved ?

A comparison of the productive thinking abilities of retarded and

normal children was attempted by Crawley (1966). One verbal and two non-verbal measures of productive thinking were administered to a group of 26 special class retardates, a group of 26 regular class retardates, and a group of 26 children of normal intelligence. The three groups were equated in mental age. Crawley found that no significant difference existed among the groups on the measures used. He also found no significant correlation between mental age, IQ, and the productive thinking modes utilised.

Tisdall (1962) was one of the first to investigate the effects of schooling on the productive thinking abilities of retarded children. As part of the Goldstein (1965) study, Tisdall administered Torrance's (1960) tests to a group of retarded children in regular classes, a group of retarded children in special classes, and a group of normal children. He found no significant difference among the groups in non-verbal measures. However, the means for the normal and special class groups were significantly better than the means of the regular class groups on the measures of verbal productive thinking. With regard to the comparison between regular class retardates and normal children, the results of the study are in direct agreement with the results of the Crawley (1966) and Smith (1967) studies.

A more direct attempt to influence the productive thinking abilities of retarded children was attempted by Rouse (1965). Rouse constructed an experimental group and control group of Special class retardates ranging in age from 7-7 to 17-2. The Minnesota Tests of Creative Thinking (sub tests, productive improvement and circles tasks) were administered to each subject. The experimental classes were exposed to a six week program of productive thinking activities devised by the investigator. The regular classroom teachers were trained to administer the program. The results indicated that the experimental group made significantly greater gains than the control group.

The following conclusions were drawn :

- (a) There seems to be a weak relationship between productive thinking and IQ and academic achievement.
- (b) Educable mentally retarded children demonstrated a lower level of verbal productive thinking than normal children, but seem to be equal to normal children on measures of non-verbal productive thinking.
- (c) Conflicting evidence exists with regard to whether or not the productive thinking abilities of retarded children can be improved.

## **SOCIAL AND EMOTIONAL CHARACTERISTICS**

Retarded children appear to be especially vulnerable to emotional problems

because of their intellectual handicaps. Their deficiencies in judgement, in understanding of their environment, and in anticipation of the results of their behaviour constantly lead them into situations in which they experience failure and punishment.

Most of the research that has been done on social and emotional adjustment of EMR children can be categorised as studies to determine one of the following : (a) the adjustment of EMR children in regular classes, (b) the adjustment of EMR children in special classes, (c) the adjustment of EMR children in regular classes compared with the social position of EMR children special classes, or (d) the adjustment of EMR children in partially integrated arrangements.

The findings of the studies dealing with administrative arrangements could be summarised as follows :

1. The mentally retarded child in the regular classroom is not accepted as readily as his more capable peers.
2. Placing a child in a special class does not necessarily mean that his acceptance or self concept will improve.
3. The special class seems to promote better "sociometric" adjustment of a retarded child; that is the retarded child will be more accepted and less rejected in a special class than in a regular class, partly because of the decrease in numbers and a different reference group.
4. The self concept of the retarded child will be better if he is left in a regular class only if interventions are introduced.
5. The special class retarded child probably interacts less with his neighbourhood peers than he would if he were in a regular class.
6. Partially integrated arrangements do not give a retarded child sociometric equality with the normal child, but they do improve the retarded child's self concept.
7. Achievement motivation is poorer for EMR's placed in special classes.
8. Parents of EMR's are satisfied with their child's progress and placement in special classes.

Many of the recent studies reported in the literature of social and emotional adjustment of the retarded deal with ways of improving the adjustment of EMR children. This is an encouraging sign. Too often the reaction of educationally oriented professionals, among others, to poorly adjusted EMR's has been really negative. It has been felt and often verbalised that nothing constructive could be done. Many seemed to feel that if they ignored the problem it would go away. The problem usually "went away" in the form of a drop-out without, or probably because of, no intervention program on the part of the school. The studies presented in this section

generally will not be presented in detail; most of them are not controversial but what is of interest usually is whether or not they found something 'that worked' and to what group the results may be generalisable.

The retarded child lacks social skills in comparison with normals. This can be inferred from his poor scores on sociometric devices. Also, Johnson's (1950) finding that the mentally retarded are rejected because of their antisocial behaviours is another indication of the lack of adequate social skills. Aprasia (ability to perceive persons as separate entities but not in meaningful or significant interaction in group activity) may contribute to social skill deficits. Tayler (1967) found a significantly greater incidence and degree of aprasia among retardates than among normals of the same chronological age. His EMR sample had a mean (A) of 12 and IQ range 50-65. Another factor which contributes to poor social skills is poor logical thinking which is probably correlated with aprasia. Ross (1967) conducted a study to determine if a training program in which social skills were taught would increase the young EMR's knowledge of appropriate social behaviour. He found that his experimental group, receiving specific training, was able to improve significantly in both knowledge of appropriate social behaviour and logical thinking. This carefully designed study has implications for public school EMR programs. Mentally retarded children would benefit from the inclusion in the curriculum of a formal training program designed to improve knowledge of appropriate social behaviour. It seems reasonable that as a result of this training program the prevalence of aprasia among EMR's would also decrease.

Probably the pedagogical methods, group counselling, grouping with popular children and specific ideas for improving social skills would be most appropriate with the educable mentally retarded groups. The vocational counselling would be appropriate for upper trainable and educable groups. The social reinforcement techniques are appropriate for all levels of retardation and in all environments home, school, or institution. The various techniques probably produce different levels of changes in adjustment and bring about these changes with varying amounts of time and/or effort invested. Once behaviour modification techniques are learned, they can be applied relatively easily to bring about rather immediate changes in sociometric standings. The group counselling methods take much longer and probably endanger changes in individual's self concepts. This approach would be utilised if the "deeper" levels of personality adjustment were of interest. It is encouraging that serious thoughts and energy is being extended in finding ways to help the retarded become more socially adjusted.

Opportunities to develop more appropriate social skills include the following :

- Exchanging proper greetings
- Engaging in play activities
- Seeking alternative strategies to fighting
- Developing a sense of human knowledge of whom to trust
- Participating in small group work
- Engaging in social interaction

Lenneburg, *et al.* (1964) attempted to assess the linguistic production of a group of mongoloid children and to correlate this with progress on some other developmental indices. 63 Mongoloids were studied over a three year period; measures consisted of medical histories, neurological examinations, psychological testing, and tape recording of spontaneous utterances, assessment of vocabulary, sentence repetition tasks, and performance on the Binet and the Merrill Palmer. Stages of language development were determined by assessing the child's language production, and then intercorrelations were computed between these stages and performance on development indices.

Correlations were found between age and stage of motor development, naming, vocabulary and understanding, and ability to repeat sentences which were complex syntactically. No correlation were found between comprehensibility and understanding. IQ and stage of language development, articulation of a test and articulation spontaneously, pronunciation of phonemes in one context and another, and complexity of grammatical structure obtained and ability to parrot sentences.

These findings appear to indicate, as linguists have long believed, that there is a connection between language development and other developmental tasks. It is interesting to note that when a non-verbal test is used. There is no correlation between IQ and stage of language development. Furthermore, as one might suspect, naming, extent of vocabulary and understanding are intimately related to stage of language production.

The study has implications for the speech defects, since the degree to which the child's speech is comprehensible is unrelated to his understanding. It also indicates that the way a child performs on an articulation test is not necessarily indication of how well he will articulate in other settings. Consequently diagnosing a child as speech defective on the basis of his performance on an articulation test may not be an accurate picture of his capabilities.

The Lenneburg study contains several interesting measures of the language comprehension of monogloid children, and some of his measures may be used as guides for other studies of comprehension. As previously noted, paraphrasing a sentence in an index of comprehension; parroting is not. In fact an adult will be able to parrot a meaningless string of words, but

not a meaningful sentence. Therefore, it appears that the inability to parrot a sentence can be taken as an indication of comprehension. The Lenneburg study indeed found a negative correlation between this ability to parrot sentences and the level of grammatical structure attained. The level of grammatical structure attained is an output measure. It appears that grammatical structure may aid memory.

What we seem to know so far about the language of trainables therefore, is that it's development is intimately related to motor development, that comprehensibility is not related to understanding, and that institutionalised retardates do not perform significantly more poorly in terms of total language score. It also appears that their performance on the articulation tests used in the speech defect studies may not be an accurate picture of their performance on spontaneous utterances.

The other studies examining the characteristics of the language of the retarded child deal with the educable group. And it is important to note that these subjects are of the cultural familial type. This is important because it indicates that, besides language deficits, these children also have a lack of certain types of experiences in common; the two appear to be interrelated. If we can determine what the linguistic deficits are and what the deficits in experiences are, then we ought to be able to determine how to eradicate linguistic deficits by providing the necessary experiences.

By far the most influential and pervasive theory of the linguistic deficits of the deprived is Bernstein's. He hypothesised the existence of a "public" language which is different in a number of specifiable ways from the more "formal" language of the middle class. It was hypothesised to consist of "short, grammatically simple, often unfinished sentences, a poor syntactical construction with a form stressing the active, mood, rigid and limited use of adjective and adverbs, low order of generality of symbolism, and a low level of conceptualisation"

In a study done in 1962, he tested four hypotheses related to this theory; (a) that the codes can be distinguished, (b) that their use is associated with social class, and (c) that their use is independent of intelligence, and (d) that the public language is characterised by a smaller amount of verbal planning.

The speech of the working class person ought to be characterised by fewer pauses than the middle class.

There are theories which claim that the four functions of language of the lower class person have qualitatively different characteristics from those of the middle class person. Speech is hypothesised to be less complex both syntactically and semantically, and the theorists imply that comprehension is also similar in nature to production. They also imply that these deficits

have strong implications concerning complexity of thought. We have seen that there is indeed a social class difference with increasing deficit for the lower class child on concept sorting performance; the Batza study appears to indicate that linguistic performance of the educable group as a whole is similar in nature to younger normal children, and that within the group, complexity of sentence production appears to be related to IQ.

One of the earliest of the intervention studies was that done by Smith (1962). This was an attempt to study the effects of a group language program on the language abilities of a group of deprived children. Specifically, Smith hypothesised that a language development program would enhance total language age scores as measured by the ITPA, that IQ would be unrelated to language age score gains, and that initial language age scores would be unrelated to total language age score gains.

Sixteen matched pairs (on CA and overall LA pretest scores) were used. All were students in special classes. All were between the ages of 7 and 10 and had received Binet scores between 50 and 80. Over a three month period the children were taken from their special classes into groups of eight each, three times a week for 45 minutes. They were exposed to a language program which was designed to be stimulating and enriching. Each child was urged to be an active participant in the program. The lessons were planned to include a wide range of activities with visual and auditory stimuli and were aimed to decoding, association and encoding of linguistic symbols.

Decoding activities were such things as answering oral questions, carrying out instructions, and recognising objects or naming. Association activities included such tasks as relating objects to their spoken names, naming pictorial stimuli, and listening to stories and answering questions. Encoding activities included naming and describing pictured objects, rhythmic activities and finger play.

Results at the end of the three month period showed that the experimental group gained 6.75 months on the total language age score as measured by the ITPA; the control group lost four months. This is a significant difference. The mean language age gain of the experimental group was thus more than seven months over the gain of the matched control group. The experimental group showed gain for all nine subtest scores, with the greatest gains on the vocal encoding subtest (number of concepts enumerated to an object) and the visual motor association subtest (choosing a picture which has a conceptual communality to a first picture). For the control group, performance on 5 of the 9 subtests remained the same or decreased, with minimal gains shown on the other four subtests. It was found that neither IQ or initial LA was related to the LA gain.

It is important to note that the experimental group received another differential type of treatment besides the language lessons which might account for results because they were removed from their special classes for these lessons whereas the control group subjects were not. A Hawthorne effect may be operating. It must also be noted, however, that the greatest gains seemed to be made by the experimental group on subtests which were similar in task orientation as the lessons. For example, one might expect a child who had received more experience in describing pictured objects to do better on a task which requires him to enumerate a large number of concepts in response to an object. It therefore appears that the types of gains made are related to the emphasis of the lessons that the children had been exposed to.

Mueller and Smith (1964) attempted to measure whether the gains made in the Smith study were stable over time. Thirteen matched pairs from the original Smith subjects were used, and they were administered the ITPA 13 to 14 months after the original testing. The same examiner administered the test as in the first study.

Differences between the total LA scores of the Smith pretest, the Smith posttest and the Mueller and Smith Follow-up scores were compared; as we have noted the differences between the Smith pre and post test LA scores were significant, but this difference did not hold up on the follow-up test, although the experimental group still tended to score above the controls. Mueller and Smith did an analysis of the individual improvement scores and found that eight children showed no improvement while eight improved from 6 to 16 months. Further, an analysis of IQ and class placement showed no differences between these two groups, and they take this as evidence that the children were stimulated differentially by the programme. What this result implies is that three months of language stimulation is not sufficient to maintain gains over time, and this in turn implies that language stimulation programs begun in preschool are going to have to be maintained in regular classrooms if gains are to be maintained. Since the experimental group continued to score above the controls, it does not appear that language development stops when lessons do; it simply implies that the acceleration begun in the enrichment program is slowed down when it is given up.

One study which uses an at home control group and also a kindergarten control is one by Stearns (1966). He described a diagnostically based series of language lessons. The lessons concentrated in teaching visual and tactical discrimination, labels for objects in terms of size, shape, color, and increasing ranges of adjectives and adverbs and prepositions used by the children. The lessons also attempted to increase sentence length and building correct grammatical order and syntax. Lessons were based upon the capabilities and weaknesses of the children's performance; teachers used corrective feedback



techniques and general reinforcing social contact; children were asked to discriminate among familiar objects and were trained to describe features of objects.

Children were chosen on the basis of a psychosocial deprivation criteria. All had IQs of 50-85, with a mean CA of 64 months. The ITPA was administered pre, mid-term and post and in a follow up pre to mid-term and mid-term to post were not significant, but gains over the entire year were significant; the experimental group gained 19 months in total LA while the KC group gained 13 and the at home control gained 12 months. During the four months in which the lessons were given (mid-term to post), children made the greatest gains on subtests measuring meaningful level of organisation, and this appears to indicate that the greatest gains are made on those subtests which require the child to perform tasks similar to those stressed in his lessons.

In a follow-up study done one year after the post test results, gains for this period were found to be significantly smaller than the gains made over the period of the year before. Thus again the gains were not maintained, and this appears to indicate that a continuous program of language stimulation is necessary to maintain gain over time.

The last intervention study (Dunn and Mueller, 1966) concerns itself with the examination of the ability of a specific type of reading instruction to enhance reading ability and the use of the Peabody Language Development Kit in increasing oral language development and raising IQs. Three experimental groups received the ITA in isolation, the PLDK in isolation, and the two together. Group 4 was a control group.

The Initial Teaching Alphabet (ITA) concentrates on teaching the individual sound symbols before he is taught to put them together in words and sentences. The reading program is continued in a normal way, although the teachers stress sounds in isolation and combination. The Peabody Language Development Kit is designed to stimulate oral language, and attempts to train the psycholinguistic processes of convergent, divergent and associative thinking, and vocal and motor expression through auditory, visual and motor channels. The system consists of daily lesson plans containing such activities as brainstorming. Classification critical thinking, listening, describing, conversing and memory work.

Evaluation data was gathered at pre, post and one year periods on achievement measures (the Metropolitan Achievement Test), language measures (the ITPA and PPVT), and on intelligence measures (the Binet). Findings indicated that on achievement measures, the ITA groups were clearly superior to those groups which did not receive it, and further analysis indicated that this is because of differential performance on the MAT with

the ITA groups performing significantly better on word discrimination tasks. On language age measures, specifically the ITPA, the PLDK groups were found to perform significantly better than the non-PLDK groups but not on the PPVT. On intelligence, those receiving the PLDK and the ITA in combination did better than any other group.

The experimenters note that the ITA is therefore effective in stimulating reading ability apparently because it helps develop word attack skills, and that the use of the PLDK stimulates most aspects of language skills. These findings appear to indicate that these measures are effective in combination and that sound discrimination will indeed pull up scores on achievement and IQ. It indicates what educators have long suspected that there is an intimate relation between language and learning to read, and that learning to read should be enhanced by language stimulation. The study has one flaw, and that is the possibility of the influence of a Hawthorne effect in the results because the teachers using these programmes were given many incentives for success.

Prabhu (1968) found that 44.6 per cent of the retarded had speech defects. Speech defects were significantly more among the severely subnormal. Speech defects were also more among the secondary group than the primary aments. People with hearing defects were intellectually subnormals are compared with those who had no hearing defects Abrol *et al.* (1978).

### ATTENTION AND PERCEPTION

Mild mentally retarded children have low attention span. They display a global perceptual style and fail to develop simultaneous processing habits. They are mostly impulsive while perceiving the objects and act as levellers. Attention span can be enhanced by using certain specific training procedures. These children profit when tasks are short. The complexity and length of the task is slowly increased. They are trained to listen, watch, reflect, look at different aspects of the object. This can be done by using a timer 'start-stop'. Gradually time given to complete a task can be reduced. Teach them at concrete level rather than at an abstract level.

In order to improve their discrimination skills one can use repetition and matching techniques using different objects. Use of letter discrimination, form discrimination, identification of letters, patterns, finding out hidden figures, reproducing block or design, copying figures, locating names from a telephone directory, attending to relevant cues, and concentrating on objects, discriminating sounds and symbols have proved quite useful for improving perceptual processes.

Poor information processing is among the manifestations of mental retardation. Multisensory teaching techniques have often been recommended

to improve information processing habits. For example, use of language master, motion pictures, filmstrips, talking calculators, using role play and dramatisations, tracing letters and pronouncing them are some of the techniques which are being used independently and combinedly in dealing with mentally retarded children. Piagetian tasks are also used to enhance information processing ability.

### EDUCATIONAL PROVISIONS

General educational goals are applicable for the educational programmes of the mildly retarded. The academic levels of the mildly retarded in special classes were not as high as those of their counterparts in regular classes. The objectives of education for these children are self-realisation, human relationships, economic efficiency, and civic responsibility.

The following guidelines are suggested :

<i>Level of Education</i>	<i>Areas of Concentration</i>
Preschool (Age 3 to 6)	— Communication skills, self-help, and socialisation skills, perceptual experiences.
Primary (Age 6 to 9)	— Integrated school system. Special trained teachers. Development of basic skills.
(Age 9 to 12)	— Formal academic training in Reading; Written and oral communication; arithmetic; motor and perceptual development. Children should be placed in regular classes.
Secondary (Age 13 +)	— Pre-vocational training skills, formal learning. Sheltered workshop situation is also recommended.

Kolstoe (1976) recommended the following steps :

1. The learning task should be familiar, and simple.
2. The task should be brief.
3. The task should be sequential containing small steps.
4. Each learning task should be aimed at bringing success.
5. Overlearning should be built into lessons.
6. Learning tasks should be applied to objects, problems and situations in the learner's life environment.

In addition to these proper motivation may also be provided for achieving success in school. This can be done by accepting the children, by rewarding them when they succeed, and by giving them social responsibility and leadership roles. The classrooms of the mildly retarded children should also be larger than the normal classroom. It should contain high-interest, low vocabulary reading material alongwith games of therapeutic value. Arts and

crafts can be used for self expression. Home and family life education may also be included in the curriculum. Parents and teachers need to use social reinforcements with these children *e.g.*, good, fine, you are O.K.

Their language is so poorly developed that enriched language lessons are recommended. These children may be encouraged to speak during field trips, dining time and to describe what they do at different times.

### INTERVENTIONS

One of the major trends in the education of mentally retarded children has been the additional of educational services for the EMR. The impetus for this began in the Summer of 1965 when the Head start programme was introduced by the office of Economic opportunity in U.S.A. The Head start programme was originally meant to benefit the economically deprived children but it did profit a large number of EMR who were of socio-cultural advantage rather than of organic factors.

The intervention programme in bringing cognitive, affective and psychomotor changes will be dealt here under three main subheads :

- (a) Preschool intervention
- (b) School intervention
- (c) Post school adjustment

Blat and Garfunkel (1967) studied the effect of nonautomated responsive environment on the intellectual and social competence of EMR children. In addition it was also planned to see if preschool intervention would reduce the occurrence of intellectual and academic deficits. 59 preschool children having Mean IQ 77 were assigned to two year preschool intervention programme *i.e.*, E<sub>1</sub> pre school intervention in cognitive and affective process; E<sub>2</sub> Preschool intervention with responsive environment, and C. at home control. The experimental groups gained 7 IQ points over at home but the gains did not continue after the programme was discontinued.

Weikart (1967) reported the results of longitudinal study on the efficacy of preschool programme designed to compensate for the cultural deprivation.

Increase in IQ was not stable over period of time even though IQ gains were noticed for the experimental group. Similar was the case of language ability. But in arithmetic, reading, and language skills, and personal-social adjustment significant gains were noticed.

Hodges, Spicker and McCandles (1966) assessed the effectiveness of a diagnostic curriculum to remediate cognitive, affective, and motor deficits among culturally deprived children having low IQ and attempted to remedy the progressive deficits. 142 psychosocially deprived children, with IQ between 50-58 were selected for the study over a three year period initially.

The three groups of children were divided into Experimental, Kindergarten Contrast, at home control with Mean IQs 73.57, 75.27, and 74.18 respectively. The experimental group received a structured curriculum designed to remedy the specific deficits of individual children in areas of language and motor development; concept formation, and socialisation. The Kindergarten groups received the traditional school curriculum and the at home control did not get any training. The EPS group had significantly higher IQ than the KG and AHC group I and the KG group was higher in IQ than the AHC group but after two years of school entrance the differences were washed out. Language ability scores had similar fate. Achievement in the first grade had been different significantly in case of EPS group personal social adjustment scores continued to be better for the EPS children.

The experimental group demonstrated higher fine motor proficiency than the KG and AHC group. However, in a nutshell it can be stated that, significant IQ gains can be made with intellectually subnormal children and the gains can be continuous if the programme is long term than a one year or two year programme and that too if the low IQ is due to other factors than brain damage. Adjustment and achievement gains are worth noticing in the intervention programme. Hence, whether preschool programmes are necessary or not has to be carefully examined before the expensive programmes are introduced in a massive scale.

### SCHOOL INTERVENTIONS

The typical solution to the problems of retarded children in the public schools has been the creation of special classes in which the special needs of these children are satisfied by specially trained teachers. Comparisons have been made with similar retarded children placed in the regular classes or integrated classroom perform more adequately on standardised achievement tests and special class children received higher ranks in personal social adjustment compared to their in the regular classroom. This may arise out of placement differences *i.e.*, good retarded children placed in regular classes and the dull among them are sent to special classes. This also can not be ruled out.

Goldstein, Moss and Jordan (1965) to avoid this defect started initially experiments upon newly created special classes or to continued placement in the regular first grade students were randomly assigned to regular or special classes—The teachers special classes were supervised and trained and attended conferences every six weeks. The results showed, IQ of both the groups varied non-significantly in the first year and levelled in subsequent years. There were no significant differences between the regular and special class placement. There were no differences in school achievement. This suggests that even under ideal conditions special class placement did not

have significant advantage over regular class EMR children. In other words, special class supplement does not seem to be academically justified in terms of cost, training of teachers, equipments, and ancillary provisions.

Cain and Levine (1963) assessed the effects of special classes for trainables in institution and community settings on the development of social competency. Unfortunately no difference was noticed between the control and experimental groups *i.e.*, at home and school going TMR children in social competency. This merely suggests that special class for the TMR may be more efficiently organised in view of the fact that they will never gain from regular class and or school placement.

Studies reported by Jordan (1960) and Johnson (1961) on sociometric index of retarded children showed that lower IQ children are more rejected and lower in social status than their brighter peers in the special class—the same pattern that exists in regular class. Majority of the studies show :

- (a) There is a positive relationship between intelligence and peer acceptance.
- (b) Retarded children in special classes are more often favourably chosen by their peers than retarded children in the regular grades when sociometric measures were employed.
- (c) Retarded children who are segregated from their brighter peers have a significantly poorer self concept than children left in the regular grades.
- (d) Social adjustment of retarded children can be enhanced by providing special social experience *i.e.*, giving leadership roles, pairing with popular children, giving some responsibilities.

Teaching, reading and arithmetic to EMR children have also been investigated but no general approach has been recommended. For example, if a child is aurally minded he profits from the phonic approach. If he is visually minded he may profit from a visual approach *i.e.*, programmed materials. In so far as arithmetic achievement is concerned it is suggested that arithmetical understanding is to be developed than mere arithmetical manipulation of symbols. Training in language ability have already been discussed in this chapter. It can be said that group language development programmes used systematically does produce significant language gains for EMR children (Smith 1962, Stearns 1967). Overlearning is to be used for enhancing learning and achievement including training the retarded to attend to specific cues.

Retarded children represent a group that is heterogenous with respect to specific abilities, motivational patterns, learning styles and strategies and social histories. Hence, any serious attempt to elicit maximum achievement from a given child while deriving benefit from what is known about retarded

children generally, will have to trigger such application with a knowledge of the specific child's response patterns and performance level.

Further, the teachers ought not to have negative expectancy as a result of the label 'Mentally Retarded' and motivate these children with reward, affection, attention approval and acceptance. These children suffer from a cloak of incompetence which has been highlighted in Edgerton's book "The Cloak of competence, Stigma in the lives of the retarded" 1967. All the children studied in this book, had a sad tale to tell. Therefore, in planning for the education and training of Mentally retardates due consideration has to be given to their motivational and need patterns and engineer programmes in the appropriate directions.

Some of the well known intervention programmes (Klauss and Gray 1968, Bereiter and Engleman 1966, Detusch *et al.* (1968), have been discussed in the chapter on underprivileged children. These studies are significant here but will not be repeated here to avoid duplication. These studies have shown the extent to which compensatory education programmes can be used to the vantage of the EMR and culturally disadvantaged with no brain damage.

Keeping these background materials and following the evaluation of special education programmes in U.S.A. the present trend is to mainstream the retarded. *Integrated education* has become the crying need of the day if we want the disabled of any form, in a mild, degree, is to be educated.

#### POST SCHOOL ADJUSTMENT

Post school follow-up studies with the EMR have been conducted primarily to demonstrate that such individuals loose their identity as retardates, becoming economically self sufficient and socially adequate members of society once they become adults. A few of these studies were conducted to demonstrate that special aducational services were instrumental in helping the EMR attain successful adult adjustment. The results of most of these investigations have indicated that 80 & 85% of the EMR adults, indeed, make successful adult adjustments in unskilled and semiskilled occupations. However, these successful adjustment seem to occur regardless of whether the individual had received his education in special or regular classes. The major variable identified to date, which seems to affect post school adjustment is length of stay in school, with those dropping out early (At CA 15 or 16) less able to make a successful initial adult adjustment. However, according to the long term follow-up study of Baller, Charles, and Miller (1966), even these individuals eventually become successful members of society when compared with comparable socio-economic class intellectually normal adults.

Post school studies with TMR adults have generally found that

approximately two-thirds of these individuals had remained in the community, and that the other one-third had either died or had been placed into a residential institution. Of those remaining at home, approximately 30% worked or had worked for pay, and approximately 75% had learned adequate of self care skills and had developed sufficient social skills to get along unsupervised in their immediate neighbourhoods. Again, these attainments seemed unrelated to whether they received or did not receive special educational services.

### THE MODERATELY RETARDED

These children possess IQ of 40 to 54 (Wechsler) or 36 to 51 (Binet). They are deficient in adapting behaviour, physical, motor, and language development, learning and occupational expectations, social and personality adjustments.

Children who are moderately retarded have hearing and vision impairment. Such children get tired easily and have health and respiratory infections. Language development is delayed in both understanding of spoken language. Their expected level of achievement is about 1/3rd of the normal or about six to eight years. Usually they continue upto 4th grade and they do not have independent vocational pursuits.

Moderately retarded children are more dependent upon others and they do not acquire personal social skills. They do not foresee consequence and make social adjustments.

The educational provisions for these children are primarily meant for making them vocationally productive by placing them in sheltered workshops. The following programme may be followed.

<i>Levels of Children</i>	<i>Areas of Concentration</i>
Preschool (Age 3 to 5)	— Half day classes. Development of self-help skills. Speech and language development. Motor and socialisation skills.
Primary (Age 6 to 9)	— Five hours of schooling a day. Training in preschool-level skills. Development of visual and auditory skills.
(Age 9 to 12)	— Full day classes. Functional academic training. Reading, writing and arithmetic. Physical education and skill development.
Secondary (Age 13 +)	— Training in prevocational and vocational skills in sheltered workshops. Development of community relationships.



The following guidelines should be considered by the teacher (Swanson and Willis, 1979).

1. Examine the needs of the child.
2. Set realistic goals.
3. Understand the child's behaviour in relation to development.
4. Provide support during learning experience.
5. Allow adequate time for the child to complete the task.
6. Select proper stimuli to elicit response.
7. Provide consistency in discipline and supportive roles.

### **THE PROFOUND AND SEVERELY RETARDED**

This category of children reveal substantial deficiencies in the areas of physical development, communication, self care and intellectual functioning. IQ of these children is less than 25. They remain mostly in institutions under constant care. The severely retarded group includes children between IQ range 20 to 40.

The educational provisions for profoundly retarded children are meant for the development of self-help skills or communication skills. Sensory training technique is used for these children. For the trainable, training is gross motor activities, self-help and social skills, communication skills are given depending upon the developmental level. Behaviour modification techniques and reinforcement techniques are applied for development and extinction of behaviour and teaching toileting skills. For teaching skills to these children task analysis and programming are necessary. They are further trained in sheltered workshops.

In recent years, there has been emphasis on the education and care of the educable mentally retardates in India. Attempts are being made to open special schools for these type of children and train teachers to handle these children. However, the sole objective is mainstreaming the retardates into normal schools. In severe cases where mainstreaming seems entirely difficult, special institutions have been recommended.

### **REVIEW EXERCISES**

*Answer within 500 words each :*

1. What is mental retardation ? How has it been defined by A.A.M.D. ?
2. What are the procedures for identifying a mentally retarded child ? Explain the testing procedure for different types of retarded children.
3. What are the learning and memory characteristics of EMR children ? How would you remedy the defects ?
4. What are the physical and motor characteristics of the EMR children ? How

- would you intervene the deficiency ?
5. What are the social and emotional characteristics of the EMR children ? What measures would you take to help them ?
  6. What is the nature of creative thinking in Mentally Retarded Children ?
  7. What are the motivational characteristics of EMR children ?
  8. What are the various instructional techniques used for helping the retarded child ?
  9. What are some of the special educational measures used for mentally retarded children ?
  10. Write notes on—Trainable Mental Retardation, and profound and severely retarded.
  11. Write a note on etiology and prevention of Mental Retardation.

**Write notes on the following in about 50 words :**

1. Down's syndrome
2. Rh incompatibility
3. Microcephaly
4. Hydrocephaly
5. Moderately retarded.

**Fill in the blanks :**

1. The EMR child is unable to retain things for a.....time.
2. The EMR child needs.....learning to retain things for longer time.
3. The MR child has to be initially taught by.....method.
4. The EMR child cannot.....gratification.
5. ....deficit accounts for a great deal of learning deficit.
6. Self concept of the EMR is better under.....setting.
7. The mental Deficiency Act was promulgated in England in.....
8. A.A.M.D. definition of MR was given by.....
9. A.A.M.D. adaptive behaviour scale was developed by.....
10. EMR children are poor in.....muscular coordination.

**Write whether the statements are True or False :**

1. There is a positive relationship between IQ and peer acceptance.
2. Special class placement leads to better educational achievement of MR children.
3. The severely or profoundly retarded cannot be taught self help skills.
4. Integrated education is most effective for mildly retarded.
5. Mental retardation can be prevented by and large if detected early in development.

## Emotionally Disturbed Children

Who is an emotionally disturbed child ? Emotional disturbance can be viewed from a variety of perspectives. In the past emotionally disturbed children were viewed as autistic like. They were confined to institutional program and were under residential care. Very few of them received schooling if at all. After 1975. When the handicapped children's act was passed there developed a new interest for education of the emotionally disturbed in a separate school. The other view which is prevalent is mainstreaming or integrating the emotionally disturbed into a normal environment. In many cases there is no such clearcut decision regarding the care, treatment and education of emotionally disturbed.

There are different ways of defining an emotionally disturbed child. For teachers, an emotionally disturbed child is one who is shy, withdrawn and who is aggressive and acting out. In addition, emotionally disturbed behaviour was considered synonymous as misbehaviour or deviancy. By deviancy it is meant that "a student takes actions which are prohibited by teacher". In this definition the locus of the problem was on the norms of the school but a different kind of definition was then given in terms of the ecology of the child. According to this emotional disturbance is viewed in terms of environment variables which create maladaptive emotional reactions. For example, the frustrating environment in the school or such other unfavourable circumstance.

Beside teacher, the peer group also considered certain behaviour to be problem behaviour. According to this definition a child who cannot make interpersonal adjustment with his age mates is considered as a disturbed child.

The child's sociometric relationship was considered declining if he is emotionally disturbed.

The parents and others have their own conception of emotionally disturbed child ? For the parents, the child's role in the family sometimes

becomes a scapegoat and the problem is created because of marital conflicts and needs of the parents. In other words, emotionally disturbed parents produce emotionally disturbed children.

On the whole, who should be considered as an emotionally disturbed child? The term refers to a condition exhibiting one or more of the following characteristics over a long period of time and to a marked degree that adversely affects educational performance (a) an inability to learn that cannot be explained by intellectual, sensory or health factors, (b) an inability to build and maintain satisfactory interpersonal relationship with peers and teachers, (c) inappropriate types of behaviour or feelings under normal circumstances, (d) a general and pervasive mood of unhappiness or depression, (e) a tendency to develop physical symptoms or fear associated with personal or school problems. This particular term emotional disturbance with all his emotional and behavioural characteristics does include Schizophrenic and autistic characteristics.

It does not include the socially maladjusted unless serious emotional disturbance is accompanied with social maladjustment.

A child is emotionally disturbed when his reactions to life situations are unrewarding to himself and unacceptable to his peers and other members of the society. These children lack flexibility to modify their behaviour. They are too excitable or too withdrawn, too brave or too fearful. For teachers, a child is emotionally disturbed when he would be disrupting the whole class, would place undue pressure on the teacher, and disturb the general school atmosphere. The American Psychiatric Association defined emotional disturbance as follows: "It is a type of Psychiatric disturbance without clearly defined physical cause or without structural damage to the brain". In general, emotional disorder or disturbance in children can be defined in terms of certain observable characteristics such as: "hyperactivity, withdrawn behaviour, failure to achieve at a level reasonably commensurate with ability, tendency towards fighting, and other aggressive behaviour, resentment and antagonism towards authority and rules and regulations, and general problems in learning and concentrating not associated with known organic or sensory defects" (Phillips, 1967). Hence, an emotionally disturbed child is one who shows to an extreme degree one or more of the characteristics listed above.

Emotional disturbance is not distributed evenly in all age groups, sex and social groups. The behaviour problems are maximum during early puberty and these are found earlier among girls than among boys.

Parents having services and semiskilled occupations have more emotionally disturbed children compared to parents who hold professional, and skilled occupations.

### CHARACTERISTICS OF EMOTIONALLY DISTURBED

Emotionally disturbed children are often seen as unpredictable that present serious problems. In a study, Weinstein (1965) utilised the concept of social disturbance and had children organised social stimuli in replacement social situation. It was found that the emotionally disturbed children in contrast to the normal group placed the human figures far apart than they did the rectangles. In case of the normal children it was just the opposite. From this study it was obvious that these emotionally disturbed children did have close emotional proximity with their parents and had negative self concepts.

Failure in school is often thought to be a symptom of neurotic behaviour. Further, the self of the disturbed child is invariably negative. When self-evaluation questionnaires are given to these emotionally disturbed children, they saw themselves as less likeable, less able to arouse affection in others, they are either psychotic or emotionally indifferent. For this reason, quite a few programmes have been designed on classroom organisational pattern so that these children can function to their maximum but the research evidence on the learning characteristics of the emotionally disturbed children show lack of interest in academic matter and school performance, lower I.Q. and achievement. Their reading and mathematics achievement is significantly below the average. The majority of the studies demonstrate however, that emotionally disturbed children as a group has a little less than average intelligence. But primarily their personality and behavioural traits contribute maximum to discrepant achievement in reading and arithmetic achievement.

Taylor has found seven factors contributing to achievement :

- Ability to handle anxiety,
- Feeling of self worth,
- Conformity to demands,
- Peer acceptance,
- Less conflict over independence,
- Engagement in activity of academic nature,
- Setting of realistic goals.

The emotionally disturbed children lack most of these attributes. Coleman and Sandler (1967) highlighted the interaction of emotional status, intelligence age, and sex in relation to learning. This study shows that emotional disturbance and normal behaviour sometimes overlaps.

*Studies on the learning of emotionally disturbed children* further show that these children are resistant to remedial effect because of the extreme defensive nature. One of the consistent findings that has come up both from descriptive and survey studies is the progressive decline in reading and arithmetic achievement as children identified as emotionally disturbed progress through the grades. This also contributes to diminished feelings of

self-regards as children progressed in school. In one of the studies at the university of California, Bower and his associates showed that the difference between emotionally disturbed and normal children is more between grade IV and VI. In another study by Feldhusen and associates (1967) it was found that the emotionally disturbed child is aggressive, destructive and also far behind in reading and arithmetic achievement specially before grade III. That is why attempts are made to group emotionally disturbed children into different categories such as schizoid, character disorder, borderline and psychoses, somatic complaints. Similarly these children have reading skill deficiency, deficiency in word recognition, perceptual deficiency, visual deficiency, memory and hyperactivity. All these characteristics are responsible for problem behaviour.

### **IDENTIFICATION OF EMOTIONALLY DISTURBED CHILDREN**

How do we identify emotionally disturbed child? Generally the Illinois test of psycho-linguistic ability, measures of auditory closure, right left discrimination, eye hand co-ordination etc. tests are given. Much of the pathology of the emotionally disturbed child is due to the fact that these children cannot delay gratification and have poor in pulse control and a disturbed time sense. They further manifest learning deficits on manageable behaviour, feeling of failure, diminished self-esteem and lack of communication with adults arising out of school failure. These behaviours are manifested in the child's day to day environment.

It is more important to know the way through which the emotionally disturbed children learn than what they learn. It has been found out that the emotionally disturbed children learn using an impulsive strategy or what other boys known as a rapid tempo with uncritical response. They are quite hyperactive and they have attention and motivational deficits rather than cognitive deficits.

The following behavioural characteristics are very effective in screening emotionally disturbed children, (Pate, 1963).

1. Needs an unusual amount of prodding to get work completed.
2. Is inattentive, indifferent, or apparently lazy.
3. Exhibits nervous reactions such as nailbiting, sucking thumb or fingers, stuttering, extreme restlessness, muscle twitching, hair twisting, picking and scratching, deep and frequent sighing.
4. Is activity excluded by most of the children wherever they get a chance.
5. Failure in school for not apparent reason.
6. Is absent from school frequently or dislikes school intensely.
7. Seems to be more unhappy than most of the children.

Criteria	Normal	Problem	Referrable
<b>A. Intensity</b> How disruptive of the child's other activities is the problem behaviour?	<b>Non-Disruptive</b> Behaviour does not interfere with the child's other activities.	<b>Disruptive</b> Behaviour interferes with the child's other activities.	<b>Extremely Disruptive</b> Behaviour completely disrupts child's other activities.
<b>B. Appropriateness</b> Is the behaviour a reasonable response to the situation?	<b>Reasonable</b> Response is acceptable or expected for the situation.	<b>Inappropriate</b> Response is undesirable for the situation.	<b>Excessive</b> Response is out of production to the situation
<b>C. Duration</b> How long does the behaviour episode last?	<b>Short Lived</b> Episode lasts only a short time (short time within a class period)	<b>Moderately Long</b> Episode extends over a longer period (some carry over from one class to the next)	<b>Long-Lasting</b> Episodes are long lasting (greater part of a day)
<b>D. Frequency</b> How often does the behaviour occur?	<b>Infrequent</b> Behaviour usually is not repeated (rarely repeated in a day; rarely repeated on other days)	<b>Frequent</b> Behaviour is repeated (may be repeated several times a day; may be repeated on several days)	<b>Habitual</b> Behaviour happens all the time (repeated often during day; repeated on many days)
<b>E. Specificity/Generality</b> In how many types of situations does the behaviour occur?	<b>Occurs in Specific Situation</b> Behaviour occurs in specific type of situation.	<b>Occurs in Several situations</b> Behaviour occurs in more than one type of situation	<b>Occurs in Many Situations</b> Behaviour occurs in many type of situations
<b>F. Manageability</b> How easily does the behaviour respond to management efforts?	<b>Easily Managed</b> Responds readily to management efforts.	<b>Difficult to Manage</b> Inconsistent or slow response to management efforts	<b>Cannot be managed</b> Does not respond to management efforts.
<b>G. Assessability of Circumstances</b> How easily can the circumstances that produced the behaviour be identified?	<b>Easily Assessed</b> Easy to identify situation or condition producing behaviour	<b>Difficult to Assess</b> Situation or condition producing behaviour difficult identify	<b>Cannot be Assessed</b> Cannot identify situation or condition producing behaviour

<p><b>H. Comparison with Maturity Level of Class</b> How close to the norm of the class is the problem behaviour?</p>	<p><b>No Deviation from Level of Class</b> Behaviour is par for the group.</p>	<p><b>Below Level of Class</b> Behaviour is below the group level.</p>	<p><b>Considerably below level of class</b> Behaviour is considerably below the group level.</p>
<p><b>I. Number of Problem behaviours exhibited.</b></p>	<p>Rarely more than one</p>	<p>Usually more than one</p>	<p>Usually many and varied</p>
<p><b>J. Acceptance by Peers</b> Does the child have difficulty being accepted by peers?</p>	<p><b>Accepted</b> Is accepted by peers</p>	<p><b>Had Difficulty Getting Along</b> May have difficulty with particular individuals</p>	<p><b>Not Accepted</b> Unaccepted by group.</p>
<p><b>K. Recovery Time</b> How quickly is the situation leading to the episode forgotten?</p>	<p><b>Rapid</b> Gets over episode quickly</p>	<p><b>Slow</b> Gets over episode more slowly</p>	<p><b>Delayed</b> Does not get over episode.</p>
<p><b>L. Contagion</b> 1. Does the behaviour disrupt the activities of others? 2. Do others copy the problem behaviours?</p>	<p><b>Little or no effect on others</b> Behaviour does not disturb or does not serve as a model for others</p>	<p><b>Considerable Effect on Others</b> Behaviour disturbs immediate neighbours or neighbours copy behaviour</p>	<p><b>Excessive Effect on Others</b> Behaviour disturbs whole class or whole class copies behaviour</p>
<p><b>M. Degree of contact with Reality</b> Does the behaviour represent a loss of contact with reality?</p>	<p><b>No Confusion between Real/Unreal</b></p>	<p><b>Some Confusion between Real/Unreal</b></p>	<p><b>Confuses Real/Unreal</b></p>
<p><b>N. Response to Learning Opportunities</b> How readily does the child respond when learning opportunities are provided?</p>	<p><b>Responds Positively to Enrichment/Remedial Work</b></p>	<p><b>Responds slowly or weakly to Enrichment/Remedial Work</b></p>	<p><b>Does not Respond to Enrichment/Remedial Work</b></p>



8. Achieves much less in school than his ability indicates he should.
9. Jealous or over competitive (Kaugh & Deltaan, 1955, p. 52).

Screening procedures can be more intricate and perhaps more accurate by addition of teacher rating, peer rating, self-ratings, using standardised personality tests and inventories. There most widely used tests are : California Psychological Inventory, Edward's Personal Preference Schedule, Minnesota Multiphasic Personality Inventory. Very few tests are available for use at elementary level or when children are quite young. However, children's Apperception, Test, Thematic Apperception Test, WISC and Bender Gestalt tests can be used quite effectively for identifying emotionally disturbed children.

What are the characteristics of severely emotionally disturbed children ? They are labelled as autistic, psychotic or schizophrenic. There are 14 different ways of classifying behaviours. These are as follos :

In a survey conducted by the National Institute of Mental Health it has been observed that nearly 1.5% of population i the age group of 0-21 suffer from emotional disturbance.

### TYPES OF EMOTIONAL DISTURBANCE

**Autism :** Autism in children is one of the most severe forms of emotional disturbance. This is also otherwise known as childhood schizophrenia. This condition is presented with and is followed by delay in speech development, non-communicative use of speech, and withdrawal tendencies. They do not use language to convey meanings.

In a recent book Kauffman (1977) states "attempts to pinpoint the origin of behaviour disorders in family relationship have met with little success. Family relationship are best viewed to as contributing to behavioural development. From another point of view autism in children may result purely out of language impairment and language training. It has been possible in reducing the occurrence of autism in children clinically. Many of the psychiatrists also treat autistic children and have made them quite acceptable.

### PSYCHOSIS

This is the most severe ad debilitating of the emotional disturbances. Psychotic children have no contact with reality. Childhood schizophrenia is quite commonly seen. In early infantile autistic children, we find extreme withdrawal, peculiar communication, and improper use of language. They only react to their own private imaginary scheme of life.

### **PSYCHOPHYSIOLOGICAL DISTURBANCE**

These disorders result in physical malfunctioning but without any anxiety. These children have severe eczema, asthma without emotional overlay. They also exhibit anorexia nervosa, persistent loss of appetite, and are underweight. They have painful migraine. They mostly need medical treatment.

### **PSYCHONEUROSES**

In this type of disorder certain functions are distorted but the child is not isolated from reality. It is said the psychoneurotic child builds air castles and the psychotic child lives in them. Many children are cautious, frightened and show uncontrollable crying etc. They have phobias, manias, ponc syndrome, and conversion.

### **PERSONALITY DISORDERS**

These children cannot adjust to society. They are extremely shy. They have delusions of persecutions and are rigid. They lack the resiliency to develop better ways of meeting emotional problems and sometimes they appear as too outgoing. They feel no tension or anxiety.

### **TRANSIENT SITUATIONAL PERSONALITY DISORDER**

These children reveal acute reaction to catastrophic or unpleasant incidents such as : death of a friend, relative, accidents, etc. These are situational and are responsible for chronic and acute personality disturbance, often attributed to traumatic or distressing circumstances.

### **CAUSES**

There are a variety of reasons for emotional disturbance. Most of them are psychanalytic and a few of them are explained by learning. The psychoanalytic cautions include : anxiety as a source of emotional disturbance, distrust of children on adults because of traumatic experiences, frustration of libidnal desires, parental rejection, punishment, ridicule, and insecurity derived from lack of affection or social prestige. Emotional disorders are explained by learning psychologists using conditioning. The same disorders are also reduced by counter conditioning or reconditioning.

### **EDUCATIONAL PROGRAMME AND TREATMENT**

There are various methods of treating emotionally disturbed children. Emotional catharsis is a psychotherapeutic technique which is used quite often. In this technique the causes are known, these are released through expression and acceptance and the symptoms are extinguished. The other technique is interference through counter-conditioning, deconditioning, desensitization, etc. The latter method emphasises positive growth and

relearning rather than the more extinction of pathological behaviour. The Rogerian method of non-directive counselling is very fruitful in such problem situations.

The educational programmes should be planned quite cautiously for these children. It may be of four different types :

- (a) Privately sponsored day schools,
- (b) Special classes in residential psychiatric centres,
- (c) Special classes in out patient mental health centres,
- (d) Special classes in regular school.

In our country, the first and last seem plausible for introduction. However, a few ideas are of great use in making educational provisions for the emotionally disturbed children.

1. Structuring limits in the class room receives first priority. The classroom atmosphere should be more than negative restrictions. The classroom atmosphere must give support and direction to activities. Out of emotional chaos order will emerge among these children.
2. There is no value in concluding that emotionally disturbed children are educationally retarded. Subject matter itself should convey appropriate information for social and academic learning. These children should be given selected bibliography or references or readings and bibliotherapy has been established as an effective therapeutic and educational tool.
3. Group dynamic principles may be used for disturbed children *e.g.*, seating arrangements, position of teacher, and pupils can be designed to encourage desired interactions between teachers and pupils, and among pupils.
4. Directed group activity can be used. This will break inhibitions. Role playing is also another technique for release of emotional problems.
5. Involve the child in work as soon as he reaches the school or when he is at home in any work. This way he will not get time for 'horse play' or day dreaming.
6. Offer support and reward when they do good work; never attack the child as a person; focus correction on actual task and keep relationship task centered.
7. As the child increases in responsibility and self direction, plan for more long range activities but with manageable steps.

Emotional disturbances are just like any other problem. These are not unsurmountable. Parents and teachers can help child reach firm, strong, and self directing decisions. These decisions can be built into their daily

experiences and lessons. These are merely a few suggestions.

No attempt has been made here, to offer a complete set of practical and theoretical guides for dealing with the emotionally disturbed children.

Integration of emotionally disturbed children into regular schools : The council for exceptional children in U.S.A. has recently published in a statement, highlighting the major intentions of mainstreaming :

1. Providing the most appropriate education for each child in the least restrictive setting.
2. Looking at the educational needs of children instead of clinical or diagnostic levels.
3. Looking for and creating alternatives that will help general educators serve children with learning or adjustment problems with regular setting.
4. Utilising the skills of general and special education so that all children may have equal educational opportunity.

However, the recent researches show quite disappointing consequences although the normal children in the classroom do respond quite favourably to the emotionally disturbed children. But the success of the programme depends more on facilitating different types of children. There are various interventions which aim at reducing emotional problems combining educational and psychological developments of child at appropriate stage of development. But unfortunately group treatment of these cases have not been very rewarding.

**Cognitive styles approach to emotionally disturbed children :** It may be a worth while stage to combine the perceptual ability of such children with their learning ability because such children show impulsive behaviour which is not conducive to learning. Attempt to make them more reflective and less hyperactive. Secondly, they should have less anxiety and trauma in dealing with a particular learning situation. It has been suggested by Hunt (1964) that a changed model to be applied for emotionally disturbed to learn and adjust in a better way. By a changed model it is meant a set of logically derived statements of the "if and them" variety which are conditional upon the development stage of the person with whom one is working. Thus if we know the present stage or conceptual level then we can derive the specific environment most likely to produce progression for the person. The issue is not which environment is best but rather which environment is most likely to produce a desired effect for a specific person or persons that educational environment such highly organised or completely free classrooms are differentially effective with students of varying personality or abilities, is widely recognised. Our attempt here is to coordinate and match the environment and person most effectively by use of a theoretical model. The

theoretical model is given below.

<i>Stage</i>	<i>Characteristics</i>	<i>Optimal environments</i>
Substage (I)	Impulsive, poorly socialised, egocentric and inattentive.	Accepting but firm, clearly consistent with minimum of alternatives.
Stage (I)	Complaint, dependent on authority, concerned with rules	Encouraging independence within normative-structure.
State (2)	Independent questioning and self-assertive.	Environment highly autonomous with numerous alternatives and low noratives.

This above model is meant to provide specific environment to deal with specific characteristics of emotionally disturbed child in the normal classroom. Many of the problems of learning of emotional disorders can be reduced by following the procedures outlined here. The frequency, persistence, and intensity of behaviour must be taken into account.

### REVIEW EXERCISES

**Answer each question within 500 words :**

- Who is an emotionally disturbed child ? How would you define him ?
- What are the procedures for indentifying an emotionally disturbed child ? State some behavioural signs.
- What are the characteristics of emotionally disturbed children ?
- How would you control emotional disorders among children ?
- What are the different categories emotional disturbed ? State the criteria of classifying them.
- What are the causes of emotional disorders ?
- State the educational programmes and treatment for the emotionally disturbed children.

**Write the answer in about 50 words :**

- Psychosis
- Infantile antison
- Psychoneurosis
- Five identification marks of emotionally disturbed
- Hyperactivity

**Write whether the statements are True or False :**

- Emotional, disturbance is not over at all ages.
- The childs sociometric relationship declines if he is ED.
- ED children lack flexibility to modify their behaviour.
- ED children have no ability to handle anxiety.
- ED Children are jealous and over competitive.

6. ED children are more conforming type.

***Fill in the gaps :***

1. ....is the most severe form emotional disturbance in children.
2. Provide appropriate education to the ED child in the.....restrictive setting.
3. An.....environment is conducive for the growth of emotional disturbance.
4. The behaviour of ED children reflects a loss of contact with.....
5. The ED children can easily be.....to the regular classroom.

# 21

## Gifted Children

Definitions of Giftedness vary widely. Even concern for the education of the gifted children existed in the ancient Greek and Roman periods. But very little systematic improvement occurred until the latter part of the 19th Century. Attention on the understanding and education of Gifted children was focussed with the publication of Galton's Hereditary Genius (1869) and Lombroso's The Man of Genius (1891). In these days genius and insanity were thought to be closely associated.

After the advent of Binet IQ tests in 1905 and the famous longitudinal study of the genius by Terman (1925), emphasis on the gifted became more prominent and especially after 1950 there has been a renewal of interest in the gifted and talented.

The Kothari Commission made a few observations regarding the planning of education of the handicapped as well as about the gifted children. They expressed concerns that facilities for the training of the gifted is not available in our country at the moment and should therefore be planned.

In fact, the number of gifted persons are not very large but the problem is how to define or know who is gifted ? Psychologists in the United States began to define giftedness in terms of IQ. In other words, a child whose IQ is 137 or above is considered gifted, determined on the basis of standardised intelligence test. The cut off point beyond which a child will be considered as gifted differed from expert to expert but on the average the child should have IQ at least of 130 points. This rule of thumb may differ slightly from culture to culture. Somehow or other IQ only did not appeal to the modern researchers as the sole characteristic of the gifted.

The U.S. Federal Registrar (1975) defined it in a more comprehensive way which included superior intellectual, academic, creative, arts, creativity and cognitive ability. In any case, the term can be explained by considering the characteristics that identified gifted children display.

There are several interchangeable terms used in the field of gifted.

Intellectual giftedness, academic giftedness, creativity, talent. Intellectual giftedness can be described as an unusual ability to deal abstract and symbolic learning. They may or may not do well in school. Academic giftedness involves the skills and abilities necessary to perform well in school related tasks. These skills and abilities are memory, logical reasoning and ability to make meaningful associations of facts and ideas. These children have convergent thinking. Creativity refers to an original or unique creation of products or ideas. Talent can be defined as an unusually high aptitude, ability, or level of performance in a particular field *i.e.*, art, music, literature, social, etc. There is much of overlapping in these concepts but giftedness or gifted children refer in general to a group of superior mental ability group.

**What then is giftedness ?** Gifted are those children whose cognitive abilities place them in the upper 3 to 5 per cent of the population. The academically gifted has an IQ of 130 or above. The gifted children have superior cognitive ability, creativeness in thinking and production and superior talent in special areas. According to Guilford (1950), "the gifted are those students whose potential intellectual powers are at such a high ideational level in both productive and evaluative thinking that it can be reasonably assumed, they could be the future problem solvers, innovators, and evaluators of the culture if adequate educational experiences are provided".

Approximately 3 to 5 per cent of children population are gifted. Development of this potential is dependent upon the combined efforts of the family, school and community. The incidence of giftedness is equally present in males and females.

### CHARACTERISTICS OF THE GIFTED

The gifted children display certain superior abilities in people from different cultural backgrounds.

1. Performance is better in specific problem solving tasks.
2. Greater reasoning ability displayed in problem solving.
3. Action oriented.
4. More productive in individual and small group situation.
5. High aspiration for prestigious occupations.
6. High motivation for physical activities.
7. Learning by visual mode is better than auditory mode.
8. Display goal oriented behaviour.
9. Perseverance is very high.
10. Analytic perceptual ability.

The gifted children have above average physical development. They



mature earlier. Baldwin conducted body measurements of 594 children of Terman's gifted group IQ ranging from 130 to 189 (Terman, 1925). These children appeared to be physically superior to the comparison group. Terman (1925) obtained the following physical measure of children :

1. Greater weight at birth.
2. Earlier walking and talking.
3. Earlier pubescence.
4. Precocious dentition, early in stage of development.
5. Better than average nutrition.
6. Greater height, weight, strength of grip and shoulder and hip width.
7. Superior motor ability.
8. Less defective hearing and mouth breathing.
9. Less stuttering and nervous symptoms.

Gifted children are academically superior as revealed in learning ability. They usually learn faster, remember it for longer time than the average or normal children. They are highly motivated and have strong drive or initiative in undertaking challenges in intellectual work. Their language and communication is high. The mathematical and reasoning abilities are of superior standard besides creative arts and experimenting nature. They often ask curious questions. They have more of persistence and concentration.

The gifted children are well adjusted in home and in school. They are emotionally fairly stable and self-confident. They display a positive self-concept. Their play and leisure time activities are wide and varied.

They are quite resourceful. These facts are self evident from the studies of Terman and his associates (Terman and Ogden, 1969).

The gifted children are well accepted in the class. They have a good socio-metric index. In special cases, they display special talents in arts, music, painting etc. Giftedness is found without variation in sex.

The gifted are free from serious maladjustment problems. However, some of the extremely gifted may have adjustment difficulties. They are readily accepted by others in their social behaviours. They are well liked by peers and teachers and they participate in large number of social activities.

They like companions of their own level and who are slightly older than them. They have diversity of interests throughout their lives. They pursue various hobbies and leisure time activities. They are not reclusive, introverted or disinterested in their communities.

In the field of learning the rate of the learning is fast and remembering is for longer time. Their language development is refined and elaborated. They display independent and original thinking, and high problem-solving ability. They exhibit novelty in expression. These children have the ability

to delay gratification. They should therefore be weaned from excessive immediate rewards. They have great range of interests.

### IDENTIFICATION OF THE GIFTED

There are 20 clues that indicate giftedness :

1. Level of learning of these children are equivalent to or expected of the older students.
2. Reading starts at an earlier age.
3. Awareness of uncommon things.
4. High ability for symbolic thinking.
5. Curiosity behaviour.
6. Large vocabulary for the age level.
7. Matured expressive ability.
8. Ability to apply knowledge in unfamiliar situations.
9. Good problem solving ability.
10. Longer attention span.
11. Dislike for a rigid time schedule.
12. Annoyance with details.
13. Intensive interest in one area.
14. Diverse interests.
15. High energy level.
16. Self-critical and higher aspiration level.
17. Thinking is faster.
18. Poor study habit leading to careless work in certain cases.
19. Requires fewer trials to learn.
20. Extraordinary memory.

No child of course would reveal all these identifiable behaviour but these are by and large present in the gifted. Some can be observed more readily and in informal settings. However, giftedness have been identified using testing procedures from quite an early age and in fact, early identification is necessary.

Use of individual IQ tests is only a part of the comprehensive assessment programme. It measures cognitive ability. The Stanford-Binet and Wechsler scales are used to assess intelligence. In addition to this, teacher's observation also plays a significant role. To aid the teachers to identify gifted children Renzulli and his associates (1971) suggested a scale which consists of four areas of behaviour.

#### (a) Learning Characteristics

- (i) advanced vocabulary for age and grade level
- (ii) independent reading habits, prefers advanced level books

- (iii) quick mastery and recall of factual information
- (iv) grasp of underlying principles, ability to make valid generalisation

**(b) Motivational Characteristics**

- (i) self starting
- (ii) persistence in task completion
- (iii) striving for perfection
- (iv) bored with routine tasks

**(c) Creativity Characteristics**

- (i) greater curiosity among many things
- (ii) greater originality in problems solving
- (iii) less concern with conformity

**(d) Leadership Characteristics**

- (i) self confidence and success with peers
- (ii) ready shouldering of responsibility
- (iii) easy adaptations to new situation and change in time table

Physical characteristics can be included in this rating schedule.

The teachers can make use of this checklist and arrive at early identification of the gifted. The children's divergent and convergent ability can also be tested using creativity tests. Of course, moderately low relationships exist between creativity and IQ.

The type of identification procedures recommended by Marland (1972) is given below in order of preference :

1. Individual intelligence test
2. Previously demonstrated accomplishments
3. Teacher observation
4. Group achievement tests
5. Scores on creativity tests
6. Group intelligence tests

Caution must be exercised if any single index is to be used for identification of the gifted.

To determine intelligence level standardised intelligence tests such as : Stanford-Binet, Wechsler, (WAIS, WISC, WPPSI). Progressive matrices, Otis quickscoring test, Cattell's intelligence scale, primary abilities tests are used, depending upon the age level and culture in which the child to be identified is born. Although giftedness can be aroused at any stage of development, yet it is during the school period that has meaning and significance for identification.

To assess special aptitude etc. tests of differential aptitude, Seashores's musical talent test, interest inventories, reading readiness and achievement

are usually administered individually. Parents' reports about the growth and developmental characteristics at different age levels also offer clue for such identification. As a matter of fact, teacher's record of pupil behaviour systematically using a checklist of behaviour expected provides comprehensive, objective and overall impression about the children and enable one to draw viable conclusions, regarding presence or absence of gifted characteristics. Recent years also noticed use of creativity tests to supplement the identification of the gifted.

## **EDUCATIONAL PROVISIONS**

Educational provisions consist of early admission of the gifted to provide school experiences as early as possible. Other practices currently used in different schools are described below.

### **A. NON-GRADED CLASSROOM**

Non-graded classroom is more appropriate for the gifted. The system is like this. The entire course of study in a level of education is divided into a series of units or stages. These are sequentially arranged. Each child in this system is given freedom to complete the requirements of each stage and go on to the next stage at his own pace. This way the duration of the school year can be sufficiently reduced for the gifted in view of the fact he completes the course quite early. This is quite popular in the elementary school years in U.S.A., U.K. and Canada. It appears that this procedure is based on the principle of learning according to ability and its management and monitoring is done through computer and not much of classroom teaching is involved in this system. Tutorial classes are meant to solve some specific learning problems.

### **B. SPECIAL SCHOOL FOR THE GIFTED**

Another alternative approach has been to think of providing special treatments to the gifted in the form of opening a special school for the gifted, having a special class in the normal school for teaching the gifted, partial segregation etc. There are schools earmarked for the gifted in USA but in a country like ours it would be quite difficult for establishing separate schools for the gifted. The constraints may be in less number of gifted children, the linguistic variability, the national ideal for providing education for all. But we have certainly systems of identifying good students who may be kept under the gifted category and send them to residential public schools or Government schools at State expense.

### **C. SPECIAL CLASS IN A REGULAR SCHOOL**

There are special classes in the regular schools for the gifted. For the purpose of instruction they sit in the separate room but for social and recreational

activities they are kept with remaining students in the school. This permits both academic and social habits to grow. The results of these ability grouping are controversial and unclear. There is a danger of self fulfilling prophecy both academically and psychologically. The teachers of the gifted must be specially trained, specially talented and competent in their fields. Children's intrinsic motivation should be encouraged.

#### **D. GRADE SKIPPING**

Grade skipping or double promotion was a technique to help the gifted to go to next higher class without proceeding through the normal school requirements on the belief that the gifted child will have no difficulty in delivering the goods in the higher class by skipping the immediately preceding one. This practice was in vogue in public schools and in Government, primary schools but the practice is decreasing in view of the fact that it leaves a gap in knowledge acquisition and allowing the child younger in age to mix up with higher group is not meaningful from social personal adjustment point of view.

#### **E. EARLY ADMISSION**

Early admission of gifted children has been in practice in western society to the extent of 6 months to one year on the assumption that the children identified as having higher IQ can keep up with the curriculum demands of the class even though their age is below the requirements of that level. In India such concessions are not yet given. On the contrary, if a bright student does not reach age 14 he is not allowed to sit for school certificate examination even though the child is a position holder in the class.

#### **F. ADVANCE PLACEMENT AND CREDIT SYSTEM**

Credit system at the secondary and college level takes care of the gifted. Under this system, a degree requires certain hours of course work prior to examination would be necessary for each student. The gifted child can take and often manages more credit in the same time compared to average and slow learning children. As a result he completes a level earlier than other but by satisfying all requirement except for the age required. Graduate and undergraduate schools in Western countries now operate on credit system for all the students.

Arguments are given also against such acceleration procedures on the grounds that mental maturity does not go well with physical, social and emotional maturity. The child may not keep up ahead of in later years when the course demands are high. But if we accept these facts based on insufficient research evidence, we cannot or should not think of education of the gifted.

### G. MAINSTREAMING OR INTEGRATED EDUCATION

These programmes might create a feeling of discrimination among other children but this is what that can be done for the gifted. In fact, there are enrichment programmes for the slow learners and disabled. Hence, there should not be any such feeling that the gifted child gets a feel of superiority because of the enrichment programmes. In fact, at the same time the slow learner's may be undertaking the remedial programme. Hence, enrichment programmes are more realistic.

As an educational procedure, providing more meaningful and interesting experiences in the regular classroom seems to be least controversial of the various procedures for educating the gifted. There is also the least costly step and is practised using independent study procedures.

### H. ENRICHMENT PROGRAMME

Whenever acceleration and segregation system do not operate there one is left with the alternative for using enriched materials. Enrichment programmes may consist of :

- (a) Provision of instruction in music etc. in leisure time
- (b) Introducing such students to good speakers, new and interesting elective courses
- (c) Encouraging them to undertake activities of their interest, participation in debates, competitions etc.
- (d) Making provision for individualised instructions with a view to increasing their self expression, skills of enquiry.

Myres (1961) has developed 20 exercises for developing creative abilities of the gifted children. Some of these are (a) combining ideas and elements—try to think of animal that never does...that might exist in another...(b) exploring possibilities—write as many as possible for...(c) what do you suppose would happen, if some one discovered that there is...write consequences (d) analyses ideas—what would happen if first names are not to be given until one is grown up...(e) seeing relationships—what possible relationships can be there between the following pair of things...Cocacola-forest fire (f) sensitivity and awareness—sit silently and answer are these things around you which you have never noticed before ? Similar exercises can be used by the teachers and parents to accelerate the intellectual development of gifted children.

They should further be made free from peer group pressures while making judgement; and develop independent work skills and habits. Emphasis need also be given for development of critical evaluation and tolerance for different opinions with a view to examining it more carefully.

## I. SPECIAL TEACHING METHODS

Teachers in the integrated classroom should be aware of the gifted child's feeling of isolation—feeling alone in a crowd. There is a need to use flexible grouping to match nearly the different development level so that they display similar interests. They sometime face difficulty to accept mistake as other have high expectations. They should be helped to set realistic goals and avoid unnecessary anxiety. They should be made to realise that in classroom convergent thinking is more sought for whereas in specific situations divergent thinking is well appreciated. They should not be unnecessarily concerned with morale and social issues. They should be helped to develop an attitude of acceptance and tolerance of others.

It is desirable to motivate an under achieving gifted for which there is no simple solution. Alternative learning styles, exposure to texts and other materials, avoiding drill and repetitive activities, limiting directions, developing a cooperative attitude are some of the sound practice. Allowing them inquiry skills, and organising independent study are some other modalities for motivating the gifted.

The effectiveness of the special educational provisions for improving the achievements of the gifted would depend upon a variety of personal; the teachers, the parents, the psychologists and community's encouragement and participation in the programme. Current interest in the education of the gifted indicate only a promise for future success but the programme needs constant evaluation and modification.

### REVIEW EXERCISES

*Answer the following questions within 500 words each :*

1. Who is a gifted child ? What are the characteristics ?
2. How would you identify gifted children ? Describe the procedures.
3. What are the educational provisions for the gifted children ?
4. How would you mainstream a gifted child ?
5. What are some of the enrichment programmes that you can use for helping the gifted ?

*Write the answer within 50 words each*

1. Nongraded classroom
2. Special school
3. Special class
4. Grade skipping
5. Early admission
6. Credit system
7. Talent
8. Giftedness.

***Write in one sentence or in a word :***

1. Who wrote "The man of Genius" ?
2. Who wrote "The Hereditary Genius" ?
3. Who did the largest study of Genius ?
4. What is the IQ range of the Gifted ?
5. Is gifted same as creative ?

***Write whether the Statements are True or False :***

1. Approximately 3 to 5 per cent of children population are gifted.
2. Gifted children reflect greater reasoning capacity in problem solving.
3. Gifted children are well adjusted in school.
4. Gifted children face serious maladjustments in life.
5. Gifted children should be weaned from excessive immediate rewards.



## Neurologically Impaired Children

Certain crippling and chronic health disorders in children are seen as a result of infection after they are born. Some of the common examples are : poliomyelitis, estomyelitis, tuberculosis, cerebral palsied. Although, the first three do not invariably lead to brain injury, perception, vision and audition including crippling conditions, yet these children demand special educational treatments.

However, there are certain neurological disorders which are not categorised as either crippling or a special health problem *e.g.*, aphasia—a language disorder due to brain injury. Hence, from an educational point of view crippling and neurological impairments would include all children with nonsensory physical impairments whether they are accompanied by a neurological damage or not and whether they resulted in chronic health condition or crippling.

Basically nonsensory physical impairments may be classified as crippling and chronic health ailments. The crippled have muscular and skeletal deformities which are obvious. They may wear braces, prosthetic devices such as artificial limbs or may be moving with crutches or wheel chairs.

The second category of children are confined to bed for relatively long periods of time and just do nothing. The crippled children are known as orthopaedically handicapped or motor impaired whereas the second category were known as special health problem cases.

A teacher or educator is less interested in physical aspects of disability but he is more concerned with the manner in which it will affect his functioning in a learning situation. Hence, in this section there will be discussions on three categories of children.

(a) Children with muscular or neuromuscular handicaps which significantly delimit their ability to get about, sit in the classroom, manipulate the materials.

(b) Children with skeletal deformities which also effect ambulation,

- (b) Children with skeletal deformities which also effect ambulation, posture and use of hand in school work.
- (c) Children with temporary or chronic lack of strength, vitality or weakness.

Nearly two percent of children suffer from these disability or impairments.

### **NEUROMUSCULAR IMPAIRMENT**

Muscle weakness, paralysis, incoordination are grouped under this category. The difficulty usually occurs in nerves which innervate the muscles which may result from infection or injury at any time during the individual's life. Multiple sclerosis is due to progressive degeneration of muscular functions such as : spasticity of the extremities, tremors, unsteady gait, visual and other sensory complications resulting out of damage to nerves, patches of hardening, or scarring are scattered over the nervous system, brain, spinal cord and peripheral nerves. There is no known cure but partial recoveries are seen. This disorder is found more common in adults but begins in late childhood.

### **POLIOMYELITIS**

This is otherwise known as infantile paralysis. This happens when nerve cells in the grey matter of the spinal cord which are damaged by the polio virus which leads to paralyses of the muscles. Children after an attack of polio do return to school when other muscles are utilised. Use of polio vaccines reduces to nearly 70 per cent of occurrences. These two types of neuromuscular impairments do not damage the intellectual capacity of children although they do affect school adjustment. Hence, the school might look at adjusting the physical facilities and providing the counselling facilities. In case of multiple sclerosis, the learning ability of the child progressively decreases with time.

### **SPINA BIFIDA**

This is a congenital condition in which there is a defect of closure of the bony spinal canal. Hence, there is a profusion of the spinal cord through this gap. This causes extreme paralysis in the lower extremities as well as lower abdominal organs. The child is able to walk with crutches or braces. Sometimes hydrocephalic symptoms are seen and they cause mental retardation. Otherwise mobility and bladder control problems are more commonly seen in school.

### **CEREBRAL PALSY**

This is not a disease. There are a series of neuromuscular disabilities which are characterised by disturbances in voluntary motor action, in the extremities mostly resulting out of brain damage. The sensitivity of the disability

depends upon the degree of damage or brain lesion. There are various types of cerebral palsy disorders ; spasticity, athetosis, ataxia, rigidity and tremors.

Secondary characteristics appear in these cases because the lesion is rarely localised. Mental retardation, sensory and other defects appear in a considerable number of cases. Approximately half of the cerebral palsy children have I.Q. below 70, high rigidity and an ataxic. Over half of the spastics had speech defects and nearly 90 per cent of the athetoids had this defect. Almost one third of the total group had seizures and only a slightly smaller percent had defects of vision. Lack so specific hand dominance contributes to difficulty in learning to read and write.

<i>Type</i>	<i>Area of brain lesion</i>	<i>Characteristics</i>
1. Spastics	Motor cortex and pyramidal tracts	Stretch reflex, tenseness of muscles, difficult and inaccurate voluntary motion.
2. Athetosis	Basal ganglia and extra pyramidal tracts	Marked in coordinator of muscles, constant motion of extremities.
3. Ataxia	Subcortical, cerebellum	Incoordinated movement, impaired balance and sense of orientations in space.
4. Rigidity	Diffuse	Widespread continuous muscle tension.
5. Tremor	Basal ganglia	Rhythmic, involuntary, uncontrollable motion, limited to muscle groups.

### BEHAVIOURAL CHARACTERISTICS

Cerebral palsy is the result of brain damage. They show emotional disturbances like that of Strauss children. Some of them have impairments in perceiving shape, weight and texture. A few others have inability for spatial orientation and judgement. Cerebral palsy children often have difficulty in discriminating figure and background than do normal children. They give more concrete responses than abstract ones.

Nearly 50 per cent of cerebral palsy children have IQ below 70, 23 per cent fall between borderline and 28 per cent fall above average in IQ. Hence, the educational problems becomes one not only of adapting the programme to the multiple physical and psychological disabilities of the cerebral palsied child and in many cases adjusting to the level of slow learning.

Skeletal impairments in children affect primarily the upper and lower limbs spine and joints. As a result children are unable to walk, sit or stand or use hands. Some children have clubfoot. This is a condition in which one or both feet are downward and inward at the ankle occur most frequently. Congenital dislocation of the hips, scoliosis *i.e.*, lateral curvature of the spine appear among some of the children who are crippled or nonsensory handicapped. All these conditions are commonly found in school age children particularly at the elementary grade levels. The incidence of these disorders have decreased because of medical treatment.

There are also a few children in the school who need special care because they exhibit limited strength, vitality and alertness. They delimit the scope of children's functioning in school. Rheumatic fever is a chronic infection of the connective tissues of the body affecting joints, heart and blood vessels. Although rheumatic fever and pulmonary tuberculosis are decreasing, diseases like nephritis, infections, hepatitis and infections mononucleosis are creating concern in schools. All these require bed rest and limited activity during which time or programme of instruction in school subjects should be provided.

### **EPILEPSY**

Epilepsy or seizure is a major chronic health condition which can affect the alertness, vitality and mental health of a child in a manner and to a degree that may severely lessen his ability to function in a regular school situation. This is quite common and is more frequent than cerebral palsy, polio, muscular dystrophy, multiple sclerosis combined.

There are several types of epilepsy : psychomotor, petitmal, grandmal. In psychomotor epilepsy the individual is violent, vigorous and is doing some automatic action which appear to others as meaningful but are meaningless. The individual does not remember what he has done. Such behaviours include temper tantrums.

In petitmal, the child loses consciousness for a few seconds but does not fall. His eyes may roll up or there may be a rhythmic blinking of eyelids. He drops things, appears to be staring straight ahead, or stands still, unaware of what is going on around him. The teacher often thinks that he is not paying attention. He quickly recovers and goes on what he was doing. If he is reading, he will stop for a moment and they go on with the passage. As a rule this does not inconvenience him or to any one to a great extent. But if such seizures occur quite frequently the child is apt to lose the thread of a lesson and be handicapped by gaps in continuity. The teacher should watch for signs that indicate a child is having a seizure and repeat directions. He may have missed or checked to see that he has understood what was going on in the class.

A child who has grand mal seizures loses consciousness and falls rigid on the floor. This is preceded by a strange sensation known as aura (warning) and by a shrill cry. His muscles first tighten, then accompanied by salivation, twitching and tremors may follow. Then comes a deep sleep, coma or stupor. The seizure may last for a minute or two and when he recovers he may be dull or disoriented. He may want to sleep for some more time and consequently his school programme may be impaired. In a case such as this, what a teacher can do ?

- (a) Ease the child to the floor
- (b) See that he is not apt to injure himself by striking furniture or sharp corners while convulsions
- (c) Turning the child's head to one side and carefully placing but never forcing, a folded handkerchief or a soft object between back teeth is sometimes advised.
- (d) Do not use a pencil or other solid object for the teeth and gums may be injured
- (e) The teacher should help other children in the classroom to accept this seizure calmly and to understand that there is nothing contagious or harmful about in convulsion.

Children with epilepsy do not have necessarily low intelligence due to seizures. They show some signs of maladjustment because of social stigma and frustrating environment. Majority of the children with this condition can attend regular school. Normal activity and exercises may actually reduce the frequency of seizures. Incidence is reduced by following ketogenic diet (high fat carbohydrate) and anticonvulsive therapy.

#### EDUCATIONAL PLACEMENT AND INTEGRATED EDUCATION

The children who need special education because of neuromuscular impairment, skeletal deformities and reduced vitality are provided for in hospital classes, homebound instruction, special schools and special classes. But with some physical facilities and equipment their educational needs may be met adequately in regular classrooms under the integrated education scheme.

These are possible because they do not have impairment in intellectual functioning and can certainly learn through the same procedure as children without disabilities. Unless neurological damage is severe and intense no special method of teaching is necessary.

They require no drastic curriculum revisions. Certain adjustments may be made to increase their vocational and social competency. They may require a little more time to complete the prescribed courses. The goals of education are essentially the same as that for non handicapping conditions.

The following physical facilities may be provided in schools :

1. A short ramp up a number of steps to enable children in wheel chairs or on crutches to enter the building.
  2. Addition of a handbar by a drinking fountain, in a toilet, or near a section of the blackboard.
  3. Removal of desks to make room for the wheel chair to move.
  4. Modification of furniture to provide for the comfort of the child with braces.
  5. Rubber mats over slippery sections of the floor within the classroom.
- Problem of children having poor hand coordination can be solved by taping paper to the desk, devising some means of keeping pencils and crayons from rolling to the floor, providing holders for books.

In other words, with good planning and a little expense many children who would otherwise need special education services can be educated in normal classroom situations. The classroom and equipment provided for these children may consist of (a) wide door ways, (b) hand rails, (c) nonskid floors, (d) rounded corners, (e) play areas. The classroom furniture may be modified to (a) adjusting seats to turn to sides so that the child with braces can sit more easily, (b) providing foot rests, (c) adding hinged extensions to the desks with a cut-out to the child that has poor balance of eliminating the protruding parts over which a child might slip.

When do we think of placing a child in a special school ? When the child

1. Has specific learning difficulties
2. Needs special kinds of equipment
3. Needs disproportionability more of teacher time
4. Needs therapy
5. Has emotional problems

The cerebral palsied children cannot ordinarily be placed in a regular class. For mild cases with normal intelligence regular class may serve the purpose but for severe cases special class or special schools are necessary. Cerebral palsied children with mild motor involvement but more severe impairment of intellect, vision, or hearing will be best provided for in classes for the mentally retarded, visually or auditory handicapped. In advanced countries of the world hospitalised instruction or homebound instruction is provided but for a developing country its limitations are obvious.

Children with cerebral palsy may have the learning difficulties of the brain injured child added to the basic problem of muscular coordination and secondary sensory and mental impairment. Curriculum content will depend to a great extent upon what the student is going to be able to do with his education when he completes school or leaves the school.

Education and training of the cerebral palsied children should begin

very early, as early as 3 years of age. Early readiness program is designed to (a) stimulate interest and curiosity, provide for meaningful experience, increase language comprehension, develop satisfactory perception and built towards independence. The readiness period may extend over years. Methods of teaching the basic tool subjects may emphasise the meaningful materials and importance of useful reading skills may also be emphasised. Cerebral palsied children with intellectual and perceptual handicaps make acquiring the skills very difficult. For cerebral palsied sometimes silent reading is recommended. The kinaesthetic sense can be utilised in supplementing visual and auditory impressions and children whose motor involvement is not too severe can learn to read words through tracing them. Coloured felt pens are useful for the purpose because the colour gives added clues.

Adequate language and speech development is necessary for the cerebral palsied children. Speech training must be done by a speech therapist but games and exercises which stimulate auditory discrimination can form a part of the daily schedule. A 'conversation board' containing pictures, common objects helps the children learn to read. Non oral students get a deal of satisfaction from learning the 'Morse Code' and they communicate with the teacher by eye blinking or tapping on the desk for dots and dashes.

Handwriting of the cerebral palsied children have improved by giving specific manuscript writing training *e.g.*, activities is space orientation, coloring with lines, tracing and using word boxes with pictures. Teaching materials must be adapted to the needs of individual students on the basis of their physical problems as well as perceptual and learning difficulties. Pupils in pre-academic classes will learn to match colors and shapes distinguish between sizes and textures and develop the concepts of number through manipulative games and devices which promote eye-hand co-ordination. Some of the commercial materials available for this purpose are : pegboards, snap blocks, lock boxes, co-ordination boards, take apart toys, colour cones, junbo beads, puzzles. Materials can be devised to increase motivation and reduce boredom.

The physical aspects of the total educational situation assume major importance for children with cerebral palsy. In fact, physical development should go side by side with academic development. The physical therapist is primarily concerned with the development and maintenance body posture and mobility, voluntary movement. Physical therapy does contribute to improvement in neuromuscular impairment. The occupational therapists concentrate on the development of the self-help skills of dressing, grooming and abilities necessary for school work. Homebound and hospitalised instructions are costly but are given to cerebral palsy children in case of progressive advanced countries.

These are the physical and educational facilities that are available or can be made available for the educational of crippling and special nonsensory health disorders. The important concern should be that he should be accepted, should be helped to be independent and the society must change its outlook in seeing beyond his defect to the person that is there. This is a challenge that special educators should take.

### REVIEW EXERCISES

**Answer the following questions within 500 words each :**

1. What is neurological disability ? Briefly describe the types of neurological impairments.
2. What is poliomyelitis ? How is it caused ? What can be done for their education ?
3. What is cerebral palsy ? What are the behavioural characteristics of such type of children ?
4. What is epilepsy ? What are its characteristics ? How would you treat such children ?
5. What are educational provisions for an epileptic child ?

**Write within 50 words each :**

1. Behavioural characteristics of the cerebral palsied
2. Spina Bifida
3. Strauss syndrome
4. Peitmal
5. Grand mal

**Write whether the statements are True or False :**

1. The crippled have muscular and skeletal deformities.
2. Nonsensory physical impairments are classified as crippling.
3. Aphasia is a language disorder due to Brain injury.
4. Nearly 2 per cent children suffer from crippling.
5. Poliomyelitis is infantile paralysis.
6. Use of polio vaccine does reduce only to percent of occurrences.

**Fill in the blanks :**

1. ....have disorders in motor cortex and pyramidal tracts.
2. ....have disorders in Basal ganglia and extra pyramidal tracts.
3. ....have disorders in subcortical cerebellum.
4. ....have diffused brain lesions.
5. ....have defects in Basal ganglia.



## Hearing Impaired Children

Deafness or impairment in hearing capacity is defined in terms of degree of hearing loss. Total inability to hear is deafness but those whose sense of hearing is defective but they manage with or without hearing aid is hard of hearing. Deafness might occur before the child acquires language or afterwards due to certain environmental problems.

The medical legal definition of hearing impairment has been in terms of degree of hearing loss and ear problems. These are classified as Mild 20-30 dB; marginal 30-40 dB, moderate 40-50 dB; severe 60-75 dB; and 75 and above dB profound category. The deaf seldom or never profits from auditory training. The hard of hearing are those who have reduced hearing acuity.

Several measures have been undertaken to assess incidence or prevalence of deafness. One of the estimate available from Silverman (1952) that 5 per cent of school children are having different degrees of hearing loss or they suffer from some form of hearing problem. With regard to our country, the National Sample Survey (1981) reported 3.02 million hearing impaired children except for 0-4 age group. Its occurrence is more in rural areas than in urban areas. There is a need therefore not only of early identification but of prevention and care and finally education and training.

It has also been found that the speech of prelingual hearing impaired is slow and of high pitch, with prolonged vowels, rhythmic abnormality and defective articulation. Their incidence of hearing impairment is more in males than in females.

### IDENTIFICATION

**How one would identify the hearing impaired children ?** Obviously there are some behavioural indicators and some measurement tools including audiometer. But before the child is referred to an audiometric clinic, certain signs are visible. These are called behavioural clues.

1. Frequent ear aches
2. Fluid discharge from ear

3. Cold and soar throats occurring frequently
- ✓ 4. Lack of equilibrium
5. Inconsistency in following directions
6. Always asking "What" — "What"
7. Observing the lip movement
8. Speech defects
9. Limited vocabulary
- ✓ 10. Inattention
11. Restless and lazy
12. Over acting or withdrawal behaviour
13. Use of earphones
14. Undeveloped or underdeveloped language

### TESTING TECHNIQUES

Identification of hearing impairment is done at different levels. One has to look at the

- (a) High risk register—This records the history of childhood hearing impairment; infection from Rubella, defect of ear, nose, throat, cleft lip or palate, less than 1500 gms. of birth weight. In addition to neurologic, there is also neonatal meningitis. After this identification, they are tested by audiological tests.
- (b) Screening procedure—Sounds are produced at various frequencies when the child is asleep and the capacity of the child is observed with regard to responding to the sound. It is not an independent measure but is a supplementary technique.
- (c) Cuibogram Technique—In this techniques sound boxes are kept in the crib and a recording device is attached to the bed on which the baby sleeps. When sound at 92 dB is produced at certain intervals the reaction of the baby is recorded automatically.
- (d) EEG is used to screen the child of auditory response. Audiometric tests and observations of infants behavioural response to various sounds during first six months, followed by audiometric tests are being used in our country.

✓ After an early identification, early interaction and preparation using hearing aids, early stimulation, development of sensory motor skills, auditory training to motor speech, play and constructive activities to develop concepts and abstraction are undertaken. The hearing aid should be very carefully selected to suit to the child's needs. Basic activities are also required to be started for the development of auditory verbal communication. More important is that the child with hearing loss needs to be accepted, in the family first

and parents are to be trained in the use of hearing aid and early stimulation techniques.

### ASSESSMENT OF HEARING LOSS USING AUDIOMETER

Human ear is sensitive to respond to a wide range of frequencies which range from 20 to 2000 Hz. It is not equally sensitive to all frequencies nor all speech sounds be perceived at the same level of intensity. The human ear is sensitive to intensities from 0 dB to 130 dB SPL. Various tests have been devised and used to find out solutions to identify the degree of loss in low middle and high frequencies.

*Sound Pressure Level*

The most common tests are : tuning fork tests of Rinne in Germany; Lateralisation tests by Weber, the Bing test for different of conductive and sensory—neural loss, Schwabach tests of sensory neural loss. All these techniques are developed in Germany and are used to identify type of hearing loss not the degree of hearing loss.

Audiometer which was developed in 1920 is an electronic device producing pure tones. It measures the Hearing Threshold Level (HTL), Hearing Level (HL) and Sound Pressure (SPL). An audiogram is prepared by testing the child which indicates the degree of hearing loss. Generally normal hearing sensitivity lies within the range of 10 dB to +20 dB at all frequencies when hearing sensitivity or capacity falls beyond 20 dB at two or more frequencies the person is said to have bearing loss. This may vary from time to time, ear to ear and frequency to frequency.

On the basis of all these *i.e.*, degree of affection, site of lesion, on-set and duration of loss, hearing impairment is classified as mild, moderate, severe and profound. It can also be categorised as conductive loss, mixed loss, sensory-neural loss and non-organic loss, congenital loss (at the time of birth) prelingual or postlingual loss.

Speech audiometry gives us

- (a) Speech Reception Threshold (SRT)
- (b) Speech Discriminatory Threshold (PB Max %)

There are several causes that account for hearing loss.

### CAUSES OF HEARING LOSS

Hearing loss may not necessarily be due to organic factors but due to psychological and psychiatric reasons. There has been differential focus. The otologist looks for medical and surgical intervention, an audiologists suggests for amplification and therapeutic management and for an educator or resource teacher emphasis on language development is crucial remedial step.

### **PRENATAL**

Early infectious diseases like Rubella, mumps, influenza of the mother affects the infant's hearing loss. Some research have shown that over dose of strong drugs like streptomycin, quinine, thalichelorida and L.S.D. are associated with hearing impairment and therefore expectant mothers should remain away from those. Maternal malnutrition is another such cause. In addition Rh-incompatibility, emotional trauma, brain fever, brain tumor and certain neurological factors do their part in affecting hearing capacity of the infant adversely.

### **PERINATAL**

Lack of oxygen, use of forceps in delivery, instrumental delivery, premature delivery followed immediately by jaundice, use of anaesthetic agents in delivery do cause hearing problems.

### **POSTNATAL**

The causes which affect hearing loss after birth are German measles, mumps, whooping, cough, meningitis, typhoid fever, encephalitis, infections in nasal cavities, eustachian tube, middle ear infection, ear discharge etc. lead to hearing loss.

There are also some environmental and accidental factors, *i.e.*, accidents, severe burns, toxic drugs, faulty development, emotional depression, exposure to continuous high intensity sounds, etc. Adequate awareness on the part of parents can minimise the cause of hearing impairment in our situation. Early follow up services for checking expectant mother's health and health of the new born can prevent hearing impairment and associated problems.

### **✓ CHARACTERISTICS OF HEARING IMPAIRED CHILDREN**

There are certain behavioural problems which are associated with hearing impairment. They feel invariably inferior and helpless in adapting to circumstances that require verbal communication. They have a poor self-concept which damages the development of personality. They develop temper tantrums and are mostly submissive.

As regards cognitive functioning, the hearing impaired children face deficits in understanding abstract concepts. Because of limited vocabulary they possess poor comprehension ability. They do not have any difficulty in adjusting to social situations. On all the aspects of development *i.e.*, mental, intellectual, personality and educational achievement the hearing impaired children are inferior and are at a lower level. In vocational adjustment they face more difficulties.

Language development of the deaf child differs markedly from that of

the normal. In fact, the normal child learns the language. The deaf child is taught language. They process language and linguistic utterances visually. Whether the child is prelingually deaf or postlingual deaf they behave like deaf children in communication skills. But those who lose their hearing after experiencing speech can be trained a little easily. With training in sound and use of aids the deaf child acquires workable language and speech. The profoundly deaf must receive sound training and prosthetic aids as close to the age of two.

Some of the difficulties the deaf child experiences is learning to read may be explained by the greater problem he has in ordering terms through the process of visual scanning. This ordering and visual scanning are forced by the explicit motor speech pattern. There is no such motor pattern in the deaf to force an order of scanning, unless one is provided by an arbitrary process such as finger movement.

More specifically the hearing impaired children have certain specific characteristics with regard to language.

They have high pitched voice with slow and laboured speech. The vowels used by them are either prolonged or distorted. They display abnormal rhythm in speech. There are nasal sounds, mispronunciations and monotonous voice.

They have limited vocabulary and inability to comprehend, meanings, concepts, feelings, complex structure of language. In written language one often finds problems associated with sentence construction, knowledge, gender, tense, appropriate use of verbs, adjectives, nouns, idioms etc. All these affect the academic growth of hearing impaired children.

### EDUCATIONAL PROVISIONS

**Home based programmes.** Home based programmes are introduced at very early stages for the young infants depending on the degree of hearing impairment, developmental status of his intellectual level, degree of parental involvement. In this, some corrective exercises and stimulating environments are created. The infant is given auditory and speech training. Then after formal assessment is over, they are placed in schools depending upon the category of impairment.

### SPECIAL SCHOOLS

Children who have severe disability in hearing are placed in special schools for the deaf. Usually, there is no other alternative. These children follow an entirely different curriculum and they can not keep pace with the normal school curriculum because of their language handicap.

### **PART-TIME CLASSES**

There are mildly hearing impaired children who can profit from regular class room teaching. They are given adequate preparations in some school subjects, personal-special skill development, communication skills. These children spend half a day in regular class and the remaining half in a special class with a special teacher and or a resource teacher to prepare to cope with the regular class works.

### **INTEGRATED EDUCATION**

Children with minimal hearing loss are placed in the integrated classrooms alongwith the regular students. With minimum class room arrangements, instruction, use of hearing aids these children are able to cope with the normal students in the regular classroom. Special assistance is given to such pupils.

### **VOCATIONAL PLACEMENT**

For hearing impaired adolescents vocational placement is decided after assessing his intelligence level, range of interest, aptitude, social maturity and adaptability and communication skills. The vocational counsellor will assist him for appropriate placement. Ordinarily they can adjust to routine works in a sheltered workshop.

### **ROLE OF TEACHERS AND THE INSTRUCTIONAL PROGRAMME**

Hearing impaired children utilise lip-reading or speech reading with clues to facilitate communication. Their speech reading will improve if we can look into and adapt certain precautionary measures while teaching speech reading.

Teachers of hearing impaired children should avoid keeping mustaches, hairstyles, ornaments, beards to facilitate the child to look for cues of communication. They should not cover the face with book while reading a passage to prevent eye contact which aids oral communication. The teacher must face the child while teaching reading and do not make movements unless it is absolutely required. These measures aid in helping the hearing impaired for speech reading. Hearing impaired children get more tired easily. Hence, have short activities, combine visual illustrations with oral activities, work sheets, individual games, physical activities, and relaxation exercises.

A hearing friend often called a 'buddy' helps the hearing impaired child by taking notes for him, pointing out who speaks and what is being spoken. They help them to come back to the correct place in the lesson when it is being taught as they sit near them. Social interaction is also improved by rotating the buddy system in the classroom. If a teacher speaks slowly, the

hearing impaired child gains a lot.

Certain general teaching techniques are to be practised by the teachers of hearing impaired children.

1. Combine visual presentation with oral materials
2. Use handouts for these children
3. Use multisensory approach when necessary
4. Focus on pupil's attention
5. Teach the major portion of the lesson
6. Make a summary presentation
7. Use transition sentences
8. Use short and clear verbalisation
9. Ask questions to check comprehension
10. Explain things and repeat

For accelerating language and oral communication skills among hearing impaired children language experience training should be incorporated as a regular feature in the school emphasising all the aspects of language competence, comprehension and skills of communication. Role playing, Action, illustration cards, pictures, drills, picture-word dictionaries, practice sheets, phonics, structural analysis are to be used. Several language training kits are available and can be profitably used.

Written comprehension and expression can be enhanced by writing simple sentences on a topic and presenting them in a scrambled order and asking the hearing impaired child to rearrange the cards using semantic organisation. They can be given matching exercises, ordering of experience, questions regarding what, when, where and how. Hanging of charts in the room also speed up the language acquisition.

For mathematical ability, training in use of abacuses, plastic chips, coins and other small objects, value boxes, number lines, playing cards, semiabstract materials facilitate learning. Hearing deficient children are not poor in abstract and conceptual ability but because of language deficit their overall performance is retarded.

Speech therapy has been recommended for reinforcing speech and sound patterns. Close communication with speech therapist will result in consistent and concentrated programmes. Use of hearing aids individually and group hearing aids in the classroom facilitate instruction and learning.

Providing education and training to the hearing impaired pupils is a challenge not only to the regular classroom teacher but to special teachers as well. A consistent attempt, monitoring and feedback on the performance of hearing impaired children is needed. The parents and community have also great role to play in accepting such children. IED and the resource room

teacher plan are positive steps in bringing hearing impaired to the mainstream.

### REVIEW EXERCISES

*Answer the following questions within 500 words each :*

1. What is hearing impairment ? How would you identify a hearing impaired child ?
2. What are testing and assessment procedures of the hearing impaired children ?
3. State the causes of hearing loss.
4. State some of the behavioural signs for the hearing impaired children.
5. What are some of the educational provisions for the hearing impaired children ?
6. What are the characteristics of hearing impaired children ?
7. What is the role of teacher in the integrated setting ?

*Answer within 50 words each :*

1. High Risk Register
2. Screening procedure
3. Cribeogram technique
4. Audiometer
5. EEG
6. Special school
7. Integrated classroom

*Fill in the blanks :*

1. Mild hearing loss is within 20 and.....dB.
2. Marginal hearing loss is within 0.....40 dB.
3. ....hearing loss is within 40 and 50 dB.
4. ....hearing loss is within 60 and 75 dB.
5. Profound hearing loss is above.....dB.

*Write whether the statements are True or False :*

1. 5 per cent of school children have hearing impairment.
2. Hearing impaired children have frequent ear aches.
3. Hearing impaired children have no problem of equilibrium.
4. Vocabulary of hearing impaired children are poor.
5. Hearing impaired children are overacting.



## Visually Impaired Children

Visual Impairment is defined in terms of visual acuity, field of vision, and visual efficiency. Visual ability is the ability of eye to see distant objectives clearly which is assessed using the Snellen Chart, developed by Herbart Snellen, a Dutch doctor. If the chart starts with a big 'E' which a normal eye can see at a distance of 200 ft. If the vision of the person is so impaired that to see it clearly it has to come within 20 ft. or nearer, he is then considered legally blind. The individual is able to counting of fingers at a distance of 1 metre. His vision is assessed as 20/200 in the better eye. It simply means a legally blind person sees something in 20 ft. distance which can be seen by a normal eye at 200 ft. easily, in the better eye after correction. The normal field of vision is  $180^\circ$  in the better eye with correction. But if it is  $20^\circ$  or less, it is blindness. To him, a very limited field would be visible. Visual efficiency means how will one can use his vision. This means how the visual information is processed, analysed and interpreted in the brain. This part is educationally and rehabilitation purpose wise more viable.

Functionally visual impairment presents a different problem. There are children who have low vision or residual vision. The children can read large prints, and sometimes are not benefitted by visual aids in reading and writing. These children are partially sighted and their visual acuity does not exceed 20/70. But as opposed to touch reading they use print. Low vision and partial sightedness are not synonymous. Low vision is defined in terms of clarity reduction whereas partial sightedness is defined in terms of distance from the Snellen Chart.

Educationally speaking, blind children are those visually handicapped children who use Braille, and partially seeing are those who use print.

Besides, clinical assessment, how can a teacher undertake functional assessment ? There are certain tips for teachers.

### BEHAVIOURAL SIGNS FOR IDENTIFICATION

The child rubs the eyes excessively, has watery eyes, reddened eyelids etc.

He covers one eye and tilts the head forward; holds objects and books close to his eyes; asks other children when taking notes from the blackboard;

Blinks more frequently; Squints eyelids together; Crossed eyes; complains about headache following close eye work; Bumps into objects or people.

There are also certain other body clues :

- ✓ 1. Making head forward and backwards while looking at distance objects, and a rigid body. *Repetitive Movements*
2. Frowning or loosing the place while reading or writing.
3. Closes one eye or cover one eye.
- ✓ 4. Difficulty in coping with blackboard.
- ✓ 5. Poor eye-hand coordination.

### ✓ Assessment of Visual impairment

The following tests are used :

1. Interim Hayes-Binet for IQ Age 6 +
2. Perkins-Binet-Carl Davis-revision
3. WISC—R
4. The Blind Learning Aptitude Test (BLAT) (CA 6-20)
5. The Haptic Intelligence Scale for Adult Blind
6. Koh Block Design Test
7. WAIS (Verbal)
8. The Slosson Intelligence Test
9. PPVT (Partially sighted)
10. Illinois Test of Psycholinguistic Abilities
11. Bohem's Test Basic Concept

### Behaviour and Social Development

1. Bayley Scales of Infant Development
- ✓ 2. Denver Development Screening Test
3. Maxfield-Buch Holz social maturity scale for blind pre-school children.
4. Wide Range Achievement Test

### Vision

- ✓ Visual Efficiency Scale
- Evaluating Functional Vision
- ✓ Snellen Chart

### Indian Tests

- C.M. Bhatia—Performance Tests of Intelligence
- Vithoba Paknikar Performance Test for the Blind—K.K. Paknikar (1978)

## Causes of Impairment

The causes of visual impairment can be classified as *Ocular, General, and Injuries.*

### Ocular

Congenital and developmental disorders have been stated to be one of the major causes of visual impairment in children. These are :

**Anaphthalmia.** In which eyes do not develop at all.

**Microphthalmia.** In which eye ball is abnormally small.

**Oxycephaly.** An anomaly of the skull bones resulting in optic atrophy.

**Antridia.** In which the iris fails to develop and visual acuity becomes poor and there is rapid involuntary movement of eye ball.

There are various other eye disorders : *Byphthalmia, Albinism, Retinoblastoma.*

**Congenital Cataract**— due to Rubella infection. These are certain congenital and developmental anomalies. But there are other eye diseases which impair visual acuity.

**Conjunctivities** — of the new born which is now prevented just after birth by dropping 1% Silver Nitrate Solution to the baby's eyes.

Sometimes there is a *fibrous* mesh behind lens (*Retrolental Fibroplastic*). It is caused due to excessive use of Oxygen to premature babies while in incubators.

**Trachoma** — Results out of crowding home conditions and as a result of chronic contagious disease of conjunctiva and Corvea.

**Glaucoma** — It is a potent factor of blindness in middle ages. In early stages, it can be cured.

**Cataract** — Although it is a disease of old age, yet it can occur at any time due to rupture of the lens.

### GENERAL DISEASES

Syphillis is considered one of the common causes of blindness in India. It is hereditary in origin and it becomes manifest during 5th and 15th year of life. Atrophy of optic nerve is associated with neurosyphillis. Chronic diarrhea is also a cause of blindness in rural India. Substistence on barley water results in loss of vitamin-A which softens the cornea. Hypertension, diabetes, kidney disease cause visual impairment.

Malnutrition is the cause in most cases not only for visual impairment but also for several sensory and cognitive dysfunction. In a country like ours

malnutrition and ignorance about eye care cause blindness. Especially deficiency in vitamin-A, vitamin-B, B2, C, D are also associated differentially in visual functioning depending upon the degree of deficiency.

Injuries and accidents especially which create trauma and are chemical disturbances or burns, tobacco, methyl alcohol, dyes, paint, carbon monoxide, lead, etc. cause eye problems.

#### **WHAT CAN BE DONE TO PREVENT AND CURE VISUAL IMPAIRMENT ?**

Blindness is preventable if care is taken in time. The care is both medical and mass educational. In our country, poverty, malnutrition and ignorance are main causes of visual impairment. Health of the mother during pregnancy is also of primary importance. Distribution of vitamin-A to children is most suitable measure. Toys with needle points, or made of tin should not be given to children. As far as possible, they should not play with airguns, bow, and arrows. Care should be taken.

Eyes should be washed with cold water every day as many times as possible. Do not rub eyes excessively. Don't apply anything to the eyes without Doctor's advise. Errors of refraction or balance should be corrected early. Illumination of the classroom should be free from glare and flicker. Prints for reading should be spaced for avoiding eye stain.

#### **✓ CHARACTERISTICS OF VISUALLY IMPAIRED CHILDREN**

Vision is the most actively used sense by man. Hence, cognition depends upon his visual experiences. Blindness imposes three basic limitation on the individual.

Blind children are experientially deprived in terms of range and variety of experience.

Their ability to get along is also limited because of restricted mobility.

They are unable to control one's own environment and oneself in relation to it. This is a significant deficit. Community attitudes and reactions depends upon tradition, culture and belief. Gradually with advancement and progress in welfare activities attitudes are changing from brutality to welfare and sympathy. Still there are certain stereotypes which reflects in terms of attitudes and responses. People still believe that blind person is nothing, can do nothing and can be nothing. They thus have a low self concept, poor personality make up low n-ach.

Sometimes, parents feel that blind child is born due to the result of some sin. Therefore he is ignored and not taken care of. Neglect causes certain personality problems. The child has to develop certain personal self help

skills. Overprotection is also dangerous. It denies the child all kinds of natural demands. The blind child suffers from behavioural deficiency because of extreme neglect or overprotection.

### **INTEGRATED EDUCATION OF VISUALLY IMPAIRED CHILDREN**

A visually impaired child in the regular class is one among many children in that class. The curriculum should be same. But the visually impaired child receives the information predominantly from touch and hearing. Hence, there is no need of special curriculum but approach to teaching should be *multi-sensory* and he should be exposed to a *plus curriculum*.

General curriculum should be explained in terms of nonvisual experience. *Duplicate* experience, *modify* experience, *substitute* experience, and *omit* lesson.

**Plus curriculum** is not extra but compensatory. This skill development always facilitates better learning. Areas of special plus curriculum include :

- (a) Braille
- (b) Orientation and mobility
- (c) Daily living skills
- (d) Sensory training
- (e) Social skills for integration
- (f) Use of equipments

Curricular activities should include intellectual activities (music, debating, writing etc.) combined physical and intellectual activities like exercises, dancing can be developed in blind children. *Slow pace* should be the criteria for teaching the blind children in an integrated setting.

In the integrated education setting we have no right to change the curriculum but what one can do is to take the experiences of the blind child very nearer to that of the normal child through modified experience, resource room teaching, remedial instruction, and multisensory approach. There should be a thorough understanding between the regular and resource room teacher.

#### **Primary Level**

1. Teaching of Tactile discrimination
2. Auditory discrimination (use of Bell Ball) blind folding
3. Plus curriculum—Spend more time in resource room, individual instruction, on to correspondence
4. Note taking habits — Teacher should not insist
5. Presentation of material

6. Evaluation
7. Supportive services — Effective involvement of parents, resource room teacher, regular teacher

The resource room Teacher ought to teach :

1. Introducing Braille
2. Braille writing
3. Touch sensation
4. Hearing skills
5. Daily living skills
6. Pre-cane mobility skills
7. Mathematical concepts and *abacus*

#### **Indirect Services at Secondary Level**

1. Teaching mobility skills using long cane
2. Teaching mathematical concepts and embossed diagrams
3. Remedial Teaching for slow learning visually impaired children.

#### **Resource Room**

A resource room forms a part of the integrated education programme when there are sufficient number of visually impaired children. It is necessary for

- (a) Preparation of material
- (b) Teaching plus curriculum
- (c) Locating the Braille materials
- (d) Remedial teaching

A resource teacher is not a subject matter specialist, but a specialist in teaching skills and integrated education peculiar to blindness. They should have a minimum knowledge of the subject matter. He may discuss the matter with regular teachers and act accordingly. Regular teacher can also engage these children in remedial instruction. There is no hard and fast rule regarding the nature of instruction in the resource room. It may consist of

- (a) Before classroom instruction
- (b) In between classroom instruction
- (c) After classroom instruction — Everyday follow-up may be necessary for some children

Teachers should have the patience to practice with persistence

#### **Equipments Necessary for Resource Room**

1. Braille writer for teacher
2. Braille slates and stylus for pupils
3. Abacus for teaching math
4. Braille sheets of paper

5. Classroom furniture
6. Low vision aids
7. Large print books
8. Bulletin boards (Braille)
9. Braille books
10. Hammer, saw, pliers etc. for teaching Industrial Art
11. Tape recorders and cassettes
12. Duplicating machines (Braille type)
13. Teaching aids

### TEACHING DAILY LIVING SKILLS

The visually impaired children are taught eating, tailoring, dressing, body hygiene—cleanliness, body hygiene—personal grading, taking bath, washing clothes, handling money, shopping, using electrical appliances, using telephone, shaving, food preparation, clearing a place, and using medicines.

### ORIENTATION AND MOBILITY

Sense of hearing, touch, smell, taste, kinaesthesia have to be developed by using different techniques such as :

Guide dogs; sighted guide techniques; long cane techniques; safety techniques; and electronic aids for mobility, laser cane, yields beam of light, infra red light to detect objects and a pair of glasses known as Sonic guide, which is mounted on ultrasonic sensors.

Visually impaired children may need assistance in mastering the school environment. The following activities are helpful :

Magnifying glass and or spherical lens can be provided for students with low vision aids to answer and correct their own scripts.

Several factors should be considered for providing appropriate environment to the visually impaired children.

- Illumination should be bright, diffused and free from glare and shadows.
- Figure and ground is a must especially for partially sighted pupils.
- Up to a point the larger the print the better it is for pupils to see. If it is very large pupils can not see it at all.
- Pupils with visual impairment should be asked to sit close to balck board.
- Blue and white stencil, multi-coloured chalks, and grey pencil and difficult to see.

A normal classmate can work as a 'buddy' for visually impaired children and assist him in drills, taking, tutoring him, creating awareness of what is happening.

For developing concept in visually impaired children one should use concrete experience. Visually Impaired Children should be helped to associate words with tactile experience.

Structured activities where pupils can learn by doing and experience and teaching them by units are helpful. Integrate various study units to help the pupil get wholeness of life.

### **THE ROLE OF TEACHER**

Regular classroom teachers do not have to learn braille but for the partially sighted children they have to make certain arrangements in the classroom. For example, use of magnifiers keeping background noise minimum, furniture can be adjusted to make maximum visual efficiency. Visually impaired children rely on sound to a great extent. Hence teacher has to use distinct sound during reading instructions. Children must learn to focus attention on all letters of a word. Use of large print materials also aid learning for the partially sighted. Talking books, cassette players, audio tapes, strips are available. Compressed speech recorders are also available.

Different instructions are necessary for teaching different curriculum areas. For Mathematics :

1. Use clips, spools, magnetic boards, use different arrangements.
2. Whatever you write in the board provide a desk copy.
3. Teach mental arithmetic
4. Use an adapted abacus
5. When you teach through pictures, lines use dark chalk or pencils and preferably use 2 or 3 dimensional models
6. Embossed graph paper slide rules are available. Raised clock and talking calculators are available.

For writing tactile materials are to be used. Hence, pupils use a stylus to write letters. Kinaesthetic feedback is desirable. Papers with raised lines help writing skills to develop.

For spelling skill — Articulate the words clearly. Point out the visual aspects of the words. Give oral spelling tests, practice spelling lists on a type writer. Repetition improves spelling and typing skills. They can listen to audio tape.

Occasionally visually impaired children display deficiency in social skills. This is due to lack of experience and over protections. They should be rewarded verbally for any social gesture and seer acceptance have to be encouraged. Verbal cues can be provided to partially sighted or low vision children. Allow them to speak to the class. They have to develop their self confidence.



Use of multisensory materials have added advantage for the Visually Impaired pupils. Commercial kits and language master are also available. Television also provides a source of multisensory learning. Computers has also come to the service of the disabled. In teaching visual impaired children one must remember that each child is unique. Each has strength and weakness. His handicap should therefore not interfere with teaching him to grow up.

### DEVELOPMENT OF VISUAL EFFICIENCY IN PARTIALLY SIGHTED

A teacher should practice the following to develop visual efficiency of low and partially sighted children.

1. Expose the children to various lighting condition; encourage children in seeing, discuss what they see; increase vocabulary.
2. Give enough time to observe; provide coloured lights, and present attractive toys for identification.
3. Draw pictures/figures and ask the child to trace/move along, and may be asked to follow rolling ball, light etc.
4. Discriminate 3 dimensional objects; teach gradation in size; teach names of colours and teach intensity concepts.
5. Use flash cards; increase memory, complexity and decrease duration, and specify order.
6. Draw form in dotted lines; draw forms free hand; throw and catch ball, and reinforce vocabulary.
7. Find omission of parts and present objects in ascending/descending order.
8. Teach form constancy
9. Teach figure and ground discrimination
10. Teach visual motor cordination — paper shapes, clay modeling, folding paper, bead-stringing, tracing, wearing ropes.

These measures help the partially sighted children develop competence and they gain much from schooling.

### REVIEW EXERCISES

*Answer the following questions within 500 words each :*

1. What is visual impairment ? How would you identify a visually impaired child ?
2. What are the testing techniques used for assessing the visual impaired children ?
3. What are the characteristics of visual impairment ?
4. What are the educational provisions for helping the visually impaired children ?
5. How would you develop visual efficiency in partially sighted ?

6. What equipments are necessary for the resource room of visually impaired children ?
7. How would you teach mobility and daily living skills to visually impaired children ?
8. What are the types of visual impairment and their etiology and prevention ?

**Write your answer within 50 words each :**

1. Trachoma
2. Glaucoma
3. Cataract
4. Plus curriculum
5. Multisensory approach
6. Orientation and mobility
7. Classroom arrangement for visually impaired

**Fill in the blanks :**

1. Visually impaired children.....more frequently.
2. Visually impaired children.....their eyelids together.
3. Visually impaired children.....into objects and people.
4. Visually impaired children have.....eye hand co-ordination.
5. Visually impaired children tilt forward and close.....eye(s).

**Write whether the following statements are True or False :**

1. Snellen Chart is used for identifying VI.
2. Visual acuity of VI is 20/200 in the better eye.
3. The normal vision is 180° in the better eye.
4. Blind children use Braille.
5. Partially sighted children use print.

## Underprivileged Children

The term 'underprivileged' seems to be only a variation on the theme of slow learners, under achievers, culturally deprived, socially disadvantaged, culturally different but it is hoped that it will be more than just another euphemism. To me the term 'underprivileged' means children, who come from socio-economically backward section of the community who cannot profit from school because of deprivation of one sort or another, and children who are seen in interior tribal and rural areas of country where educational facilities have not reached in the way we find them in a metropolitan area.

In other words, the term underprivileged would include, children who not only belong to the above criteria but children who are exposed to disadvantaged schools in the rural and slum areas. Hence, both the ecology of the family and the ecology of the institution contribute to educational deficits of the underprivileged. This feature has been very well discussed in a paper by Prof. Robinson (1976), who advocates micro and macro-sociology of education for the underprivileged. Prof. D. Sinha also makes a strong plea for an ecological model of cultural deprivation (1977). In addition, it is also emphasised that perceived awareness of poverty be it environmental, economic, affective or psychological groups a number of children in rural and urban slums to the category of the underprivileged. One of the prevailing features of modern society in rural area and slums is poverty of one sort or another and as such for the education of underprivileged a new sociological perspective is needed. Our constitutional directives for universalisation of school education will be really achieved not only by providing equal opportunity for enrollment, changing the quality of facilities, increasing the teaching personnel and services provided or through shifts in curriculum but significant improvement in the quality of guiding teaching and learning processes. As a matter of fact, when wastage and stagnation would be taken care of, the school attendance approaches 100 per cent of the school age population and the school draws increasingly from the bottom of the pile. The able, the adjusted, the motivated, the upper 30 per cent in ability, have

always been in the school and the schools have taught them fairly successfully. Now we have to deal with those who are less equipped intellectually, motivationally, economically to cope with the school culture and expectation and even may seem hostile to what school represents. This segment of the school population is the underprivileged. In fact, if we predict the drop-out rates to be reduced in the immediate future, we can say in the same tone that the school population will increase exactly in the same proportion contributing to heterogeneity and children from underprivileged sections of the community will be more in number.

Cultural deprivation or underprivileged refers to a complex set of conditions which create intellectual deficiency in a child. Some of these conditions are attributed to unstimulated environment, lack of verbal interaction with adults, poor sensory experience, and other deleterious environmental factors generally associated with poverty. The term underprivileged is used to indicate.

- (a) Progressive decline in intellectual functioning.
- (b) Cumulative academic achievement deficits.
- (c) Premature school termination and high dropout rate.

#### **CHARACTERISTICS OF UNDERPRIVILEGED CHILDREN**

Before we think of a teaching strategy for the underprivileged, let us know what are the characteristics of the underprivileged children. These children show poor academic performance, high drop-out rates, reading and other learning disabilities, and have adjustment problems. Socio-economically backward children practically show every such index. They have lower grades, their health is poor, and they have deficiencies in the two most skills reading and language, necessary for success in school. They have minimal training in disciplined group behaviour and educationally are less ambitious. Children from such environments are apt to have various linguistic disabilities. They also show incapacity in cognitive processes such as : the ability to observe and stating sequences of events, perceiving cause and effect relationships, classifying concrete objects, attributing responsibility to self and in general have poor self concept (Das, 1973, Panda, 1971, Sinha, 1977). The combination of nonverbal orientation and an absence of conceptualisation very well account for their intellectual deficits and deficit in cognitive skills or in Piagetian terminology, formal logical thinking is absent in all such children or appear very late in the development. The consequences of the cognitive deficiencies are again complicated by their pattern of motivation and attitudes. Psychologists explain that these children have a feeling of alienation induced by family climate and experience combined with a debilitatingly low self concept. They tend to question their own worth, to fear being challenged, and to exhibit a desire to cling to the familiar. They have

many feelings of guilt and shame. These children are vary, and their trust in adults is limited. They make trigger like responses and are hyperactive.

They are quick to vent their hostility orally and physically. In other words they apathetic, unresponsive and lack initiative. It is difficult for them to form meaningful relationships. Although these characteristics are rooted in early childhood family back-ground and social class membership of the family etc. Yet the attitudes of the teacher and the curriculum in the school increase the alienation of these children. Very often there is a communication gap between the teacher and the students, the objectives of instruction and the actual evaluation of instruction in terms of pupil performance as well as discontinuities in the meanings attached to verbal cues employed in teaching and curriculum materials and the meanings which these children have acquired in their out of school experience. A few teaching-learning problems have also been discussed by Rath (1974). Hence, in the educational provisions for the underprivileged, the task of the school should also be redefined not as a cause for contributing to deficits in these children but as an institution in the best position to affect the change. The pre-school programme and compensatory programmes for the education of the underprivileged can work best at the hands of these teachers.

The interest for research on cultural deprivation came from researches on early experience and sensory deprivation in comparative psychology. Hebb (1949) demonstrated that animals raised in restricted environment showed deficits in sensory and perceptual development; Hunt (1961) extended the implications of this to humans and pointed out the importance of early experience in scholastic attainments. Haywood and Tapp (1966) stated that an enriched early environment increased intelligence, whereas impoverished environment may lower the intelligence level.

The lower achievement of disadvantaged children could be attributed to atleast five causes : malnutrition, genetic, lack of stimulating early experience, social motivations and cultural values. In addition, the cognitive style or strategy adopted by a group may account for the lower performance of the disadvantaged children (Panda, 1970). Jensen (1971) has demonstrated that children from low SES use associative learning strategies and evidences are found to suggest that low SES children use sequential processing than simultaneous processing (Das, 1993) in tasks which demand simultaneous processing.

Das and Singha (1975) have suggested a general orientation for explaining performance deficits in low SES children. Following Luria one may view scholastic performance as "a social phenomena in origin and as processes formed during the course of mastery of general human experiences". They are shaped by the experience through which a subgroup passes. Cole

and Bruner (1971) essentially made similar observations, "that the most important thing about any" underlying competence is the nature of the situation in which it expresses itself".

Besides the gap between a culturally disadvantaged child and a normal child begins to grow with age and exposure to classroom learning. Achievement tests and verbal ability reveal wider gap between the Black and middle class White as they progress in school years. Implications from animal studies can not be drawn for the culturally disadvantaged child because the slum child does not suffer from understimulation but from over stimulation. Hence, it is not stimulation *per se* but the quality of stimulation that is important. In fact, the verbal milieu in which the middle child grows up corresponds much more closely to school learning situation. Moreover, the middle class child most often has a superior quality of both verbal and nonverbal stimulation at home. The stimulations are distinct and the reinforcement system in a middle class home are of a delayed kind which is congruent to life and classroom situations.

In India, social and cultural disadvantage is not very clear cut. All low income group children are not necessarily at disadvantage. The high caste is supposed to have a culture superior to that of the low caste Harijan given the same low economic status. The cumulative effect of these widens the gap between Brahmins and Harijans. There are empirical findings which support the cultural effect of a high caste home.

The rich high caste parents showed significantly greater interest in the child's educational progress. They had knowledge of child's educational progress and showed higher aspiration of the children, and also made preparations for the child's education. The poor non-orthodox Brahmins were similar to the rich Brahmin which was a bit unexpected. The orthodox high caste and poor low caste and similar but low expectations. May be orthodox parents do not value expectancy so much. No difference in personality was observed although the authors expected that low caste children would be more fatalistic (Das and Singha, 1975).

The results failed to support that birth in the Brahmin caste had an absolute advantage in cognitive abilities. Economic prosperity on the other hand, reflected more of an advantage than high caste birth. In other words, the least disadvantaged children performed best in a majority of cognitive tasks. The poor Brahmin and Harijan children did not differ significantly possibly because they all came from the capital city *i.e.*, an urban environment, which is varied an stimulating and the Harijan children have grown up in such an environment. Consequently the disadvantage of belonging to a culturally deprived home is greatly compensated.

Panda and Das (1970) examined the relative effects caste and class as

factors influencing performance on stroop test and two verbal conditioning tasks. One hundred and sixteen boys aged between 8 and 10 years were used as Ss. They were reading in grades 4 to 6 in the same schools. On the parental income and caste they were divided into Rich (R) and poor (P) Brahmins (H) and Harijans (L). Each of the four groups HR, HP, L and LR had 29 Ss with comparable mean (from 9 to 9, 6 years and grade.

Belonging to high caste and to the high economic class seems to be associated with faster reading speed. The superiority of the high caste over the low approaches a statistically significant level but it was consistent with an earlier finding (Das, Jachuck & Panda, 1970) and may be traced to the scholastic traditions of in high caste homes. The rich poor difference was not obtained in the earlier study in which the groups were much closer in income. When the contrast in the economic levels is increased, the rich have an advantage over the poor in reading speed.

Das, Jachuck and Panda (1970) raised a few fundamental questions relating to cultural deprivation and cognitive growth. Is incompetence largely determined sub-culture to which a child belongs at birth? Is it stamped in fortuitously because of his indelible identity with a certain caste and class? Does this disadvantage affect the child's cognitive growth adversely?

The cultural milieu in this reference is the caste to which a child belongs. The children were drawn from the Municipal schools of the City of Bhubaneswar. The children of Brahmin caste constituted the High caste and Harijans represented low caste group as usual. Rich and poor classifications were done on the basis of parental income. A child was included in the poor category if his parental income is less than Rs. 200/- p.m. The children of professionals were included in this high income group. The children belonging to Rich Brahmin, rich Harijan, poor Brahmin, poor Harijan were in the age group of 9-12 and were given Raven's progressive matrices test, stroop test, a test for short term memory, and a recognition test. Except for RPM the rest of the tests were administered individually.

Progressive matrices scores were available for the rich Brahmin, poor Brahmin, rich Harijan and poor Harijan. The mean scores for these groups were 22.22, 19.30, 19.38, and 17.22 respectively revealing a hierarchy of rich Brahmin at the top, poor Harijan at the bottom. It seems as though the Harijan has compensated for his low caste status by wealth as much as the Brahmin has lost his advantage by poverty.

In reading speed the Brahmins excelled the Harijans regardless of economic status, whereas in colour naming speed the rich were superior to the poor. Short term memory scores were available for 27 rich Brahmins, 25 poor Brahmins, and 28 poor Harijans. Other 58 dropped out from school and

could not be traced. Results of t-test showed significantly poor recall scores of the Harijan sample compared to poor Brahmins and rich Brahmins. The study of course did not answer whether Harijans had a poor capacity for recall or inefficient coding in STM task.

The recognition experiment yielded two scores for each subject : correct recognitions for unimodal and crossmodal task. Harijans committed a large number of errors in writing auditory material. These errors would obviously make it hard for the Harijan child to profit from classroom instruction. Harijan children were found to have relatively less facility with cross-modal coding than with uni-modal coding, although they shared this poor Brahmin children. From the results it appears that belonging to a low caste appeared to account for the inferior performance of a child in some cognitive task. It seemed as if caste were one's destiny.

Equalising the school environment failed to minimise difference in the cognitive or intellectual domain but reduced the personality difference to a considerable extent.

Evidence of the low deprived children doing better than the non-deprived group has come from the studies of Tripathy and Mishra (1975). They found that on six tests of cognitive functions and mental ability the low deprived group did better than non-deprived group. Castewise analysis did not show any difference, implying there by that S.C./S.T. did as well as the born highs. Rath (1973) also confirms that on the basis of intelligence that there were no difference among children born Brahmin, Scheduled Caste, and Scheduled Tribe. Gokulanathan and Mehta (1972) reported higher n-ach for tribal than non-tribal high school children. Mehta (1969) did an extensive and intensive study supported by NCERT on the achievement motivation of tribal and non-tribal high school boys. The results corroborate the above conclusion that tribals are high n-achievers than the non-tribals.

Sinha (1973) similarly observed that the general performance level of children of schools where children from economically inferior homes went significantly inferior to schools which admitted children from well-to-do and upper middle class families. The test required interpretations of certain perceptual cues. It was also seen that within the same type of school scheduled caste children were inferior to their non-scheduled classmates on tasks requiring simple and complex perceptual skills.

Recognition vocabulary, vocabulary of use, length of remark, and complexity of sentence forms in disadvantaged children are all significantly below norms findings which are consistent with Bernstein's differential encoding process.



Underprivileged children lack persistence in a school related task and evidence a lower sense of control over the environment than the advantaged children. The achievement discrepancy score is very high in case of the disadvantaged group (Crain *et al.*, 1972). Academic achievement is related to a personal style dimension which Kagan has labelled reflectivity-impulsivity. The more reflective response tendency is related to higher reading achievement and social class.

Intellectual achievement responsibility is highly related to academic achievement and children of low SES do not have a sense of personal control. Research investigations of Crandall, Katkovsky, & Crandall (1965) have demonstrated the validity of this assumption. Negro children and also lower class White children are more externally oriented and their achievement index was too low compared to advantaged Whites. In our studies Panda and Lynch (1974) and Das and Panda (1977) similar trends have been obtained.

To what extent deprivation affects performance of these young pupils over a variety of situations having different educational relevance and achievement related dynamics (Das and Panda, 1977) ?

On intellectual achievement responsibility attribution in failure situations the high caste children were more internal and Harijan children were more external. The Brahmin and Harijan children significantly differed in the style of information processing *i.e.*, the Brahmin children were more analytic than the Harijan children. They had also more positive self-esteem compared to the Harijans and the discrepancy increased with increasing educational levels. Coming to intellectual performance, effects for caste was significant for digit forward and backward, reflective mode of responding, perseverative errors in concept learning nonperseverative errors in concept learning, word recognitions with reference to acoustically similar and Neutral words, performance in digit symbol test, memory for designs, verbal quantitative and total achievement scores on the basis of teacher made tests. In all these tests the nature of performance was superior in the high caste group, moderate in the middle caste and low in the Harijan group. Further, castes X educational level interactions were significant and ordinal in respect of response latency *i.e.*, with increase in educational level high and middle caste children became more reflective and low caste children became comparatively more impulsive. Deficit in concept acquisition with respect to form became more with increase in educational level. Perseverative errors were less with higher caste group compared to low caste. Recognition scores for orthographic words were progressively superior in high caste group children than low caste group. Memory for design, verbal and achievement scores supported the "Broomstick effect" in the low caste group.

In sum, many the results supported that with exception to basic intelligence where group difference did not occur between different castes, groups the low caste children did show deficits in personality, information processing modes, and intellectual achievement. And the deficits also indicated progressive or cumulative retardation in most of the measures. Hence, in our cultural background, memberships in low caste and low income family to predispose children to an impoverished environment and the consequences of this deprivation are cumulative over time.

Whiteman and Deutsch (1968) after reviewing the literature on social disadvantage, intellectual, and language development opined that there is discontinuity between requirements and the child's prior preparation and experiences. The children from a disadvantaged environment misses some of experiences necessary for developing verbal, conceptual, attentional and learning skills requisite to school success. Because of this deficit there is progressive alienation from school environment and this alienation contributes to cumulative deficit of the disadvantaged child over time in their scholastic achievements.

Relationship between intelligence and low SES characteristics of deprivation has been very exhaustively dealt by Jensen (1970). Generally the magnitude of correlation has been as high as .50. In a Canadian sample Das (1973) investigated the relationship between IQ and SES by dividing the SES into seven hierarchial class intervals and after obtaining the mean IQ of the children in each of those class intervals. A striking linearity was observed. The IQ showed a significantly consistent increment from the lowest to the highest SES levels ranging from a mean of 90.33 in the highest to 78.66 in the lowest. The relationship between father's occupation mother's education, SES of parents with child's IQ were respectively .26, .29, .27 based on 1294 children. Deutsch and Brown (1964) reported data which support the following conclusions :

- (a) Negro children at each SES level score lower than white children and
- (b) Negro-White IQ differences increase at each higher SES level—the Whites show more gain in IQ points at higher SES level than do the Negroes. A similar finding has been reported by Jachuck and Mohanty (1974) and Das and Panda (1977) on Indian children of differing SES and intelligence.

Children from low SES and socially disadvantaged homes drop out from schools. Wastage and stagnation is a characteristic of the socially disadvantaged group. Drop out is solely due to cultural disadvantaged characteristic of low caste and rural background. The facts suggest that everything else remaining same the greater drop out rate is influenced by cultural disadvantage or deprivation. There are various causes of drop outs but membership in low

caste/low income group mostly makes one drop-out-prone in school. Similar trends are seen in all states in India.

### NUTRITIONAL DEPRIVATION AND ACHIEVEMENT

We have been talking about cultural disadvantage and educational under achievement. But poverty may affect intellectual development through physical conditions *i.e.*, malnourishment (Scrimshaw and Gordon 1968). Poverty is all pervasive in India and is responsible for social and educational pathology. There is a cultural of poverty characterised by the legacy of psychological distortion which manifests itself in profound alienation from larger society and people, feeling in powerlessness and meaningless in struggles. When we live in a society of self advertisement and propagation, these people remain only conscious of their deprivation. Our middle class attitudes further brutalises the poor and the underprivileged. Psychological poverty, intellectual and effective poverty, nutritional and biochemical deficiency, institutional poverty all predispose a lower SES child more than any one else for educational under achievement.

Professor Birch and his associates (Birch and Belmont, 1964) have clearly demonstrated that malnourished children were not only of stunted growth and of short height but also were found to be below normal in reading ability and auditory visual integration. Birch suggests the malnutrition might have caused a structural deficit in the central nervous system which affects later intellectual achievement demanding complex integrative mechanism but there is no conclusive evidence of such a damage (Birch and Gussow, 1970). I can't agree more with the conceptualisation that was given by Das (1973) and Das and Private (1977) that poor children are unhappy, have no desire for self actualisation, they are apathetic distracted and have low n-ach. Because of the ill effects of poverty the poor becomes impoverished in educational achievement.

Nutritional deficiencies constitute most probably the greatest single deterrent to physical health had consequently to mental development and performance in school. Deprived children mostly suffer from malnourishment in one form or another. Current research on the possible connection between malnutrition in early life and mental development was reviewed at a symposium held in Saltsjobaden, Sweden in August 1973 by the Swedish Nutrition Foundation in conjunction with WHO and other bodies. The workshop felt that the complex relationship between nutrition, mental development and the importance of other concomitant or interfering phenomena such as social deprivation and repeated infections and expressed greater need for assessment of the problem and its effects on intellectual performance.

Two studies have been completed by the author and his colleagues on assessing the effect of malnourishment on intellectual performance (Dutta and Panda, 1977) and on ascertaining the concomitant effects physical anomalies and deficiencies on intellectual performance of low SES children (Spark and Panda, 1971). The former study is based on an Indian sample and the later on an American sample but both the studies included children from lower SES strata.

In the exploratory study Spark and Panda (1971) the purpose was to investigate the correlates of cognitive performance and achievement in reading, language arithmetic, and intelligence. The study included 538—296 boys and 242 girls, 239 black and 222 White children coming from Powhatan country rural lower SES homes and reading in 12 different grades. Measurement was done using WISC and California achievement tests alongwith detailed physical examination by medical staff.

Nearly 2/5th of rural disadvantaged children were under achievers in schools. Boys had more poor attendance in schools than girls. Boys had greater emotional problems, social problems, auditory and orthopaedic problems than girls. Negative relationships obtained between age and each of these measures : intelligence, verbal IQ, Non-Verbal IQ, and reading comprehension suggested the validity of cumulative deficit notion. IQ scores are lower than the age norm. Arithmetic and reading grades of these children are one to two grades below the grades in which they have been enrolled.

Within the class, mean intelligence score and achievement scores measured by California Achievement test were lower in Negro pupils than those in which pupils. Further, the discrepancy was in the higher grades. This suggests a similar interpretation of performance different between Brahmin/Harijan studies conducted in India and progressive retardation over age obtained in many studies.

Within the deprived community the girls appeared to be comparatively better than boys in intellectual performance. There is a curvilinear relationship between sex and arithmetic reasoning and arithmetic fundamentals across grade levels. But in reading comprehension and reading vocabulary than boys across all grade levels children girls did better having physical/orthopaedic problems did not show consistent poor performance in the cognitive tasks. The research findings permit us a general statement *i.e.*, all groups of disadvantaged rural students are characterised by poor cognitive competence, and educational achievement. We essentially came to the some conclusion whether we analysed the results in terms of organismic variables such as : sex, race, grade, levels or by dichotomising the Ss on the basis of some behavioural characteristics : social, emotional, physical. Differentiation on the basis of physical characteristics offered some meaningful about rural

disadvantaged children especially of their educational retardation. Obviously sensory impairments and general malnutritional factors do inhibit school learning.

Dutta and Panda (1977) have observed the consequence of malnutrition on intellectual performance of the low income group children. The study included 360 (180 tall, 180 short) children. The Sweden Conference made it clear that stunting of the child can be considered as an index of malnutrition. All these children came from two caste groups Brahmin (High) and Harijan (Low). The Harijan sample was drawn from both rural and urban schools but the Brahmin sample was only from rural schools. A large number of children were tested with regard to their heights and a distribution of heights was done. Those whose heights fall below Q, were included in the short category and all those whose heights were above Q3 were included in the tall category.

The urban Brahmin sample was not included in this study because of their consistent superior performance in the previous studies. Following Birch and Belmont (1964) children who are of short height were considered malnourished and the tall group acted as its control. Each of these children were given a series of cognitive tests including classroom learning tasks, social personal adjustment, self concept, and cognitive style tests. Parents were also interviewed on a parental expectancy questionnaire. The analysis of the data revealed the following results scores on parental expectancy of education of their children, keeping knowledge of children's progress, and making preparation for their educational attainment are consistently lower for all the four Harijan groups and short Brahmin children compared to tall Brahmin children. The scores in case of the short Brahmin children is also higher than those of Harijan groups. On parental interest about children's academic achievement however, the scores of all groups were fairly close except that of tall Brahmin group.

In school achievement, Brahmin children were better of than Harijan children. Tall Harijan children were superior to short stature Harijan children mostly in rural areas. On tests or cross modal coding and short term memory (visual) the effects of malnourishment was clear cut. Short stature children of low/high caste did poor compared to all groups of the respective categories. Brahmin children scored high compared to Harijan children. The colour naming and word reading speed did not reveal significant differences between short and tall groups but superiority of the high caste over the low caste was pronounced. Consistent with previous findings short stature children had lower intelligence as measure by Raven's Coloured Progressive Matrices than the children, and superiority of Brahmin children over Harijans (both urban/rural) got confirmed the data. Malnourished children identified

by short stature were inferior in discrimination learning measured by matching of familiar figures and had poor self-concept scores compared to the tall groups. Caste differences were not obvious in these areas, although the Brahmin children had more number of associations to functional words than that of the Harijan children. These results although preliminary at present do indicate the differential effects of malnourishment on cognitive performance of children and parental expectations. Malnourishment affects adversely the intellectual and affective performance of children. Birth in a high caste compensates to some extent the ill effects of malnourishment.

### **DEPRIVATION, DISCRIMINATION AND ACHIEVEMENT**

There is an implicit theory behind cultural difference or deprivation. Deprived children differ from normal in that they are poor, less skilled and lack adequate educational opportunities. Coleman's report (1966) was unable to show that difference in educational opportunities caused low achievement of the deprived, the best could be said that the ghetto schools did nothing to help blacks to catch up the whites.

The emphasis on inadequate home preparation for schools and the emphasis on social service, suggest a culture poverty theory, that poor and low caste people have a special culture a set of rules for living, customs, values, which prevent achievement and in their adaptations to the different social constraints placed upon them (Robinson, 1976).

Discrimination, social stigma, or institutional racism or casteism account completely for the amount of persistence of poverty of intellect, affective relationship or economic handicaps or in a word deprivation. Experimental validation of the effects of built-in-expectancy on the life of the stigmatised has been shown repeatedly following Rosenthal and Jacobson's (1968) "Pygmalion in the classroom".

Even simulated expectancy regarding membership in a low caste or deprived group has also brought significant changes in teacher behaviour towards the pupils both during teaching (Panda and Guskin, 1976) and evaluation (Panda and Dash, 1980). Discrimination does exist and it does impair intellectual performance of the deprived (Paul Freire, 1972).

The styles of behaviour which are statistically more common among the deprived and which serve to prevent assimilation are escapism, alienation, apathy, and timidity, and low learning ability. These are culturally determined characteristics and adaptive responses to a given social situation and not tendencies inherent in the individual. Low SES becomes the explanation for everything and sometimes in a completely circular fashion, for poverty itself.

Crain and Weisman (1972) comparing the performance of Southern and

Northern Negroes stated that Southern Negroes are brought up under the oppressive sanction of the southern society and therefore, are more inhibited, and live with a low internal control and achievement. The same Negroes brought up Northern climate show higher achievement in integrated schools.

The question, therefore arises should the culturally different or the deprived be brought into an integrated classroom. The U.S. Supreme Courts' famous 1954 opinion was, "Segregation of White and coloured children in public schools has a detrimental effect upon the coloured children. The impact is greater when it has the sanction of law, for the policy of separating the races is usually interpreted as denoting the inferiority of the Negro group. A sense of inferiority affects the motivation of a child to learn. Segregation with the sanction of law, therefore, has a tendency to retard the educational and mental development of Negro children and to deprive them of some of the benefits they would receive in a racially integrated school system...". This fact has been amply supported by modern authority.

Many of the deficits observed in the socially disadvantaged are more motivational rather than intellectual and cognitive. The underprivileged children display some significant motivational problems which determine a major aspect of their behaviour patterns.

- (a) They show belief in external factors *i.e.*, luck, chance, fate etc. rather than their own self and activity. This inability to attribute causality to one's own behaviour accounts for poor motivation in any task.
- (b) They can not delay gratification. Immediate tangible and non-contingent rewards are their need.
- (c) They have high sense of avoiding failure than striving for success.
- (d) They have poor self-concept, low achievement aspiration, and need achievement including lack of desire for self actualisation.
- (e) Their general behaviour lacks intrinsic motivation instead of its is governed by insecurity and anxiety which are negative motivational factors.

These are explained in terms of learning and motivational deficits, feeling of alienation combined with apathy unresponsiveness and lack of initiative.

### INTEGRATION, INTERVENTION AND ACHIEVEMENT

Can children come back after a poor start ?

Do these studies orient us then to think less hopefully about the fate of the deprived group ? This question was asked by Prof. Sinha (1976) after examining a whole series of work on deprived. He believed that an early

enrichment programme at the preschool and kindergarten levels may be helpful in arresting or reversing the cumulative deficit. For the Indian disadvantaged tribal children Rath (1974) recommended interventions in form of compensatory and high intensity education as remedial measures. The writer (Panda, 1976) has also suggested the special requirements of an instructional pattern that will be suitable for the disadvantaged children. The suggestion included modification in teacher training curriculum, changing the life style characteristics of the deprived, use of accelerated learning programmes and changing the motivational and affective climate of the classroom (Panda and Lynch, 1972). The scope here is not to go in depth to the various intervention programmes but just to point out what approach we might consider while planning for an intervention programme for the children and for the institution.

Perhaps the answer may be sought in training the deprived children for realistic goal setting, developing self attribution, developing a more analytic way of information processing while in school and giving training for intellectual activities and/or skills where they are deficient. But it is essential that parental education is more crucial in so far as providing an enriched environment in early childhood is concerned.

A brief review of such approach is considered necessary at this point. The Coleman data has proved that integration resulted in improvements in the achievement test scores of black students, *i.e.*, Black students in integrated schools do better than those in Middle class all Black schools. Coleman suggests that the overall gain in verbal ability for Blacks in an integrated school is approximately 1/4 of a SD. Crain and Weisman (1972) observed the problem of achievement in relation to integration. They defined *integration (a) the Negro student attended in school with White for atleast 5 years, (b) no White student did move out of the school, (c) the school was atleast half White.*

It was found that nearly 1/2 of the segregated pupils did not finish high school (48%) compared to 36% students of the integrated schools. That is drop out rate is reduced by 1/4 in integrated schools. Further, integration seems to cut the drop out rate for Southern migrants nearly in half.

More specifically, the findings were :

1. Pupils of integrated schools are more likely to finish elementary and high school and to attend and finish college.
2. Students who attended integrated high schools and segregated elementary schools fare as well in terms of finishing high school as those whose schooling was entirely integrate.
3. The effects of integration are stronger for both men and women students.



4. Students who attend integrated schools scored higher on the verbal achievement test than those who attended segregated schools.
5. Occupying a deprived status or a minority status in an integrated school failed to show social and psychological strain among the pupils.

Optimism concerning the effectiveness of preschool compensatory program such as project Head Start has waned considerably in the last few years. Findings have been consistent that at the end of a year of Head Start type of experience children as superior to children without pre-school experience in both intellectual and social-emotional functioning (Klaus and Gray, 1968), Weikart, 1971). However, the superiority of Head Start children vanishes or is greatly diminished by the end of one year of formal school (Bronfenbrenner, 1974). In the face of this evidence some have concluded that compensatory education or Head Start in particular, is a failure (Eysenk, 1971 : Jensen 1969). It is unrealistic to expect long term effect of a short term intervention. But it can't be denied that the programs have in fact been successful partially in removing educational disadvantage which economically disadvantaged children might encounter in later life (Bereiter and Engleman, 1966). For this reason the Follow Through Project has been introduced which is 4 year compensatory education programme in U.S.A. school system. Longitudinal data analysis (Abelson and Zigler, 1974) revealed that the followup through programme was not capable of ameliorating all of the negative effects of living in an economically disadvantaged group, however, the programme was highly beneficial to the children who participated in it. The longitudinal and cross-sectional evidence together point to the conclusion that the gains accruing from compensatory education programmes are commensurate with the duration and amount of effort which are expended on these programmes. Abelson and Zigler (1974) are thus very clear in their statement concerning the efficacy of enrichment programmes. Developmental psychologists agree on two basic assumptions : Environmental factors help determine how fast or slowly children develop intellectual ability, and second experiences during the first years of life strongly shape *children's relative intellectual functioning*. Harvard University psychologist Prof. Kagan asks a fundamental question. Are the ill effects of early deprivation irreversible ? Or does delayed growth persist in children ? "Only if the environment that causes the delay remains the same", replies Kagan to his colleagues.

A detailed outline of compensatory education is given in earlier chapter of this book.

Every one is of the assumption that group differences in intellectual activities, affective characteristics, parental expectancies associated with the

terms "Cultural deprivation" or "Cultural differences" are an alibi for educational neglect or environmental insufficiency and in no way a reflection of the nature of the educational process, which starts quite early in life in family and later on in school. In a country with wide spread poverty, affective impoverishment, ignorance of an effective child-rearing process it is imperative that the most socially relevant topic for research would be understanding the process through which deprivation or a differences affects adversely the scholastic performance of children belonging to various strata. An outline for a process model approach to research has been suggested by the present author (Panda, 1974). Deprivation is a condition, it manifests in behavioural characteristics through some processes of interaction. If processes characterising the transmission of deficits could be identified then intervention strategies can be well planned. The present review of the work done mostly in our social context, is quite suggestive in this direction. Remedial effects may be best attained by programme that direct attention to a number specific areas and competencies rather than concentrating effort upon one.

### REMEDIAL MEASURES

Certain remedial measures have been recommended. It is true that deprivation does exist among the socially disadvantaged children due to predominantly.

- (a) Inadequate early socialisation
- (b) Mark of oppression
- (c) Organic deficits
- (d) Inadequate social environment
- (e) Culture conflicts and educational deprivation.

In order to reverse the ill effects research studies support certain measures.

- (a) Early modeling and imitation of desirable behaviour.
- (b) Language enrichment programme and stimulation at home.
- (c) Affective attention and acceptance.
- (d) Providing initial success experience to build better motivation and striving for success.
- (e) Removal of discrimination attitudes on the part of teachers and other significant members of society.
- (f) Humanistic approach to teaching the underprivileged in school.
- (g) Instructional programmes may be graded to their needs and ability level.
- (h) Giving responsibility, recognition, tangible rewards, positive remarks etc.
- (i) Exposure to sensitivity training, exposure to literature, discussion and group contacts, role playing, case conferences relating to their problems.

- (j) Presenting learning materials using images, aids, and providing adequate organisers and drill.

Compensatory education programme have proved the validity of these recommendations.

### **EDUCATIONAL STRATEGIES FOR THE UNDERPRIVILEGED : THE ROLE OF TEACHERS**

The following instructional strategies for educating the underprivileged are suggested considering the objectives of instructions and their entering behaviour to an instructional situation. Basically there is no difference in the way in which the underprivileged children learn. Their learning processes are subject to the same general principles of learning as are the learning processes of the average or normal but with a difference, the rate, the sequence, the type of materials and presentation modes. Hence, the need of a few guidelines is obvious.

- (a) A continuous appraisal of progress and comprehensive measure of assessment-diagnosis via feedback should become a part of every teaching act and basis of planning the next learning experience.
- (b) If instructions is to be effective these students are to be simultaneously trained to achievement the three objectives : knowledge, skills and attitudes.
- (c) Since the students come to the school with cognitive deficit a special hour may be kept aside for remedial teaching language, training in how to increase some of their non-intellective characteristics *i.e.*, self-concept, level of aspiration, n-ach, sense for responsibility etc.
- (d) Learning of concepts and ideas may be sequenced before they are presented to the underprivileged group, using more of concrete and life like situations. Training for analytic thinking may also constitute a part of the instructional programme design.
- (e) The imposition of standardised expectation regarding performance should be replaced by more of individualisation in the rate of learning, exposure to varied materials. Instructions must be given how to pace performance according to their ability. The teacher has to ascertain the pre-requisites before instructing them to move to next step, and make provision for acting initial success experiences by the group.
- (f) For educating the underprivileged giving recognition, responsibility, tangible rewards, positive affective remarks encouragement have been found to be effective and are to be encouraged in schools. Affective interactions and developments to be supported in a school programme.

- (g) They also need to be acculturated through sensitivity training, exposure to literature, discussions and group contacts, role playing and case conferences.
- (h) Self-instructional materials may be used best to their advantage.
- (i) The curriculum should have direct bearing on their life and work especially for tribal population.

These are a but few directions which need be examined carefully through studies and be built into the educational strategy for the education of the underprivileged, so that they did not become victims of cumulative deprivation or the 'Broomstick effect'.

What is needed now is that our schools and educational systems must develop a better understanding of the implications of the social and psychological dynamics of deprivation and translate this understanding into educational programmes, into the training of teachers and administrations and into planning of curriculum and instruction. No single device will suffice to counteract or to remedy the complex factors those are associated with the education of the underprivileged. Administratively the problem can also be taken care of by dealing with acculturation problems and school learning by providing early school experience to these children and following an ungraded sequences or multiple entry system. To unlook the hidden potential among these children, a radical change in curriculum and teaching is required. Atleast the new curriculum which has been introduced is constructed in such a way that it is related to the psychological realities of the child, is tuned to our social and community life, is geared towards achieving needs and aspirations of our people and the educational climate that is promulgated in the frame-work is more motivating in terms of teaching techniques for which orientation of teachers are conducted in a massive way by the NCERT, SIE and State Deptt. of Education. In a nutshell it is possible to conceive of education as a countervailing force to overcome the deficits accumulated in underprivileged groups or what is currently understood as the broomstick effect. It is true that it is not the educators function only to reverse the negative impacts of educational deprivation, social and effective insultation, caste discrimination and economic deprivation. It involves all aspects of the community. The task surely calls for creative innovation all along the line. The crucial pedagogical problem involved is that of understanding the mechanism of learning facility and learning dysfunction and applying this knowledge to optimum development of a heterogeneous population characterised by differential backgrounds, opportunities and patterns of social and intellectual function.

Then what do the psychological studies on deprivation tell us and what course of action is suggestive from these generalisations ? Deprivation does

exist among a larger section of student community whether we call it as due to inadequacy of early socialisation, organic deficits, mark of oppression, inadequate social reinforcement, culture conflicts and educational deprivation. The various studies that emphasis population characteristics underlining deprivation at the same time agree on the complex interplay of various intervening processes (Panda, 1974) in causing the performance deficit of the underprivileged children.

A large body of literature deals with trainability of intellectual function and reversibility of early deprivation which was in fact, the concern of Binet and Montessori since a long time. There is little research to support that intellectual functions continues to be malleable into adult periods of life and compensatory programmes are myth. While this may be true largely, it is possible to accelerate the educational achievement of the underprivileged if we attack the issue from a more affective and interpersonal relationship angle. In fact, all learning occur in a emotional climate and this is more so far the deprived of underprivileged. Zigler attempts to account for the changes in the affective state (motivation, task involvements etc.) Affective processes are more manipulable than cognitive processes and as such use of social reinforcement giving attention and approval, building positive expectancies through initial success, elaborative comments and praise, non-verbal attention through a smile, do in fact improve cognitive performance (Zigler, 1966; Panda 1971, Panda and Lynch, 1972, Panda, 1974).

An area of research in which data are available is the desegregation of underprivileged children into a separate school system, special schools and rural schools. Consistently poor children attending school in poor neighbourhood tend to display poor achievement. Achievement levels raise with desegregation and it also brings about overall increase in quality of education throughout the system. Of course in our society segregated classrooms are not available for the underprivileged but there are schools in rural areas which represents the ecology of a special school. Ashram schools and schools where minority group children are few in a regular school. In such schools, the teachers do hold stigmas and try to have their self-fulfilling prophecies achieved (Rosenthal & Jacobson, 1969), (Panda & Guskin, 1976). The belief that "he comes from SC/ST, or his parents are labourers and that he cannot learn", this attitude of teachers is detrimental to the educational growth of underprivileged. Hence, each teacher must deal with all student population in equal manner and try to foster their curiosity, creativity and make them all active participators in the teaching-learning process. Teacher's behaviour that is warm, permissive and encouraging can attract underprivileged to the school. The whole educational process has to be humanised and building up of interpersonal relationship can effectively

contribute to academic exchange and improvement. Teachers can make a difference in the life of the pupils and more so in the life of the underprivileged. We have to engineer what this difference ought to be in our policy, planning and implementation of an educational programme.

For the most part, education of the underprivileged children can be speeded up by disseminating appropriate method of child rearing systems and values among the parents much before the child comes to school. This will definitely reduce the discontinuities in the norms of children and norms of school. In contrast to the varied, detailed and sometimes adequately designed studies and their reports, it is strange that we psychologists in this country do not take these generalisations to the reach of the common man who contribute to a great majority of the underprivileged children in school.

An important measure is to make education acceptable to the Scheduled Castes and Scheduled Tribes which constitute a major block of the underprivileged group and make education relevant to them.

#### **GUIDANCE IN THE SERVICE OF THE UNDERPRIVILEGED**

Education students for the changes which will effect their lives is a relevant concern for all educators. In the case of underprivileged children, the challenge is even greater. The likelihood that these children will overcome the handicaps of poverty in rural and as well as slum areas seems to be related as to how effectively the school personnel assist them. In fact, individuality can be fostered and realised through effective guidance service and the establishment and development of these services can be enhanced by an appreciation of the ecology of the individual and ecology of the school.

The rural disadvantaged children live in an isolated and less densely populated areas. These conditions limit their opportunities for adequate health, social and recreational activities, relevant educational experiences and exposure to vocational life styles which could be a means for changing their future. The characteristics of the rural community further inhibit the learning of new behaviours for coping with urban living. It is the special task of the counsellors and teachers to enable students to discover how they can exercise more control over their life choices. Hence, in each school and for a school complex institution of student personnel services is a must. In small schools, part-time counsellors may be the only source of specialised student personnel services. In general, hopelessness and powerlessness or anomie are so strong among teachers/counsellors that they should change much more than the students in order to make this possible. One of the most significant contributions that a counsellor can make to any student's identity introducing a belief in himself as the most significant determinant of his own destiny, which I have referred as intellectual achievement responsibility

(IAR) earlier. In fact, there is much that rural disadvantaged children can learn and do about themselves and their environment, but the counsellor shall work with and through other persons significant, in the lives of these students and help them to develop and realistic self concept.

Considering from all points of view, guidance activities for the disadvantaged may be organised in small groups of eight to twelve. The information giving, task orientation and counselling type of activities will be more effective in small groups for the disadvantaged because they will not be inhibited before an adult authority as is true of any individual counselling situation. Role playing as a technique is most suitable for guiding the activities of the disadvantaged. Further, for helping the rural disadvantaged, guidance service, programme needs be extended through parental counselling, community resources clubs, and referral to a psychologist who should be available at least in each school complex. Guidance must from a part of the entire educational programme which students should perceive as personality relevant for them.

It has been rightly stated by Schrieber (1965) *c.f.*, Swenney (1971), p. 58.

“If the child is the father to the man then we know that unless drastic changes take place in rural education the new adult generation persently in school, will have lower levels of scholastic attainment and be less able to find employment than youth reared in urban centres. Hence, the real challenge rural youth offers to rural educators is to prepare them and by preparing them, to ensure them a viable and productive life commensurate with their potential abilities”.

As has been pointed out earlier that rural disadvantaged children live in a different ecology than those in urban slums and the objectives which these students set are also different those of their rural peers. Hence, the following guidance strategies for urban disadvantaged children are recommended by Menacker (1971).

1. Intervening to assist in manipulation of the students and environment.
2. Helping the student to cope with the school programme through behavioural alterations.

A major defect for the success of guidance programme in slum areas or urban schools is that it has not been successful in marshalling parental support for the school programme and generally has failed even to establish an adequate system of meaningful communication between the school and parents. For helping disadvantaged the guidance specialist should not wait for a referral but should be involved in the confrontation and dialogues

between the community and the school in order to help channel these relationships to bring effective and harmonious school community relations.

### REVIEW EXERCISES

**Answer the following questions within 500 words each :**

1. Who is underprivileged child ? How would you define such children ?
2. What are the characteristics of under privileged children ?
3. How would you motivate underprivileged children to learn ?
4. What are the educational strategies for helping underprivileged ?
5. What is compensatory education ? What are its results ?
6. What is the relationships between malnutrition and scholastic achievement ?
7. How would discrimination affect the underprivileged children ?
8. How best underprivileged children can be integrated to the mainstream ?
9. How can guidance be used to help the disadvantaged ?

**Write the meaning of the following terms in 50 words each :**

1. Underprivileged
2. Cultural Deprivation
3. Cummulative deficits
4. Drop out
5. Stagnation
6. Remedial education
7. Compensatory education
8. Guidance service
9. Preschool environment
10. Discrimination or stigma.

**Write whether the statements are True or False :**

1. Underprivileged children are characterised by progressive decline in intellectual functioning.
2. Underprivileged children continue to remain in school once they are enrolled.
3. Cumulative deficit in performance is the curricular fault not that of under privileged children.
4. Underprivileged children stress immediate reward.
5. Underprivileged children are the result of heredity.

**Fill in the blanks :**

1. There is a culture of poverty for the.....
2. Underprivileged children are..... anxious than normal children.
3. ....makes underprivileged children more inferior.
4. Belief in.....is the characteristic motivation of underprivileged children.
5. Underprivileged children cannot come back after a.....start.



## Learning Disabled Children

The enigma of the youngster who has difficulty in learning is not new. But the concept of learning disability has a brief and turbulent history both conceptually and operationally. Some children are quite normal and at times display learning problems. They write *deb* for *bed*, *was* for *saw* and cannot concentrate against any background noise. The National Advisory Committee on handicapped children (USA) defined learning disability as follows (1968).

LD children exhibit *disorder in one or more basic psychological processes* involved in understanding and in using in spoken or written languages. These disorders are manifested in listening, thinking, talking, reading, writing, spelling, and arithmetic. They include conditions which are referred to as perceptual problems, brain injury, minimal brain dysfunction, dyslexia, developmental aphasia etc. They do not include learning problems which are primarily due to visual, hearing, or motor handicaps, to mental retardation, emotional disturbance, or to environmental disadvantage.

Learning disability is an interdisciplinary field and the above definition of learning disabled children is acceptable to all concerned professional groups (Kass and Myklebust, 1969).

A more conservative estimate has been made by the National Advisory Committee on Handicapped Children and they report that 1 to 3 per cent of the school population are learning disabled.

Originally children whose achievement was far below their capability were categorised under brain injured children (Strauss and Lehtinen, 1947), neurophrenia (Doll, 1960), Strauss Syndrome (Stevens and Birch 1957), minimal brain dysfunction (Clements, 1966). It is for the first time that Kirk (1963) suggested the word learning disabilities to describe all the child's behavioural symptoms that arise from dysfunction of the central processing mechanisms. This term describes a group of children who had disorders in the development of language, speech, reading and associated

communication skills needed for social interaction. Children with sensory and/emotional handicap are excluded from this category.

### IDENTIFICATION OF LEARNING DISABLED CHILDREN

There are certain behavioural indices which indicate the presence of learning disabilities in children. These are so called *identification marks*.

1. Near average, average or above average in intellectual ability
2. Impulsive behaviour in talk and action
3. Inability to focus on one activity
4. Easily distractible
5. Inability to shift from one activity to another
6. Easy onset of fatigue
7. Wrong or inappropriate perception
8. Reversal in writing and reading and transposition
9. Problems of left and right, up and down orientation
10. Difficulty in understanding and remembering oral message
11. Difficulty in interpretation and remembering visual image
12. Language and organisation difficulties
13. Trial and error approach to work
14. Thinking problem relating to abstract ideas and concepts
15. Poor fine motor coordination
16. Clumsiness in thinking
17. Hyperactivity (easily stimulated)
18. Hypoactivity (late action with much stimulation)

Early identification of such difficulties are important even from pre-school period so that remedial education can be provided. In fact the sooner the high risk children are recognised the greater is the chance of preventing failure.

Assessment of pre-school level children can be made as per DIAL model (Developmental Indicators for the Assessment of Learning)—Mardell and Goldenberg (1975). It is meant for 2½ to 5½ year old in the areas of sensory, motor, affective, social, conceptual, language communication in less than 30 minutes. The tests consists of visual and auditory activity, gross motor movements, fine motor movements, finger agility, anxiety, task attention, focus and persistence, social skills, identifying objects, colours, sorting, receiving and expressing language, articulation etc.

Besides the DIAL, there are PPVT, Bohem Test of Basic Concepts, Early Detection Inventory. The facts remain that children face school failure because their learning difficulties are not detected at preschool age or if at all detected not treated well no time.

At the elementary and secondary level identifications of learning

disabilities become relatively easier because availability of instruments, teacher observations and achievement index. Each learning disabled child undergoes neurological examinations, Reading tests, Visual-motor Gestalt tests requiring them to copy various geometric forms, awareness of one's body parts (Draw a man test). Gross-motor tests, Fine-motor test, hyper kinesis, reading problems, autological findings (hearing sounds) and biochemical screening. These medical characteristics are necessary to deal with learning disabled children besides intellectual and achievement scores.

This stage of the school evaluation would consist of

- (a) Developmental disabilities.
- (b) Discrepancy between ability and achievement.
- (c) Process of child's learning.
- (d) Analyse why he does not learn by case history, informal test, observation, standardised test.
- (e) Psychological test findings.
- (f) Case history relating to health, development, present activities, identifying information, Birth history, Physical and developmental data, social and emotional factors educational factors adjustment.
- (g) Teacher's rating on auditory comprehension, spoken language, orientation, behaviour, motor.
- (h) Spelling errors, informal arithmetic tests, reading tests, graded word recognition test.
- (i) Tests of mental abilities and mental processes.

#### **BEHAVIOURAL TESTS USED TO IDENTIFY LEARNING DISABILITY**

- (a) Informal Reading Inventory — Johnson and Kress (1965). It measures quickly reading skills, reading levels, types of errors, unknown words, related behavioural characteristics.
- (b) Informal Graded Word — Recognition Test-Durrell (1956). It measures quickly reading level and errors.
- (c) Informal Arithmetic Test — Otto, McMennemy and Smith (1973).
- (d) Wechsler — Intelligence Scale for Children (Revised) 1974.
- (e) Stanford — Binet Intelligence Scale.
- (f) Peabody Picture Vocabulary Test.
- (g) Illinois test of Psychologicistic Abilities (Kirk, McCarthy and Kirk, 1968).
- (h) Lincoln Oseretsky Motor Development Scale.
- (i) Vineland Social Maturity Scale.

#### **Causes**

**1. Organically Based Causes.** LD arises because of Minimal Brain Dysfunction (MBD). They dysfunction occurs in central nervous system

which consists of brain and the spinal cord. The malfunctioning is not due to damage, but due to dysfunction which is only minimal. Minimal brain dysfunction arises due to (a) cerebral hemorrhage, cerebral disease because of high fever, head injury, (b) intrauterine environment-premature birth, anoxia, physical trauma, (c) constitutional-genetic-neurochemical dysfunction. It must be noted that all brain dysfunctions are not associated with learning disability and all types of learning disability do not arise due to brain dysfunction.

2. **Environmentally Based Causes.** Learning disability may be caused due to insufficient early experience, and emotional disturbance.

### CHARACTERISTICS OF LD CHILDREN

#### Motor Activity

- |                |   |
|----------------|---|
| Hyperactivity  | — constantly engaged in movement, unable to sit still, too much of talking in the class, very much inattentive.   |
| Hypoactivity   | — (reverse of hyperactivity) — lethargic, quite, passive.   |
| Incoordination | — physical awkwardness, poor motor integration, poor activities in running, catching, skipping, and jumping; walking is rigid and stiff; poor performance in writing, drawing; frequent falls, stumbling, and clumsy behaviour. |
| Perseveration  | — involuntary continuation of behaviour; this behaviour is witnessed in speaking, writing, drawing, pointing, and oral reading; incorrect spelling, repetition of errors.   |

#### EMOTIONAL DISORDERS

1. They are quiet and obedient, but daydream and cannot read.
2. They have frequent temper outbursts, sometimes for no apparent reason.
3. They are nervous; attention is difficult to hold.
4. They jump from one thing to another, and mind everyone's business but their own.
5. They talk self control but cannot work with other children. Teach them constantly.
6. They are emotionally labile and unstable.

Emotional instability arises mainly due to prolonged dependency on the mother and lack of contact with the outside world which generates frustrations.

**PERCEPTUAL DISORDERS**

1. They are unable to identify, discriminate and interpret sensation.
2. They have poor visual decoding (unable to reproduce geometric forms accurately, figure — ground configurations, letter reversals and rotations).
3. They have poor auditory decoding (inability to recognise tunes, to differentiate between sounds).
4. They cannot identify familiar objects by touch alone (cutaneous misperception).
5. They have poor kinesthetic and vestibular perception (problems in coordination, movement, directionality, space orientation, and balance, difficulties in perception lead to difficulties in concept formation, abstraction ability, cognitive ability, and language ability).

**SYMBOLIC DISORDERS**

1. They have poor receptive-auditory ability (poor understanding of spoken symbols, requests for repetition, echolalic, confection of directions and commands).
2. They exhibit receptive-visual difficulty (subvocalise reading, read without understanding).
3. They have poor expressive-vocal ability (disorganised thought, inadequate syntax, and dearth ideas for expression).
4. They manifest expressive-motor difficulties (spelling disorders, drawing disorders, omission and reversal of letters, omission of whole words).

**ATTENTION DISORDERS**

1. They cannot sustain attention for the required amount of time.
2. They are unable to attend to the relevant and ignore the irrelevant. They may be attracted to every stimulus that surrounds him.
3. They can be diverted easily from one topic to another.
4. They put excessive attention to unimportant details while disregarding the essentials (attends to the page number than to the printed matter or the picture on the page).

**MEMORY DISORDERS**

1. Disorders of memory involve difficulty in the assimilation, storage, and retrieval of information, and may be associated with visual, auditory, or other learning processes.
2. The LD children have difficulties in reproducing rhythm patterns, sequence of digits, words, or phrases.
3. They have difficulty in revisualising letters, words or forms.

4. Both the short-term and the long-term memory of the LD child are poor.
5. They fail to see the relationship between his present and past experiences.

## **EDUCATION OF LEARNING DISABLED**

### **The role of Teachers**

The following instructional techniques have been used and recommended for use with LD children :

1. Use short, brief directions, large print
2. Use consistent language, colour cues
3. Write directions or steps on the chalkboard *i.e.*, underline important words etc.
4. Alternate the use of colours for each step in a series of directions.
5. Increase sound level of instruction
6. Use diagrams or pictorial illustrations
7. Use an overview of the lesson, ask questions, ask them to read the material, recite and review.

Since LD children lack structure and organisation, they have to be told to, keep a list of daily engagement on activities; list all future events that need to be scheduled. Provide a hypothetical list to suggest possible events; and plan future events that must be planned, it is time to develop a weekly schedule. Pupils in the upper grades may find useful a schedule that provides for specific subject matter assignments and various types of activities.

Thinking skills can be developed by guiding students collect data by reading, listening, and observing; and discriminate differences and similarities in the data. Teacher questioning can be used to prod the pupil until the ability to make these discriminations improves. Ask the pupil to categorise and classify the data. Labelling is important during this stage.

Have the pupil recategorise and classify the data in other ways. This continuous reorganisation and restructuring is necessary to integrate new information and new experiences into the pupil's mental structures. Have the pupil make predictions based on the data. Have the pupil generate alternative predictions using the same data. Have the pupil evaluate the alternative predictions by comparing and contrasting possible outcomes and their effects.

Memory ability can be improved by using certain specific techniques, visual and auditory messages can be recalled. Facial expressions indicative of certain materials can be retrieved. Cramming is to be avoided. Certain activities can be practised to improve auditory, visual memories.

1. Have pupils repeat telephone numbers and street addresses of emergency service facilities (police, fire, etc.)
2. Have pupils learn songs by listening to the words and tunes.
3. Play games in which the first pupil makes a statement, the next pupil repeats that and adds a statement, the third pupil repeats those statements and adds one, and so on.
4. Have pupils make up rhymes related to subject matter, such as, "In 1492 Columbus sailed the ocean blue".
5. Have pupils repeat oral directions.
6. Have pupils resequence cartoon strips (without words) that have been cut apart. This forces them to observe details in the pictures.
7. Have pupils describe configurations of words that are similar. By comparing *then* with *them*, pupils would be forced to discriminate that *them* is slightly longer than *then* because it has one more hump.
8. Have pupils repeat the sequence for a recipe that they have read.
9. Use teachistoscopic devices.
10. Have the pupil practice attending to larger units at one time. For instance, some try to copy one syllable at a time. Encourage the pupil to increase the length of the visual stimulus that she holds in her mind as she writes it down.
11. Help the pupil to practice internal auditorisation as an adjunct to visual memory; that is, have the pupil say the letters or words to herself while she is translating the written information.
12. Write every other item on the chalkboard with a different colour chalk. This helps the pupil to "find per place".
13. Allow the pupil to copy another pupil's work. Some of these pupils perform better with paper-to-paper copying than with chalkboard-to-paper copying.

Teachers must be flexible in their approach to teaching reading because of the heterogenous characteristics of learning disabled pupils, a diagnostic-prescriptive approach must be used. The reading programme must be matched to pupil's needs and abilities. There are several approaches having different degree of relevance.

The Basal reading approach is comprehensive, which uses controlled vocabulary in a sequential manner with adequate reinforcement. Diagnosis is done in course of teaching but it is not so advantageous for LD children because of its rigidity, individualised nature and lack of provision for removing deficits.

Phonic approach has very limited use especially only for those who had good auditory capacity. Linguistic training also has limited use as it does not aid comprehension.

Language experience approach is most useful as it uses stories, personal experiences, child's oral language, incorporates specific skill development, language art skills and makes use of visual motor abilities. Programme instruction is also another viable technique. The other approaches to reading uses multisensory approach and use of pictures. Both the method have limitations. Because of complexities of both the reading process and learning disabilities, it is difficult to make definitive statements.

Ashlock (1972), Bley and Thoriton (1981) and Reisinaw (1972), made certain specific remedial instruction step for removing arithmetic errors of learning disabled children. Some of the steps are as follows :

Use manipulatives such as buttons and chips to teach number. Use visual material and give reinforcement. Use graph paper for alignment difficulties. Time line, coloured chalks, making pens are helpful for attention to cues. A sample problem can be given for each assignment. The size of numbers can vary to indicate *more* or *less*. Reduce distractions as far as possible. Reduce number of examples in the assignment and eliminate copying. Use of display charts, abacus, playing cards, calculator, language master are quite useful.

Spelling errors are quite common among learning disabled children Therefore a systematic word-study technique is used in the following sequence.

“Look at the word — say the word — cover the word — say the word — look at the word — cover the word — write the word — check your spelling — Repeat”. Some of the remedial techniques involve — writing the word on the Chalk and then trace it in fingers until it disappears tracing in sand, write the first letter of the word when one listens the word and then pronounce. Ask the children to spell the word properly and clap softly for each vowel sound, if possible by looking at the word.

### INTEGRATED EDUCATION

Learning disabled children read in the regular class as other children. Hence, certain extra care would benefit these pupils. These concerns may relate to four areas; such as

#### Auditory Perception

1. Identify classmates from voice when one is blind
2. Produce a speech sound and ask if they listen
3. Ask whether pairs of words are same or different
4. Start naming objects that starts with a particular sound
5. Practice rhymes
6. Ask them to repeat oral directions
7. Tell a sequence of information to improve auditory memory



**Visual Perception**

1. Match a geometric design
2. Ask them to replicate a pattern
3. Ask them to classify objects
4. Match, sort and group word cards
5. Start copying designs from simple to complex
6. Tell a story with pictures. Then scramble the pictures and ask pupils to tell the story
7. Recall letters speedily and find a series of letters in words.

**Sensory Motor Development**

1. Manipulation of objects according to directions *i.e.*, in front of, in the middle etc.
2. Use puzzles
3. Reproduce block designs
4. Pour water in different containers
5. Design games
6. Use tracing, lacing and cutting activities and visual tracking activities.

**Social Skills**

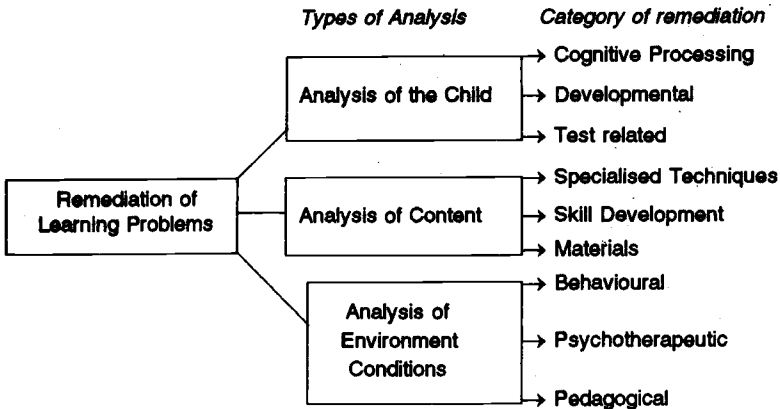
1. Discuss different emotions through pictures
2. Explain body language
3. Use T.V. for explaining, social encounters and social interactions.
4. Identify topics for discussion with peers, neighbours
5. Remember Key points of conversation
6. Discuss personal experiences that have caused social difficulties.

Mildly and moderately learning disabled pupils can function satisfactorily in the regular classroom with these adjustments. The regular classroom curriculum may require little modification. These are some of the general techniques of remediation but a specific theoretical model should guide the practitioner.

The cognitive processing approach provides a way of thinking about how a child learns and offers a framework for teaching. The developmental approach emphasises sequential approach for remediation. Test related approach identifies specific area of deficiency which can be taught.

The specialised techniques approach indicate that the teacher would follow the prescribed order and fashion for a specified period of time. Hierarchy of skills are to be developed in the Skill-Developmental approach using criterion referenced teaching. Published materials can be used for remediation of learning disability.

Behavioural approach refers to behaviour modification approach for manipulations of environmental conditions of learning. Apply reinforcement and change behaviour. Psychotherapeutic approach should build feelings of



success and establish a healthy psychodynamic relationship between teacher and student. The major cause of reading failure is dyspedagogia *i.e.*, lack of good teaching. Inadequacy in the child's teacher and the teaching environment are the answer to remediation.

The model of remediation suggested are not mutually exclusive. A teacher can use one or more of the several approaches to deal with the situations. Koppitz (1973) stated.

“.....learning disabilities can not be corrected or cured by a specific teaching method or training technique. It is imperative that teachers have a wide range of instructional materials and techniques at their disposal and that they are imaginative and flexible enough to adapt these to specific needs of their pupils”.

### REVIEW EXERCISES

**Answer the following questions within 500 words each :**

1. Who is a learning disabled child ? Explain.
2. What are the identification procedures for LD children ?
3. What are the characteristics of LD children ?
4. What are the causes of learning disability ?
5. How would you teach learning disabled children ?
6. What kind of specific techniques can be used to teach such children ?

**Write in 50 words each specific characteristics of learning disabled children in the areas of :**

1. Motor activities

2. Emotional activities
3. Perceptual activities
4. Symbolic activities
5. Attention process
6. Memory activities.

**Write whether the statements are True or False :**

1. LD arises because of minimal brain dysfunction.
2. LD arises due to disorders in one or more basic psychological processes.
3. LD children are hyperactive.
4. LD children have low IQ.
5. 1 to 3% children are LD.

**Fill in the blanks :**

1. LD children display perseveration in.....activity.
2. LD children are emotionally.....
3. LD children do not have attention.....
4. LD children display memory.....
5. LD children are intellectually.....

## Policy, Action Programmes, and Plans for the Welfare of Children

### NATIONAL POLICY FOR CHILDREN, (1974)

The Government of India have developed and approved the National Policy for children and have communicated it to the various governments, in states and union territories. This is stated below and any one interested in child development and child welfare must be aware of such provisions and resolutions.

#### INTRODUCTION

The nations's children are a supremely important asset. Their nurture and solicitude are our responsibility. Children's programmes should find a prominent part in our national plans for the development of human resources, so that our children grow up to become robust citizens, physically fit, mentally alert and morally healthy, endowed with the skills and motivations needed by society. Equal opportunities for development of all children during the period of growth should be our aim, for this would serve our larger purpose of reducing inequality and ensuring social justice.

#### GOALS

The needs of children and our duties towards them have been expressed in the Constitution. The Resolution on a National Policy on Education, which has been adopted by Parliament, gives direction to State Policy on the educational needs of children. We are also party to the U.N. Declaration of the Rights of the Child. The goals set out in these documents can reasonably be achieved by judicious efficient use of the available national resources. Keeping in view these goals, the Government of India adopts this Resolution on the National Policy for Children.

#### POLICY AND MEASURES

It shall be the policy of the State to provide adequate services to children,

both before and after birth and through the period of growth, to ensure their full physical, mental and social development. The State shall progressively increase the scope of such services so that, within a reasonable time, all children in the country enjoy optimum conditions for their balanced growth. In particular, the following measures shall be adopted towards the attainment of these objectives :

- (i) All children shall be covered by a comprehensive health programme.
- (ii) Programmes shall be implemented to provide nutrition services with the object of removing deficiencies in the diet of children.
- (iii) Programmes will be undertaken for the general improvement of the health and for the care, nutrition and nutrition education of expectant and nursing mothers.
- (iv) The State shall take steps to provide free and compulsory education for all children up to the age of 14 for which a time-bound programme will be drawn up consistent with the availability for resources. Special efforts will be made to reduce the prevailing wastage and stagnation in schools particularly in the case of girls and children of the weaker sections of society. The programme of informal education for pre-school children from such sections will also be taken up.
- (v) Children who are not able to take full advantage of formal school education shall be provided other forms of education suited to their requirements.
- (vi) Physical education, games, sports and other types of recreational as well as cultural and scientific activities shall be promoted in schools, community centers and such other institutions.
- (vii) To ensure equality of opportunity, special assistance shall be provided to all children belonging to the weaker sections of the society such as children belonging to the Scheduled Castes and Scheduled Tribes and those belonging to the economically weaker sections both in urban and rural areas.
- (viii) Children who are socially handicapped, who have become delinquent or have been forced to take to begging or are otherwise in distress, shall be provided facilities for education, training and rehabilitation and will be helped to become useful citizens.
- (ix) Children shall be protected against neglect, cruelty and exploitation.
- (x) No child under 14 years shall be permitted to be engaged in any hazardous occupation or be made to undertake heavy work.
- (xi) Facilities shall be provided for special treatment, education, rehabilitation and care of children who are physically handicapped, emotionally disturbed or mentally retarded.
- (xii) Children shall be given priority for protection and relief in times of distress or natural calamity.

- (xiii) Special programmes shall be formulated to spot, encourage and assist gifted children, particularly those belonging to the weaker sections of society.
- (xiv) Existing laws should be amended so that in all legal disputes, whether between parents or institutions, the interests of children are given paramount consideration.
- (xv) In organising services for children, efforts would be directed to strengthen family ties so that full potentialities of growth of children are realised within the normal family, neighbourhood and community environment.

### **PRIORITY IN PROGRAMME FORMULATION**

In formulating programmes in different sectors, priority shall be given to programmes relating to :

- (a) preventive and promotive aspects of child health;
- (b) nutrition for infants and children in pre-school age along with nutrition for nursing and expectant mothers;
- (c) maintenance, education and training of orphan and destitute children;
- (d) creches and other facilities for the care of children of working or ailing mothers; and
- (e) care, education, training and rehabilitation of handicapped children.

### **CONSTITUTION OF NATIONAL CHILDREN'S BOARD**

During the last two decades we have made significant progress in the provision of services for children on the lines detailed above. There has been considerable expansion in the health, nutrition, education and welfare services. Rise in the standard of living, wherever it occurred, has indirectly met children's basic needs to some extent. But all this work needs a focus and a forum for planning and review, and proper coordination of the multiplicity of services striving to meet the needs of children. A National Children's Board shall be constituted to provide this focus and to ensure at different levels continuous planning, review and coordination of all the essential services. Similar Boards may also be constituted at the State level.

### **ROLE OF VOLUNTARY ORGANISATIONS**

The Government shall endeavour that adequate resources are provided for child welfare programmes and appropriate schemes are undertaken. At the same time, voluntary organisations engaged in the field of child welfare will continue to have the opportunity to develop, either on their own or with State assistance in the field of education, health, recreation and social welfare services. India has a tradition of voluntary action. It shall be the endeavour of the State to encourage and strengthen voluntary action so that State and

voluntary efforts complement each other. The resources of voluntary organisations, trusts, charities and religious and other endowments would have to be tapped to the extent possible for promoting and developing child welfare programmes.

### **LEGISLATIVE AND ADMINISTRATIVE ACTION**

To achieve the above aims, the State will provide necessary legislative and administrative support. Facilities for research and training of personnel will be developed to meet the needs of the expanding programmes and to improve the effectiveness of the services.

### **PEOPLE'S PARTICIPATION**

The Government of India trusts that the policy enunciated in this statement will receive support and cooperation of all sections of the people and of organizations working for the children. The Government of India also calls upon the citizens, State governments, local bodies, educational institutions and voluntary organisations to play their part in the overall effort to attain these objectives.

## **NATIONAL POLICY ON EDUCATION 1986 (R) MHRD. GOVERNMENT OF INDIA**

### **EARLY CHILDHOOD CARE AND EDUCATION (EXTRACT)**

The Govt. of India have formulated a National Policy on Education, 1986 and included early child care and education as a salient feature. This is extracted (relevant portions only) below for the benefit of students.

### **EARLY CHILDHOOD CARE AND EDUCATION**

The National Policy of Children specially emphasises investment in the development of the young child, particularly children from sections of the population in which first generation learners predominate.

Recognising the holistic nature of child development, *viz.*, nutrition, health and social, mental, physical, moral and emotional development, Early Childhood Care and Education (ECCE) will receive high priority and be suitably integrated with the Integrated Child Development Services programme, wherever possible. Day-care centres will be provided as a support service for universalisation of primary education, to enable girls engaged in taking care of siblings to attend school and as a support service for working women belonging to poorer sections.

Programmes of ECCE will be child-oriented, focussed around play and the individuality of the child. Formal methods and introduction of the 3 R's

will be discouraged at this stage. The local community will be fully involved in these programmes.

A full integration of child care and pre-primary education will be brought about, both as a feeder and a strengthening factor for primary education and for human resource development in general. In continuation of this stage, the School Health Programme will be strengthened.

### **ELEMENTARY EDUCATION**

The new thrust in elementary education will emphasis two aspects : (i) universal enrolment and universal retention of children up to 14 years of age, and (ii) a substantial improvement in the quality of education.

### **CHILD-CENTERED APPROACH**

A warm, welcoming and encouraging approach, in which all concerned share a solicitude for the needs of the child, is the best motivation for the child to attend school and learn. A child-centered and activity-based process of learning should be adopted at the primary stage. First generation learners should be allowed to set their own pace and be given supplementary remedial instruction. As the child grows, the component of cognitive learning will be increased and skills organised through practice. The policy of non-detention at the primary stage will be retained, making evaluation as disaggregated as feasible. Corporal punishment will be firmly excluded from the educational system and school timings as well as vacations adjusted to the convenience of children.

### **SCHOOL FACILITIES**

Provision will be made of essential facilities in primary schools, including at least two reasonably large rooms that are usable in all weather, and the necessary toys, blackboards, maps, charts, and other learning material. At least two teachers, one of whom a woman, should work in every school, the number increasing as early as possible to one teacher per class. A phased drive, symbolically called **Operation Blackboard** will be undertaken with immediate effect to improve Primary Schools all over the country. Government, local bodies, voluntary agencies and individuals will be fully involved. Construction of school buildings will be the first charge on NREP and RLEGP funds.

### **NON-FORMAL EDUCATION**

A large and systematic programme of non-formal education will be launched for school drop-outs, for children from habitations without schools, working children and girls who cannot attend whole-day schools.



Modern technological aids will be used to improve the learning environment of NFE centres. Talented and dedicated young men and women from the local community will be chosen to serve as instructors, and particular attention paid to their training. Steps will be taken to facilitate their entry into the formal system in deserving cases. All necessary measures will be taken to ensure that the quality of non-formal education is comparable with formal education.

Effective steps will be taken to provide a framework for the curriculum on the lines of the national core curriculum, but based on the needs of the learners and related to the local environment. Learning material of high quality will be developed and provided free of charge to all pupils. NFE programmes will provide participatory learning environment, and activities such as games and sports, cultural programmes, excursions, etc.

Much of the work of running NFE centres will be done through voluntary agencies and panchayati raj institutions. The provision of funds to these agencies will be adequate and timely. The Government will take over-all responsibility for this vital sector.

### **A RESOLVE**

The New Education Policy will give the highest priority to solving the problem of children dropping out of school and will adopt an array of meticulously formulated strategies based on micro-planning, and applied at the grass-roots level all over the country, to ensure children's retention at school. This effort will be fully coordinated with the network of non-formal education. It shall be ensured that all children who attain the age of about 11 years by 1990 will have had five years of schooling, or its equivalent through the non-formal stream. Likewise, by 1995 all children will be provided free and compulsory education upto 14 years of age.

## **EDUCATION OF HANDICAPPED**

### **The Handicapped**

The objective should be to integrate the physically and mentally handicapped with the general community as equal partners, to prepare them for normal growth and to enable them to face life with courage and confidence. The following measures will be taken in this regard :

- (i) Wherever it is feasible, the education of children with motor handicaps and other mild handicaps will be common with that of others.
- (ii) Special schools with hostels will be provided, as far as possible at district headquarters, for the severely handicapped children.

- (iii) Adequate arrangements will be made give vocational training to the disabled.
- (iv) Teachers' training programmes will be reoriented, in particular for teachers of primary classes, to deal with the special difficulties of the handicapped children; and
- (v) Voluntary effort for the education of the disabled, will be encouraged in every possible manner.

## **PROGRAMME OF ACTION-1992 MHRD. GOVT. OF INDIA**

### **EARLY CHILDHOOD CARE AND EDUCATION**

#### **The Present Situation**

The National Policy on Education (NPE) has given a great deal of importance to Early Childhood Care and Education (ECCE). It views ECCE as a crucial input in the strategy of human resource development (HRD), as a feeder and support programme for primary education and as a support service for working women of the disadvantaged sections of the society. It has also taken into account the holistic nature of ECCE and has pointed out the need for organising programmes for the all-round development of the child. It specifically focusses on the need for early care and stimulation of children belonging to the vulnerable sector. Since the age span covered by ECCE is from conception to 6 years, emphasis has been given to a child-centred approach, play way and activity based learning in place of formal methods of teaching and early introduction of the three R's. The importance of community involvement has also been highlighted. Emphasis has been given to establishing linkage between Integrated Child Development Service (ICDS) and other ECCE programmes.

The Revised Policy Formulations reiterate the postulates of NPE, 1986 on ECCE. The prescriptions of POA, 1986 continue to be of relevance. What is attempted here is to update the POA, 1986 taking into account the developments since then and the need to strengthen the programmes by, *inter-alia*, improving the programme components, co-ordination mechanism and enlisting community participation in mobilising resources, planning and monitoring.

Realising the crucial importance of rapid physical and mental growth during early childhood, a number of programmes of ECCE were started particularly after the National Policy for children (1974). The existing ECCE programmes include;

- (i) ICDS.

- (ii) Scheme of assistance to voluntary organisations for conducting Early Childhood Education (ECE) centres.
- (iii) Balwadis and day-care centres run by voluntary agencies with Government's assistance.
- (iv) Pre-primary schools run by the State Governments, Municipal Corporations and other government and non-government agencies.
- (v) Maternal and child health services through primary health centres and sub-centres and other agencies.

ICDS is currently the biggest programme of early childhood development, with 2.90 lakh Anganwadis serving nearly 140 lakh children and about 27 lakh mothers; 91.5% ICDS projects are located in rural and tribal areas and 8.5% in urban slums. Besides the ICDS, by the end of 1991-92, there were 12,470 creches with a coverage of about 3 lakh children below 5 years, 4,395 ECE centres in 9 Educationally Backward (EB) States and the Balwadi Nutrition programme serving nearly 2.30 lakh children in the age-group of 3-5 years.

Over the recent years, a number of initiatives have been taken to make the programmes more focussed. The measures under ICDS, include emphasis on practical training for Anganwadi workers, and extension work by Anganwadi training centres; which are required to adopt 10 Anganwadis each for developing them as model Anganwadis. To build up resource capabilities in the field, action is afoot to develop CDPO's office into resource centre. Instructional materials for Anganwadi Training Centres are also under preparation. Efforts are also being made to distribute education cum play materials to Anganwadis to improve their pre-school education component. Initiative has also been taken to improve the scheme of creches by reviewing norms for voluntary and community participation. A scheme has been worked out by the Department of Women and Child Development for converging the services under DWCRA, ICDS, pre-school education and related schemes of the Departments of Health, Family Welfare, and Rural Development.

### **Targets and Phasing**

The aim of ECCE is that every child should be assured access to the fulfilment of all basic needs. As such efforts will be made towards universalisation of ICDS by A.D. 2000. By the end of the Eighth Plan, 3.75 lakh Anganwadi centres would be established and by A.D. 2000 seven lakh Anganwadi centres. Anganwadis will be gradually converted into Anganwadis-cum-creches. By the end of Eighth Plan, 25 per cent of Anganwadis will be converted into Anganwadis-cum-creches. Qualitative improvement of ongoing ECCE programmes would receive high attention. New cost-effective designs of ECCE will also be encouraged and supported.

### Strategy of Implementation

The ECCE involves the total development of child, *i.e.* physical, motor, cognitive, language, emotional, social and moral. The age span under consideration in ECCE is from conception to about 6 years. Even a modest development process during this period includes care of mother during pregnancy (ante-natal health check-up, nutritional support, control of anaemia, immunization for prevention of tetanus following delivery, etc.) hygienic and skilled birth attendance, nutritional care of mother during lactation, correct infant feeding practices, immunization of infant from communicable diseases, mothers' education in the child care, early childhood stimulation, and health and nutritional support throughout. Thus, ECCE is a complex integral function. It requires workers with integrated ECCE training, integrated worksites or ECCE centres where the essential services flow to young children through the period of their growth and preparation for formal education. To tap the full advantage of the synergistic impact of well-integrated ECCE activities and associated programmes, efforts will be directed at coordinated functioning of various agencies—governmental and non-governmental—striving to meet different needs of young children. An Inter-ministerial committee will be set up comprising representatives of Departments of Labour, Education, Rural Development and other related Ministries/Departments to plan, coordinate and monitor the programme. This will be done by the Department of Women and Child Development which will function as the nodal agency for ECCE programme.

Community and parental participation will be enlisted wherever possible in resource mobilisation, planning and implementation. To this end village/mohalla level committees with adequate representation of mothers will be organised. The role of capable voluntary agencies will be emphasized to create a wide and rich network of resources for ECCE. At the same time, it is imperative that proliferation of sub-standard institutions of ECCE is discouraged. Norms and minimum standards will be devised.

Ongoing programmes/schemes that reflect a concern for the holistic development of young children will be improved to provide effectively integrated services. These include :

- (a) **ICDS.** The following initiatives that have been introduced will be continued and strengthened :
  - (i) Assigning each Anganwadi Workers' Training Centre the responsibility of development at least 20-25 Anganwadi Centres so as to provide the trainees with adequate field practice.
  - (ii) Placing trainees for a minimum of one month in the Anganwadis for practical training.
  - (iii) Development of instructional materials for use of trainers and the trainees.

- (iv) Providing materials for children-picture books, picture posters, minimum essential play materials to all Anganwadis and replenishing them periodically.
- (v) Developing the CDPO's office into a resource centre that is equipped with training materials.
- (vi) Coordinating the timings of ICDS Anganwadis with the primary schools wherever possible.

In addition, efforts will also be made :

1. To orient trainers, supervisors and CDPOs through refresher courses in pre-school education component and through field training both at pre-service and in-service levels,
2. to convene periodic workshops for functionaries of related programmes to optimise resources and strengthen programme linkages,
3. to develop a small percentage of Anganwadis as day-care centres, and
4. to effect convergence of services and functions of ICDS and other related schemes.

(b) **ECE Centres.** The ECE Scheme, as it stands, does not have a component of nutrition; neither does it have any provision for the training of teachers. The following measures will, therefore, be taken with immediate effect :

- (i) Adding nutrition component with parent/community assistance.
- (ii) Provision for training the personal.
- (iii) Supply of educational materials for children.
- (iv) Using play-way method and discouraging early teacher of the three R's.
- (v) System of monitoring.

(c) **Balwadis run by voluntary Agencies.** There are varieties of patterns in the Balwadis. Each scheme has its own history and background. All programmes of child development implemented approach, offering a comprehensive package and avoiding duplication. Where this does not happen, the existing activities will be merged in some comprehensive and integrated programme. Most of the programmes run by voluntary agencies do not have all the components of health, nutrition and education. They need to be converted into total child development centres.

(d) **Pre-primary schools and classes.** They essentially focus on education. Therefore, they require :

- (i) Adding components of nutrition with community/parent participation.

- (ii) Discouraging the early introduction of the three R's.
- (iii) Using play-way method.
- (iv) Developing a relationship between home and community.
- (v) Discouraging entrance tests for admission.

(e) **Day Care Centres.** The creches and day-care centres run with/without Government support otherwise need to be reviewed and strengthened on an immediate basis. The following requirements will be ensured :

- (i) Timing co-terminus with school working hours or mother's working hours
- (ii) Adequate, safe and hygienic space
- (iii) Adequate child worker ratio
- (iv) Safe drinking water
- (v) Supplementary nutrition
- (vi) Paramedical care under medical supervision
- (vii) Minimum equipment including linen and cradles
- (viii) Toys and play materials
- (ix) Training and supervision of workers

Besides strengthening existing programmes, emphasis during the Eighth Plan and thereafter will also be on experimentation for evolving low cost and context specific models. The models which are in experimentation stages, at the moment, would be encouraged and expanded. Appropriate agencies will undertake a survey of such models. Some of the models which are already being experimented with, which have much promise are as follows :

**(a) Home Based Model (from conception of 6 years)**

This model involves developing techniques of stimulation that can be taught to parents or other members of the family to foster child development. It requires (i) training of local women who will play the leadership role in conducting home visits and encouraging family members to conduct stimulation programmes for their children, (ii) development of low cost play materials to be used by the family, (iii) development of audio and video programmes for the mass media for wide implementation, and (iv) creation of a mobile supervisory cadre.

**(b) Day-care Centres (from birth to 6 years)**

This model is a support service to free older children and working women. Some voluntary organisations are successfully implementing these programmes. Such Day-care centres should be established at all work sites where women are employed in substantial numbers. While support for voluntary agencies should be provided on a liberal scale by Government the expenditure on the centres run on work sites should be the responsibility of the employers.

**(c) Family Day-care Centres**

This is best suited for areas where the target group is very small and a Day-Care Centre may or may not be viable. In this model, a suitable woman from the same group is identified as the home-care worker, and given the necessary materials, training, supervision and infrastructural support, including food, to take care of five or six children in her own home. It is envisaged that every cluster of about 10 home care units would be supervised, guided and supported by a supervisory worker who is competent to give the necessary support.

Keeping in mind the role of ECCE as a support service in Universalisation of Elementary Education (UEE), as well as for HRD, ECCE will continue to be directed to the most under-privileged groups, those who are still outside the main-stream of formal education. Some of these can be defined as follows :

- (i) Very poor urban slum communities;
- (ii) Ecologically deprived areas where children are required to fetch fuel, fodder, water and do other household chores;
- (iii) Family labour and household chores in rural areas an artisan households;
- (iv) Itinerant, or seasonal labour, who have a mobile and transient life-style, like road workers;
- (v) construction workers in rural and urban areas;
- (vi) landless agricultural labour;
- (vii) nomadic communities and pastoralists;
- (viii) forest dwellers and tribals in remote areas;
- (ix) residents of remote isolated hamlets.

Girls in these groups may require support services like child care, sometime in very small units. Special attention should be given to scheduled castes and scheduled tribes in all the above defined categories.

Appropriate linkages will also be developed between ECCE, primary schools and Non-Formal Education (NFE) Centres. Two-way interaction between the Anganwadi workers and school teachers/NFE instructors will be encouraged. Suitable space will be provided for ECCE close to primary schools.

**MEDIA**

Media support will be developed and fully utilized for conveying to the parents and community the significance of ECCE. It is equally necessary for the training of personnel in ECCE. Attention should also be paid to the development of stimulating programmes for children. Concerted efforts will

be made by all concerned organisations such as Doordarshan, NCERT, NIPCCD and other related organisations in developing software in all major regional languages.

### **PERSONNEL**

Crucial to the success of any programme is mobilizing an adequate number of workers, designing suitable incentives to sustain their motivation towards work and equipping them for efficient functioning through proper training. Since ECCE programmes aim not just providing custodial care, but initiating developmental processes, the workers force would need to be suitably augmented in accordance with the diverse components of the programmes. This will require an improvement in child-worker ratio, wherever feasible.

Working conditions of ECCE functionaries will also need attention, especially in terms of adequate honoraria/remuneration. Efforts will be continued to see that in case of day-care centres, the remuneration of full time workers is not less than the wages earned by unskilled workers. The long term goal would be to bring the trained full-time child care workers on par with primary school teachers. Part-time child care workers should be paid not less than minimum wages proportionate to their hours of work. To ensure proper supervision, ratio of supervisors to the number of ECCE Centres should be improved. Considering the nature of work, which requires rapport with mothers and tenderness to children, ECCE workers and their supervisors should preferably be women.

### **TRAINING**

In all models of ECCE programmes, the component of training will be strengthened. Training would include a strong component of field placement under supervision. As the early childhood care and education programmes are bound to expand considerably over the next two decades, corresponding training facilities will be available for all levels of functionaries. Following would be some of the important parameters for meeting the training requirements :

- Initiating a two-year vocational course in ECCE at +2 level with the objective of creating basic skills which can later be adopted through job training for specific situations;
- Strengthening the educational content of ICDS functionaries training by providing appropriate training inputs, resources, materials etc., and extending it, where possible, to include a component on day care.
- Review of the existing training programme of ECCE.
- Working out flexible models for day-care training at field level.



- Taking steps for setting up a higher course in ECCE for senior level functionaries of ICDS, trainers in the various training institutions and the supervisory personnel;
- Creating a system of accreditation of training institutions dealing with ECCE.

Greater technical resource support to ECCE programmes need to be given through NCERT / SCERTs / SRCs and DIETs. DIETs should play a pivotal role for technical resource support to ECCE programmes and functionaries in key areas like training, curriculum development transaction etc. These institutions should be strengthened with necessary infrastructures and resources to equip them for this. Resource capabilities of NGOs and VAs will also be drawn upon.

### CONTENT AND PROCESS

The content of pre-school programme should provide inputs for a total development of child faculties. This would mean providing components of health, nutrition and education. Illustratively, these would include :

- regular medical checkup of children with follow up and referral services where necessary.
- daily provision of supplementary nutrition in accordance with the nutritional status of children.
- Growth monitoring through maintenance of height and weight through monthly/bimonthly records.
- Child centred, and development and process oriented play activities planned in a manner to expose children to a variety of experiences that foster a sense of joy and curiosity.
- Promote language skills and cognitive curiosity.
- Foster joy and creativity and confidence.
- Promote muscular development.

Daily activities should be planned according to the age and developmental levels of the children. There should be a flexible balance of activities for all aspects of development as well as a balance between individual and group activities, indoor and outdoor activities, vigorous and quiet activities and guided and free activities.

Medium of communication should be mother tongue/regional language. There should be a link between the mother tongue and the dominant language of the region.

### REVIEW

With a view to improving the quality of ECCE, a comprehensive review of the existing ECCE programmes will be undertaken with special emphasis on

pre-school curriculum, teaching/learning material, training including issues of accreditation and vocationalisation, monitoring and linkages with primary schooling. It is imperative to discourage proliferation of substandard institutions of ECCE. Norms and minimum standards will be devised with a view to ensuring better quality and healthy practices.

### MONITORING AND EVALUATION

The system of monitoring and evaluation will be strengthened on the following lines :

- (i) A management Information System will be evolved for monitoring all ECCE programmes. Information will be collected, compiled, analysed and acted upon at the block/local authority level. The flow of information to different levels (District, State, Centre) will be so planned that control functions at these levels can be performed effectively without delay.
- (ii) Professional institutions and expert bodies will be involved in independent, objective evaluation that can identify gaps and problems and feasible alternatives for remedial action.

### EDUCATION OF THE HANDICAPPED GOI, MHRD

#### PRESENT SITUATION

It is estimated that about 12.59 million children with disabilities are to be provided education in the school system. The details are as follows :

	<i>Figures in Million</i>
Projected Population of children with disability in the age-group 5-14 years *	3.19
Locomotor Handicap	1.48
Hearing Handicap	0.65
Speech Handicap	0.91
Visual Handicap	0.15
Mentally retarded children in the age group 5-14**	3.60
Children with learning disability in the age group 5-14	3.60
Children with disability in the age group 16-18 years.	2.20

\* The 1981 figures of the survey by NSSO have been extrapolated on the assumption that population with disabilities would have grown at the same rate as the general population.

\*\* Estimated at 1% of the population in the age group 5-14 years.

Out of these, about half a million require vocational training.

The educability of another 2 million disabled children is to be improved through early intervention and services by ECCE.

At the end of 1991-92 about 30,000 children with disability were availing special benefits under the scheme of Integrated Education for Disabled Children (IEDC). In addition, about 60,000 children with mild disabilities received resource support without special benefits. A large number of children with disability are also receiving education in special schools which number about 1035.

The project Integrated Education for Disabled (PIED) is being implemented, as a field demonstration, in one block each in ten States and Union Territories. In these blocks about 90 per cent of children with disability are receiving education in general schools. The cost per pupil in these blocks is now around Rs. 2,000/- and is likely to come down further as the number of beneficiaries increases. General teachers feel confident and motivated as their status in the community has improved due to the services they provide.

The innovative multi-category training of resource teachers has been found to be effective and has been institutionalised in the Regional Colleges of Education, the universities offering special education courses and the training programmes organised by Non-Governmental Organisations.

Each DIET has been provided a resource centre for orienting elementary teachers and establishing field demonstrations in lab areas. Faculty from 102 DIETs have so far received induction training at the NCERT.

The Ministry of Welfare had taken steps to ensure supply of trained manpower to special schools and improve standards in these schools through the National Institutes for the Handicapped (NIHs) and increased support to NGOs.

The Ministry of Labour manages 17 Vocational Rehabilitation Centres (VRCs) for the handicapped and helps in their placement also. About 66,000 persons with disability have been rehabilitated under this scheme by September, 1991. Three per cent of seats for admission to ITIs and under the Apprenticeship Training Scheme are available for handicapped persons. These seats are being fully utilised.

The evaluation of special schools and the scheme of IEDC has revealed some grey areas. General education system is not yet mobilised, to a noticeable extent, for education of the handicapped, either at the Central or State level. Inputs from different schemes like CBR, DRC, ECCE, non-formal education, adult education, vocational and technical education, etc.

are not being brought together for the education of the physically handicapped. Some States are still reluctant to implement IEDC while some are implementing it rather indifferently. Few NGOs are active in rural areas. The standard of education in special schools needs improvement. Facilities for the education of children with multiple handicaps are yet to be developed. The early detection and intervention programmes so essential for education of these children have yet to be started. The goal of UEE for this disadvantaged group would remain an unachievable dream unless concerted and urgent measures are taken.

### **NPE REVIEW PERSPECTIVE**

As part of its concern for equalisation of educational opportunities, the NPE, 1986 focuses on the needs of children with disabilities. The NPE, 1986 recommended an integrated education in general schools for children with locomotor handicaps and with other mild disabilities, orientation and pre-service training of general teachers too meet special needs of these children, provision of vocational training, establishment of special schools for severely disabled children and encouragement of voluntary organisations in these tasks. The POA suggested a pragmatic placement principle. It postulated that a child with disability who can be educated in a general school should be educated in a general school only and not in a special school. Even those children who are initially admitted to special schools for training in plus curriculum skills should be transferred to general schools once they acquire daily living skills, communication skills and basic academic skills.

### **TARGETS**

For achieving equalisation of educational opportunities, children with disability should have access to quality education comparable to other children. However, considering the financial resources likely to be available during the 8th Plan the targets for education of disabled children would be as follows :

- (i) Children who can be educated in general primary schools
  - (a) Universal enrolment by the end of 9th Five Year Plan.
  - (b) Ensuring achievement of minimum level of learning through adjustment and adaptation of curriculum and teaching to special needs.
- (ii) Children who require to be educated in special schools or special classes in general schools
  - (a) Universal enrolment by the end of the 9th Five Year Plan.
  - (b) Ensuring achievement of level of learning commensurate with their potential.

- (iii) Reduction of dropout rates on par with other children.
- (iv) Providing access to disabled children to secondary and senior secondary schools with resource support and making special provision for vocational training of these children, particularly those with intellectual disabilities.
- (v) Reorienting pre-service and in-service teacher education programme including pre-school teachers training programmes to meet special needs in the classroom.
- (vi) Reorienting adult and non-formal education programmes to meet educational and vocational training needs of persons with disability.

### **IMPLEMENTATION STRATEGIES**

The strategy of area-specific and population-specific micro-planning for UEE is equally relevant for this disadvantaged group. Planning for UEE and adult literacy at all levels — Centre, State, District, Block and Project — should provide for the educational needs of this category of children.

Education of children with disability will be a component in the training of educational planners and administrators as well as preservice and inservice teachers. DIETs, CTEs and IASEs which have been provided facilities for this component will have to pay particular attention to this aspect of teacher training. While drawing up schemes for strengthening, SCERTs, cells for education of the handicapped may be considered as envisaged in IEDC.

The material supplied under operation Blackboard will have to take into consideration special needs of these children. School buildings will have to take note of architectural adjustments needed to ensure access to children with disability, at the construction stage itself so as to avoid expenditure on modifications later on. Special schools need to be opened in the districts which have no special school facilities. The education of the handicapped should form an essential component in all externally assisted basic education projects being implemented or proposed to be implemented.

### **INTEGRATED EDUCATION FOR DISABLED CHILDREN (IEDC)**

The POA, 1986 target of increasing enrolment of children by 25 per cent per year was achieved as enrolment of disabled children in general schools increased from 15,000 to 30,000. Subject to availability of resources, the cumulative enrolment would reach 50,000 by the end of the 8th Plan. However, an additional 1,00,000 children with mild disabilities will be provided resource support from teachers and learning aids and equipment.

The following actions are needed for achieving the targets laid down :

- (i) Adequate allocations of resources.

- (ii) Provision for education of persons with disability should be made an integral component in externally assisted basic education projects.
- (iii) Provision for education of disabled children should be made in the Centrally Sponsored Schemes of Operation Blackboard, Vocation-alisation of Education and Non-Formal Education.
- (iv) Co-ordinated implementation of schemes like Community Based Rehabilitation, ECCE, VRCs and IEDC so as to reduce cost and achieve higher coverage. This would require coordination among the Ministries/Departments of Health, Welfare, Education, Women and Child Development and Labour.
- (v) The NGOs have to be encouraged to implement IEDC, particularly in rural areas. The NGOs involved in other educational activities will be encouraged to work in this area also and assisted in developing their expertise.

### **SPECIAL SCHOOLS**

The POA envisaged provision of an additional 400 special schools at the district headquarters. However, because of resource constraints no new special school has been established. The Ministry of Welfare has identified 240 districts without any special schooling facility. Efforts would be made to provide special schools in these districts by the end of 9th Five Year Plan.

### **VOCATIONAL TRAINING**

The Ministry of Labour is providing vocational training to the handicapped through the Craftsman Training Scheme (CTS), the Apprenticeship Training Scheme and Separate Vocational Rehabilitation Centres (VRCs). Three per cent of the seats for admission to ITIs under the Craftsman Training Scheme and Apprenticeship Training Scheme are reserved for candidates who are handicapped but have aptitude and are otherwise fit to undergo the required training. The States/UTs have been advised from time to time to implement this reservation for the handicapped which will be continued during the 8th Plan also. Seventeen VRCs will continue to provide training to a larger number of handicapped persons during the 8th plan. The instructors in ITIs will receive orientation to meet special needs of handicapped persons. This component will be added in ITI instructor's training programme. Adjustment and adaptation of equipment to provide full access to disabled persons will be ensured.

The National Institutes for the Handicapped under the Ministry of Welfare will continue their efforts to provide vocational training to the handicapped.

The Department of Education will also encourage voluntary organisations working in the area of vocational education and training for the handicapped.

The CIVE will provide support to vocational training programmes for the handicapped through teacher training material and other resources.

### **ORIENTATION AND TRAINING OF TEACHERS**

All the DIETs to be established by the end of the 8th Plan will have a resource room and trained faculty to teach the essential component of education of children with disability. They will also run orientation programmes for teachers at least from lab areas and practising schools of establish field demonstration of IEDC programme. The SCERTs will support field demonstrations under the scheme of IEDC. Similar action is suggested for the 250 CTEs and 50 IASEs. The budget provision is available in the scheme itself. The pre-service training curriculum will induct essential components in these areas, wherever it has not been done so far.

All in-service teachers should receive awareness input on education of children with disability in orientation programmes. In each area/institution where IEDC is implemented all teachers will receive orientation as envisaged in the scheme of IEDC. The heads of institutions and educational administrators will also receive training. Considering the large numbers to be covered, the Indira Gandhi National Open University and NCERT should plan credit courses on special education to equip general teachers to meet special needs. The NCERT will provide training to the IEDC cell staff. Multicategory training of resource teachers will be encouraged in UGC supported programmes.

### **TRAINING OF EDUCATIONAL ADMINISTRATORS**

The NIEPA in collaboration with NCERT should develop programmes for training educational administrators and making them aware of the needs of this group. The IGNOU should design and offer courses for this target group also.

### **SPECIAL TEACHERS**

The NIHS and its regional training centres have built up capacity to train single disability special teachers for special schools. Besides meeting demands of the new special schools, the existing untrained teachers will be trained and backlog cleared by the end of the 8th Plan. In-service training of special teachers will be planned in a way that each teacher receives a three-week course every four years.

Efforts will be made to promote special education units in university departments of education for training teachers to handle multicategory disabilities.

**EDUCATIONAL AND VOCATIONAL GUIDANCE PERSONNEL**

The existing educational and vocational guidance counsellors should be provided training in dealing with disabled children and their parents. Essential component should also be added to their preservice training programmes. The NCERT and NIHS should design and offer in-service course for in-service counsellors.

**CONTENT AND PROCESS**

Curriculum flexibility is of special significance for these children. Special needs of these children will be met, if child centered education is practised. The curriculum adjustment and adaptation of teaching methods and material will be worked out, field tried and provided to the users. The following actions will be taken :

- (i) Guidelines for child centred education, including special needs in the classroom, being developed at the NCERT will be made available by mid 1993.
- (ii) Guidelines for adjustment of curriculum and instructional material and methods for visually and hearing handicapped at primary level have been developed. These will be made available to teachers. Work for upper primary and secondary school level will be started and completed by the end of 1994.
- (iii) The achievement of minimum levels of learning by children with mild disabilities should be ensured through resource support and alternative learning material, wherever needed.
- (iv) The Boards of Examination should make adjustment and adaptations in examination for the handicapped children.
- (v) Study of more than one language should not be compulsory for deaf children.
- (vi) Teaching of Science and Mathematics is either not available to handicapped children or they opt for an easier substitute. Special efforts should be made by the NIHS and the NCERT to develop an action programme to improve access of disabled children to these important areas.
- (vii) Child-to-child help in education of children with disability is an effective resource in view of large classes and multigrade teaching. NCERT should develop a package and make it available to teachers by the end of 1993.
- (viii) The special learning aids and equipment like braille books, braille kit, audio visual material will be developed and made available to schools by NIHS and NCERT.



### **USE OF MASS MEDIA**

Radio and television are being used in a limited way both for advocacy as well as educational purposes. The CIET, SIETs, NIHs and other organisations will develop a variety of programmes so that they can be regularly telecast/broadcast. The MHRD will approach the Ministry of Information and Broadcasting for providing adequate time for this purpose.

The CIET, SIETs and NIHs will also develop software in non-telecast mode and make it available to DIETs, other training centres and NGOs working with disabled persons.

Field publicity units should be utilised by States for advocacy programmes. Newspapers and magazines have started popular advocacy and educational writing in this area. The NCERT and the NIHs will develop packages and hand over to journalists in workshops.

### **AVAILABILITY OF SPECIAL LEARNING MATERIAL AND AIDS**

Learning material in braille is still not available to all children. Same is the case with aids like braille state, Taylor frame, etc. Similarly language training material for speech and hearing handicapped is not available in regional languages. Steps will be taken by the NIVH, AYJNIHH, NIMH and the NCERT to ensure the availability of such material.

### **MONITORING AND EVALUATION**

The availability of a reliable data base is essential for proper monitoring and evaluation of educational programmes for persons with disability. Towards this end the District Education Office, must, with the help of other agencies, collect data about the number of disabled persons in the District — disability wise, sex wise and age group wise; beneficiaries under IEDC, special schools, ITIs, VRCs, etc., number of special and resource teachers, their qualifications and pay scale, and budget utilisation. Similar information should also be included in the statistics collected by MHRD as also the Educational Surveys conducted by NCERT.

The MHRD and the Ministry of Welfare should make grants under IEDC and special schools contingent on the periodic returns giving the information. An inter-departmental Committee should be set up at the State and Central levels for monitoring. In addition, regular visits by the officers of the MHRD, NCERT, Regional Colleges of Education and field offices, should lead to status reports.

Evaluation studies by external agencies, universities conducting courses on education and rehabilitation of persons in specific geographical areas will be commissioned by MHRD and the Ministry of Welfare.

## HEALTH AND NUTRITION PROGRAMMES IN INDIA

1. **Special nutrition programme Ministry of Welfare.** The scheme started in 1970-71 as a central scheme, provides for supplementary nutrition to children in the age group of 0-6 years and expectant and nursing mothers in urban slums, tribal and rural areas for 300 days in a year and is administered by the states since the fifth plan as a part of Minimum Needs Programme through a network of feeding centres manned by an organiser and helper each. It provides for 300/500 calories and 10/20 grams of protein daily to children and mothers, respectively.

2. **Integrated child development scheme (ICDS) Ministry of Welfare.** This scheme, started in 1974-75, provides for the following package of services for children up to 6 years and nursing and expectant mothers : immunization, health checkup, referral services, supplementary nutrition, informal pre-school education and nutrition and health education with a view to bring down morbidity and mortality through proper and efficient integration of the services with the anganwadi as the focal point. This scheme has been renamed as integrated child and material welfare development scheme.

3. **Nutrition feeding programme in balwadis.** This programme, started in 1970-71 of supplementary nutrition caters to the children in age group 3-5 years in balwadis and day care centres and operates on a non-plan (100%) grant given by the Ministry to the five all-India organisations viz. Central Social Welfare Board, Indian Council of Child Welfare, Harijan Sevak Sangh, Bharatiya Adimjati Sevak Sangh and Kasturba Gandhi National Memorial Trust. It provides for 300 calories and 10 grams of protein per day for 270 days a year.

4. **Mid day meals scheme for school children (MHRD).** This scheme, meant for primary school children, aims at melting not only the nutritional deficiency in children, but also, in attracting and retaining them in the school and operates for 200 days in a year.

5. **Prophylaxis against blindness through, vitamin A (MHFW).** The programme aims to protect children between 1 to 5 years against blindness through Vitamin 'A' administration and covers all the States/Union Territories now.

6. **Prophylaxis against nutritional anaemia (MHFW).** Under this programme, iron and folic acid tablets are given to pre-school children and pregnant and nursing women to combat nutritional anaemia.

7. **Goitre control programme (MHFW).** To provide for the supply of iodised salt to population at risk from goitre in the entire sub-Himalayan belt.

8. **Applied nutrition Programme (MRD).** The programme aims primarily at nutrition education to bring about a change in knowledge of and attitudes about food and food habits in rural areas. It encourages local production of food of nutritive value and envisages holding cooking demonstrations and feeding programmes among mothers and children. This programme is funded by the Ministry for the first 6 years of operation in each block over and above States' own resources.

9. **Intensive development in selected ANP blocks (MRD).** Includes income generating schemes for women, drinking water supply and construction of community centres and is operated by the State Government with the help of UNICEF and Government of India, over and above their own resources.

10. **The programmes of food and nutrition board. (Ministry of Agriculture and Cooperation).**

- (i) the development and promotion of nutritious foods like millets, energy and weaning foods and fortification of milk (with Vitamin 'A') and salt (with iron).
- (ii) dissemination of knowledge on nutrition through 31 mobile units spread all over India, publication of pamphlets, production of films, observance of National Nutrition Weeks and holding of exhibitions.
- (iii) conducting diet surveys in different State and formulation of balanced diets for the State covered based on the findings of the survey.

11. **Scientific storage of food and grains at domestic level (Ministry of Agriculture and Cooperation).** This scheme aims to create awareness among rural women of losses of food grains due to bad storage and to educate and train them regarding the need for good storage and the use of fumigants.

### REVIEW EXERCISES

*Answer the following questions within 500 words each :*

1. State the National Policy on children as per Government of India formulations.
2. What are the main recommendations about the education of the Handicapped in the National Policy on Education as per 1986 & 1992 Revised version ?
3. What are the Programmes of Early Childhood Education as per NPE, 1986 & 1992 (R) ?
4. There are systematic programme and man power planning in the case of education of Handicapped. Please state some of the recommendations.
5. What are the measures to be undertaken in the field of early childhood care and education ?
6. State the various programmes on Nutrition introduced by different ministries of Government of India.

**Write short notes on : (in about 50 words) :**

1. Objectives of welfare of children.
2. Special education programme
3. Applied nutrition programme
4. Integrated child development and maternal welfare services.
5. Balwadis
6. Anganwadies
7. Pre school education
8. Incentive schemes
9. Nutritional development in children
10. Elementary education—measures to accelerate the system.

# Glossary

- ABO incompatibility** — If one's mother's and fetus blood types (A, B, AB, O) are different then various problems appear and this appear in second and later pregnancy.
- Accommodation** — It refers to formation new schemata. It is a force to modify action and thought to adjust to new demand and situation.
- Adaptive behaviour** — The degree to which on individual meets the standards of personal independence and social responsibility expected for age and cultural groups.
- Aminocentesis** — A test that may be done during pregnancy to identify certain genetic disorders in the fetus. It consists of extracting a small amount of amniotic fluid which surrounds the fetus in the womb for examination.
- Anoxia** — Lack of oxygen supply to brain.
- Antridia** — In which eye fails to develop and visual acuity becomes poor and there is involuntary movement of the eyeball.
- Anxiety** — It is an internal fear.
- Aphasia** — Acquired language impairment caused by brain damage.
- Articulation disorder** — A communication disorder associated with substitutions, omissions, distortions, and/or additions of speech sounds.
- Assimilation** — It refers to incorporation and organisation of experience into existing schemata *i.e.*, something new is interpreted as familiar.
- Associativity** — If several operations are to be combined, their order in which they appear is of no value *e.g.*,  $A + (B + C) = A + B + C$ .
- Asthma** — It is a breathing disorder.
- Astigmatism** — Blurred vision caused by uneven curvature of the cornea or lens.
- Ataxia** — A type of cerebral palsy in which lack of muscle coordination results in loss of co-ordinated movements especially those relating to balance and position.
- Athetosis** — A form of cerebral palsy characterised by involuntary, Jerky purposeless, repetitive movements of the extremities, head, and tongue.
- Attachment** — Nurturant relationship between child and mother.
- Autism** — It is childhood schizophrenia which is characterised by delayed speech with drawal tendencies and non-communicative speech.

- Babinski Reflex** — It appears when there is stimulation in the foot and neonate spreads.
- Baby Biography** — It is a Baby Diary which parents maintain after observation of children behaviour as they occur.
- Behaviour Checklist** — It is a technique where the child's behaviour is rated in a graphic, numerical, standard cumulative, or forced choice scale.
- Braille** — A code developed for blind persons in which a system of raised dots allows the person to read with finger tips.
- Case study** — It is a technique of collating and collecting information about the child and the environment where he or she is brought up.
- Centration** — It means the child's habit of looking or attending to one salient aspect of a problem neglecting other ones, thus distorting reasoning.
- Cephalo-caudal sequence** — It refers to development that proceed from head to foot over the body.
- Checklist** — A type of questionnaire where tick marks are given indicating the presence of a behaviour in the child by the observer very quickly.
- Child Psychology** — Child psychology deals with understanding of growth and development of various characteristics in children, upto the age 14 years.
- Cerebral Palsy** — An abnormal alternation of human movement or motor functioning arising from a defect, injury or disease of the tissues of the central nervous system.
- Clinical method** — The clinical method looks back to the past life to find out what really made the child to have some problems. It uses data obtained by other methods.
- Cluttering** — Rapid, confused, jumbled types of speech quite akin to stuttering.
- Combination** — Two distinct classes may be combined to form a comprehensive class e.g., all boys + all girls = children.
- Cross sectional method** — Different groups belonging to different age are tested at a particular time.
- Conservation** — It is the conceptualisation that the amount or quantity remains same regardless of perceptual change in shape or position on.
- Controlled observation** — The psychologist observes the child and systematically records the detailed observation objectively in a natural setting. Every observation is specified.
- Creativity** — An ability characterised by fluency, flexibility, originality and elaboration.
- Critical Period** — The first 2 to 3 years of life after birth are known as critical period because of personality growth and differentiation.
- Cystitis** — It is an infection of the bladder.
- Development** — Refers to qualitative changes in children behaviour leading towards maturity.

- Dependency** — A motive which means that the child needs to be nurtured, taken care, aided, comforted by others.
- Developmental Psychology** — It studies the behaviours and behaviour changes in the entire life span.
- Differential method** — It is a method of comparison for enabling antecedent—consequent relationship without manipulating independent variables.
- Diplegia** — It is a type of cerebral palsy which affects the legs mainly.
- Displacement** — A defense mechanism in which aggression has been shifted to a substitute.
- DNA** — It is the molecule of heredity.
- Down's Syndrome** — Down in 1898 introduced the term to mongoloid children which is due to trisomy No. 21.
- Echolalia** — Repetation of the segment of a sentence on question, generally practised by severely retarded children, selectively young normal children who respond to another's utterances in order to comprehend it or to keep it up their end of the dialogue.
- Ectoderm** — The outer layer from which the skin, hair, nails etc. develop.
- Ectopic Pregnancy** — It results when the fertilised egg implants itself into the Fallopian tube instead of the wall of the womb.
- Educable Mentally Retarded** — Children whose IQ is between 65—70 to 80.
- Ego centrism** — The child thinks everything for himself only. It is self centredness.
- Elaborative Code** — Long elaborative explanatory use of words, sentences by the parents before the child.
- Embryo** — The period of embryo extends from 3rd week to the end of second lunar month.
- Emotionally Disturbed** — Children whose reactions to life situations are unrewarding to himself and unacceptable to his peers and society.
- Epilepsy** — A chronic condition of the central nervous system, characterised by periodic seizures accompanied by convulsions of the muscles and with more severe attacks loss of consciousness.
- Experimental method** — It is an observation for establishing cause—effect relationships under controlled conditions.
- Fetus** — The period of fetus extends from end of second lunar month to birth.
- Genes** — Genes are the carrier of heredity.
- Gifted** — A term used to explain the talented children whose IQ is above 130.
- Glaucoma** — Severe disorder that occurs when the acquires fluid does not circulate properly and results in an elevation of pressure in the eye.
- Growth** — It refers to quantitative changes in physical characteristics.

**Guilt** — It is a negative self evaluation.

**Hearing impaired** — Degree of hearing in terms dB determines hearing impairment, mild 26 to 46 dB, moderate 41-55 dB etc.

**Hemiplegia** — Paralysis of the extremities on one side of the body.

**Identity** — When an operation is combined with its opposite it is annulled  
 $A-A = O$ .

**Identification** — It is a process which the child incorporates or observes of the models.

**Impairment** — A condition resulting from defective tissue.

**Imprinting** — It is a type of instinctive learning.

**Infant mortality** — It means the number of infant death per 1000 live birth in one year.

**Intelligence** — An ability to reason and think in abstraction.

**Integration** — Educating all disabled children in regular schools regardless of the degree or severity of their disability.

**Inversion** — For each operation there is one opposite operation which annuls it *i.e.*, all children - all boys = all girls.

**Juxtaposition** — It refers to putting things in nonfunctional relationships.

**Longitudinal method** — It is a method in which same group of children over a long period of time.

**Lead Poisoning** — Lead is a poison for developing mental retardation.

**Learning disability** — The child who exhibits disorders in one or more basic psychological processes involving understanding language etc.

**Lisping** — This consists of letter sound substitution *e.g.* Red Rose fer wed coax.

**Mainstreaming** — The educational placement of the child in the least restrictive setting.

**Maternal mortality** — It means the number of deaths from puerperal causes per 1000 live births.

**Mesoderm** — The middle layer out of which muscles, skeleton, circulatory, excretory organs develop.

**Microcephaly** — A cranical disorder with small head responsible for mental retardation.

**Monoplegia** — A cerebral palsy which affects one leg or arm in one side of the body. It is very rare.

**Moral behaviour** — Behaviour in conformity with the moral code of the social group.

**Ovum** — The period of ovum extends from fertilisation to end of second week.

**Orthopaedically handicapped** — A disabling condition caused by physical



impairments especially those related to the bones joints and muscles.

**Paraplegia** — In paraplegia, cerebral palsy only affects the legs.

**Play** — Play is what we do when we are free to do what we will.

**Partially seeing** — Those whose visual acuity is 20/200 and 20/70 with better eye with connection.

**Poliomyelitis** — An acute disease that inflames nerve cells of the spinal cord or brainstem and leaves a residual.

**Prehension** — It is the ability to group objects between fingers and thumb.

**Projection** — Attributing motive to others.

**Proximodistol** — It refers to development from central part of the body to the periphery or extremities.

**Quadriplegia** — When cerebral palsy affects the whole body of the child.

**Questionnaire** — An instrument consisting of questions to elicit responses or answers from children.

**Regression** — It is an immature response pattern at the time of frustration.

**Repression** — Forcible forgetting.

**Restricted Code** — When one or two words are repeatedly used without any explanation or extension of logic by the parent before the child.

**Rh-incompatibility** — A condition in which the fetus has Rh positive blood and the mother has Rh-negative.

**Reversibility** — It means the ability of the child to maintain equivalence inspite of change in the perceptual field.

**Rubella** — A communicable disease transmitted by a virus infection of woman during early stages of pregnancy producing a high probability of severe handicap.

**Seriation** — It refers to placing related objects their correct order or succession.

**Sex typing** — It is accepting respective sex role from early childhood.

**Separation anxiety** — Anxiety expressed by the child in the absence of the mother for loss of affection.

**Snellen chart** — This is used to identify visual impairment.

**Slurring** — Indistinctive speech.

**Socialisation** — It is a process through which an individual child acquires traits or characteristics.

**Stranger anxiety** — Anxiety expressed when the baby or child meets an unknown person.

**Stammering** — Prolongation of the sound of the opening letter of a word e.g., to.....bath.

**Stuttering** — It is a repetitive speech b-b-b-b bath.

**Synecetics** — It is a technique to make familiar things unfamiliar.

**Syncretism** — The child fails to relate various observations into a consistent whole  
*i.e.*, an aeroplane flies, a kite flies, one is heavy, the other is light both have wings and they fly.

**Trainable mentally retarded** — Children whose IQ between 40—60 IQ.

**Tautology** — Wherever a class is combined with the same class it remains the same class *e.g.*, all girls + girls = all girls.

**Triplegia** — This is a condition in which cerebral palsy only involves 3 limbs.

**Under achiever** — A child whose scholastic achievement is below that was suggested by performance on IQ tests or other indicators of aptitude.

**Zygote** — When sperm ovum are united a fertilised egg is formed which is called zygote.

## References

- Abelson, W.D. and Zigler, E.**, Effects of a four year follow through programme on economically disadvantaged children. *Journal of Educational Psychology*, 1974, **66**, 756-771.
- Abrol, B.M., Vagreacha, Y.S. and Saxena, K.**, Assessment of intelligence in the patient population having impairment of hearing. *Indian Journal of Mental Retardation*, 1978. **6** (2), 75-80.
- Aronfreed, J.**, *Conscience and Conduct*. Academic Press, New York : 1968.
- Ashlock, P.**, Error Pattern in competition, *A Semi Programmed Approach*. Columbus Ohio : Charles, 1972.
- Ausubel, D. and Robinson H.**, *Educational Psychology : a cognitive view*. N.Y. : Holt, Rinehart and Winston, 1971.
- Auxter, D.M.**, Strength and flexibility of differentially diagnosed mentally retarded boys, *Research Quarterly*, 1966, **37**, 455-461.
- Baldwin, A.L.**, *Behaviour and Development in Childhood*. New York, Holt, Rinehart, Winston, 1955.
- Ballar, W.R., Charles, D.C. and Miller, E.L.**, Midlife attainment of the mentally retarded ; A longitudinal study. *Genetic Psychology Monographs*, 1967, **75**, 235-329.
- Banerjee, B.S.**, Investigation about the relationship and interaction patterns of selected pairs of mentally retarded children at Sharda, *Journal of Rehabilitation in Asia*, 1970, **11**, 41-44.
- Barker, R.G., Dembo, T. and Lewin, K.**, *Frustration and Regression : and Experiment with Younger Children*. University of Iowa studies in Child Welfare, 1941, **18** (1).
- Bayley, N.**, *On the growth of Intelligence*, *American Psychologist*, 1975. **80**, 805-818.
- Bereiter, C. and Engleman, S.**, *Teaching Disadvantaged Children in the Pre-School*, Englewood Cliffs, N.Y. : Prentice Hall, 1966.
- Bernstein, B.**, Social Calss, Linguistic Codes and Grammatical elements. *Language and Speech*, 1962, **5**, 221-240.
- Birch, H.G. and Belmont, L.**, Auditory-Visual integration in normal and retarded readers, *American Journal of Orthopsychiatry*, 1964, **36**, 852-861.
- Birch, H.G. and Gussow, J.D.**, *Disadvantaged Children*. New York : Grune and

Straton, 1970.

- Blanton, R.L.**, Language learning and performance in the deaf. In S. Rosenberg and J. Koolin (Eds.), *Development in Applied Linguistic Research*, New York : Mcmillan, 1968.
- Blatt, B. and Garfunkel, F.**, Educaiton Intelligence : Determinants of school behaviour of disadvantage children. *Exceptional Children*, 1967, **33**, 601-08.
- Bley, N.C. and Thornton C.A.**, *Teaching Mathematics to the Learning Disabled*. Rockville, Mass : 1981.
- Bloom, B.**, *Stability and Change in Human Characteristics* : New York : Wiley. 1964.
- Bowlby, J.**, Forty four Juvenile thieves. *International Journal of Psychoanalysis*. 1944. 25.
- Bowlby, J.**, Maternal care a child health. *Bulletin of the World Health Organisation*. 1951, **3**, 355-534.
- Bowlby, J.**, *Attachment and Loss*. Vol. 1 Attachment, New York : Basic Books, 1969.
- Bricker, D., Bailey, E. and Bruder, M.B.** The efficiency of early intervention and the handicapped infant : A wise or wasted resource. In M. Wolraich and D.K. Routh (Eds.) *Advances in Developmental and Behavioural Pediatrics*, 1984. (Vol. 5) pp. 331-371, Greenwich, CTJAL.
- Bridges, K.M.**, Emotional development in early infancy, *Child Development*. 1932, **3**, 324-341.
- Bronfenbrenner, U.A.**, *Report on Longitudinal Evaluation of Pre-School Progress*, Vol.2. Is intervention, effective ? Washington, D.C. Health, Education and Welfare, 1974.
- Brown, R.**, *Words and things*, New York : Free Press, 1958.
- Brown, R.T.**, Should we be sensitive about critical periods ? *Annual Meeting of the Psychonomic Society*, 1981.
- Brown, R.T.**, Etiology and development of exceptionality in R.T. Brown & C.R. Reynolds (Eds.) *Psychological perspectives on childhood exceptionality* : A handbook. New York : Wiley, 1986.
- Brown, R.T.**, (1987). Early identification of handicapped children, *Encyclopedia of Special Education*, 1982.
- Burt, C.**, The evidence for the concept of intelligence. *British Journal of Educational Psychology*, 1955. **25**, 158-177.
- Cain. L.F. and Levine, S.**, *Effects of Community and institutional School Programmes on Trainable Mentally Retarded children*. CEC Research Monograph; 1963; Series B. No. B-1.
- Clements; S.D.**, Minimal brain dysfunction in children NINDS monograph No. 3. *Public Health Services Bull*, 1415 Washington DC. U. S. Deptt. of Health, Education, Welfare, 1966 .

- Caplan, F.**, *The First twelve month's of Life*. New York ; Grosset and Dunlap, 1973.
- Clarke, A.M. and Clarke, A.D.B.**, (Eds.) *Early Experience : Myth and Evidence*. New York : Free Press, 1976 .
- Coleman, J.S., Campbell, E.O., et al.** *Equality in Educational Opportunity*. Washington, DC. USOE, 1966 .
- Cole, M. and B. Bruner, J.S.**, *Cultural Differences and inferences about Psychological Processes*. American Psychologist, 1971 . **26**, 867-876.
- Colombo, J.**, (1982). The critical period concept : Research, Methodology and theoretical issues. *Psychological Bulletin*. 1982, **91**, 260-275.
- Cooper, R.M. and Zubek, J.P.**, Effect of enriched and restricted early environment on the learning ability of bright and dull rat. *Canadian J. Psychology*, 1958, **12**, 159-164.
- Crain, R.L. and Weisman, C.S.**, *Discrimination, Personality and Achievement*, London. Seminar Press, 1972.
- Crandall, V.C., Katkovsky, W. and Crandall, V.J.**, Children beliefs in their own control of reinforcements in intellectual academic achievement situations. *Child Development*, 1965, **36**, 91-109.
- Crawley, J.F. and Chase, D.V.**, *Productive thinking in Retarded and Non-retarded Children*, University of Connecticut, 1966.
- Crow, I.D. and Crow, A.** *Educational Psychology*, New York ; American Book Company. 1956.
- Das, J.P.**, Acquisition and extinction of verbal conditioned responses in mental defectives. *Psychologia*, 1961, **4** (4), 209-213.
- Das, J.P.**, Some correlates of verbal conditioning. *Psychological Studies*. 1961. **6**, 30-35.
- Das, J.P.**, Discrimination learning in retardates and normals with the use of evaluative verbal cues, *Journal of Mental Deficiency Research*, 1965, **91**, 31-38.
- Das, J.P.**, Cultural Deprivation and Cognitive Competence. In N.R. Ellis (Ed.) *International Review of Research in Mental Retardation*. Vol. 6, New York : Academic Press, 1973 (a).
- Das, J.P., Jachuck, K. and Panda, T. P.**, Cultural deprivation and cognitive growth. In H.C. Haywood (Ed.) *Socio-Cultural Aspects of Mental Retardations*. New York : Appleton Century Crofts. 1970, 587-605.
- Das, J.P. and Pivato, E.**, Effects of malnutrition on cognitive competence, *Indian Journal of Mental Retardation*, 1977, **10**, 1-23.
- Das J.P. and Singha, P.S.**, *Caste, Class, and Cognitive Competence*, *Indian Education Review*. 1975, **10**, 1-18.
- Das, U.C. and Panda, K.C.**, *Effects of Certain Non-intellective Variables on Cognitive Performance* (Unpublished Research Report) 1977.

- Davis, G.A.**, Training Creativity in adolescence : A discussion of strategy. *Journal of Creative Behaviour*, 1969, **3**, 95-104.
- Dempsey, Y.G.**, *An Exploratory Study of the Balance Performance of Educable Mentally Retarded Children in Southern Illinois*. Ph.D. Thesis, Columbia University, 1968.
- Denneberg, VII.**, An attempt to isolate the critical periods of development in the rat. *Journal of Comparative Physiological Psychology*, 1962. 55.
- Dennis, W.A.**, *Bibliography of baby Biographies Child Development*, 1936, **7**, 71-73.
- Dennis, W.**, *Children of the Creche*, New York : Appleton Century Crofts, 1973.
- De'Sousa, A. and Lyer, D.S.**, *Mental Deficiency an Analysis of 100 cases*. (Children Psychiatry Quarterly, 1969, **2** (2), 5-11.
- Deutsch, M.**, Facilitating Development in the Pre-school child, social and psychological perspectives, *Merril Palmer Quarterly*, 1964, **10**, 249-263.
- Deutsch, M.**, *Social Intervention and the Malleability of the Child*. Cornell University, U.S.A., 1965.
- Deutsch, M., and Brown, B.**, Social influences in Negro-white intelligence, differences. *Journal of Soci ' Issues*, 1964, **20**, 24-35.
- Doll, E.**, *The Measurement of Social Competence*. Manual for vineland of social maturity scale, Minneapolis Educational Test Bureau, 1960.
- Doll, E.A.**, The essentials of an inclusive concept of mental deficiency. *American Journal of Mental Deficiency*, 1941, **45**, 214-219.
- Dunn, L. and Mueller, M.**, The efficacy of the ITA and Peabody language development. *Kit with Good and Disadvantaged Children after one Year*. IMRID Science Monograph, 1966, **2**.
- Durell, D.**, *Improving Reading Instruction*, New York : Harcourt Brace and World, 1956.
- Dutta, T. and Panda, K.C.**, *Effect of Malnourishment on Cognitive Competence*. Personal and Social adjustment of the low income group elementary school children in relation to caste and residential background (Unpublished research Report (1977).
- Erickson, E.**, *Childhood and Society*. New York : Norton, 1950.
- Eysenck, II. J.**, *The IQ argument*. New York : Library Press, 1971.
- Fantz, R.I.**, *Visual Perception from birth as shown by Pattern Selectivity*. Ann. N.Y. : Acad. Sci. 1965, **118**, 793-814.
- Feldhusen, J.F. and Treffinger, D.J.**, *Teaching Creative Thinking and Problem Solving*. Iowa, Kendall, 1977.
- Francis, R.J. and Rarick, G.L.**, Motor Characteristics of the mentally retarded. *American Journal of Mental Deficiency*. 1959, **63**, 792-811.

- Friere, P.**, *Pedagogy of the Oppressed*. Penguins, 1972.
- Fuller, J.L.**, *Experimental Deprivation and later Behaviour*. Science 1967, **158**, 1645-1652.
- Galton, F.**, *Hereditary Genius*, New York : Mcmillan, 1969.
- Gerwitz, J.L.**, The cause of infant smiling in four child rearing environments in Israel. In B.M. Foss (Ed.) *Determinants infant Behaviour*. Vol. 3. London. Mcthuen, 1965. 205-260.
- Gokulanathan, P. and Mehta P.**, Achievement motivation of tribal and non-tribal secondary school adolescents. *Indian Education Review*. 1972, **7**, 67-90.
- Goldstein, H., Moss, J.W. and Jordan, L.D.**, The efficiency of special class training on the development of mentally retarded children. Washington, U.S. Office of Education, 1965.
- Goodenough, F.L.**, *Anger in Young Children*. Mineapolis, University of Minnessota Press, 1931.
- Goodenough, F.L.**, Expressions of emotions in a blind-deaf child. *Journal of Abnormal and Social Psychology*, 1932, **27**, 328-333.
- Gordon, W.J.**, *Synectics*, New York : Harper Bros, 1961.
- Grossman, H.J.**, (Ed.) Classification in Mental Retardation, Washington D.C. *American Association of Mental Deficiency*, 1983.
- Grossman, J.**, (Ed.) Manual of terminology and classification in mental retardation, Washington D.C. *The American Association on Mental Deficiency*, 1977.
- Gray, S.W. and Klaus, R.A.**, An experimental preschool programme for culturally deprived children. *Child Development*, 1965, **36**, 887-898.
- Guilford, J.P.**, Creativity. *American Psychologist*. 1950, **5**, 444-454.
- Guilford, J.P.**, When not to factor analyse *Psychol. Bull.*, 1952, **49**, 26-37.
- Guilford, J.P.**, *Three facts of Intellect*. American Psychologist, 1959, **14**, 469-479.
- Guilford J.P.**, *The Nature of Human Intelligence*, New York : Mc Graw Hill, 1967.
- Haldane, J.B.S.**, *The Interaction of Nature and Nurture*. Annals of Eugenics. 1946, **13**, 197-205.
- Hall, C.S.**, The genetics of behaviour. In S.C. Stevens (Ed.) *Handbook of Experimental Psychology*, New York : Wiley, 1951.
- Harlow, II, and Harlow, M. II.**, *Learning to Love*. Amer Scientist, 1966, **54**, No. 3, 244-272.
- Harlow, H.F.**, *The Formation of Learning sets*, *Psychological Monograph*, 1949, **36**.
- Harlow, H.F.**, The heterosexual affectional system in monkeys. *American Journal of Psychology*, 1962, **16**.
- Haywood, H.C. and Tapp. J.T.**, Experience and the development of adaptive behaviour in N.R. Ellis (Ed.) *International Review of Research in Mental Retardation*, Vol. 1, New York : Academic Press, 1966.

- Hebb, D.O.**, *The Organisation of Behaviour*, New York : Wiley, 1949, 249-296.
- Hess, R.D. and Shipman, V.C.**, Early Experience and the Socialization of Cognitive modes in Children. *Child Development*. 1965, 869-886.
- Hodges, W.L., Mc Candless, B.R. and Spicker, H.H.**, The development and evaluation of a diagnostically based curriculum for preschool psychosocially deprived children. *U.S. Office of Education*. Bloomington, Indiana University, 1967.
- Howe, C.E.**, A comparison of motor skills of mentally retarded and normal children. *Exceptional Children*. 1959, **25**, 352-354.
- Hurlock, E.**, *Child Development*. Tokyo : Mc Graw Hill, Coge Cusha. Ltd., 1972.
- Hunt, J. Mc. U.**, *How Children Develop Intellectually ? Children*, 1964, 83-91.
- Hunt, J. Mc. V.**, *Intelligence and Experience*, New York : Ronald Press. 1961.
- Jackson, P.W. and Messlek, S.**, The Person, the product and the responses ; Conceptual problems in the assessment of creativity. *Journal of Personality*, 1965, **33**, 309-329.
- Jain, Sushila.** Family density and mental retardation. In Population Council of India. *Report of the Workshop on Family Health*. New Delhi : Population Council of India, 1972, pp. 50-61.
- Jensen, A.R.**, How much we can boost IQ and scholastic achievement. *Harvard Education Review*, 1969 **39**, 1-129.
- Jensen, A.R.**, A Theory of primary and secondary familial. Mental Retardation. In N.R. Ellis (Ed.) *International Review of Research on Mental Retardation*, Vol. 4, New York : Academic Press, 1970.
- Jensen, A.R.**, Interaction of level-I and Level-II abilities with race and Socio-economic status. *Journal of Educational Psychology*, 1974, **66**, 99-111.
- Johnson, G.O.**, A study of social position of the mentally handicapped children in regular grades. *American J. Mental Deficiency*, 1950, **55**, 60-86.
- Johnson, G.O.**, A Comparative study of the personal and social adjustment of mentally handicapped children placed in special classes with mentally handicapped children who remain in regular classes. *Syracuse : Syracuse University, Research Institute*, 1961.
- Johnson, M. and Kress, R.**, *Informal Reading Inventories*. New York : Del International Reading Association, 1965.
- Jordan, J.B.**, *Intelligence as a Factor in Social Position— a Sociometric study in Special classes for the Mentally Handicapped*. Ph.D. Thesis, University of Illinois, 1960.
- Kagan, J.**, Can Children Make a Comeback after a poor Start ? *Carneige Quarterly*, 1975, **23**, 3, 6-7.
- Kagan, J.**, *Cross Cultural Perspectives on Early Development*. Paper presented in American Association for the advancement of science. Washington. D.C. 1972.



- Kagan, J.**, *Cross-Cultural Perspectives on Early Development*. American Association of Advancement of Science, 1972, Washington D.C.
- Kagan, J. and Moss, H. A.**, (1962) *Birth Maturity*. New York : Wiley.
- Kass, C. and Myklebust, H.** (1969) Learning Disabilities : An educational definition. *Journal of Learning Disabilities*, 2, 377-379.
- Kauffman, J.M.**, (1977) *Characteristics of Children's Behaviour Disorders*. Columbus I, Charles Meril.
- Kingsley, H.S. and Garry, R.**, *The Nature and Conditions of Learning*. Englewood Cliffs, N.J. Prentice Hall, 1987.
- Kirk, S.**, *Educating Exceptional Children*, N.Y. : Houghton Mifflin, 1963.
- Kirk, S.A., Mc Carthy, J.P. and Kirk, W.D.** *Illinois Test of Psychologicistic Abilities*. Urbana III : University of Illinois Press, 1968.
- Klaus, R.A. and Gray, S.W.**, The early training project for disadvantaged children : A report after five years: *Monograph of the Society for Research in Child Development*. 1968, 33, 4, 1-66.
- Kogan, N.**, Creativity and Cognitive Style : A life span perspective. In P. Baltes and K.W. Schale (Eds.) *Life Span, Developmental Psychology*. Personality and Socialisation. New York : Academic Press, 1973.
- Kohlberg, L.**, Development of moral-character and moral ideology. In M.I. Hoffman and L.W. Hoffman (Eds.) *Review of Child Development Research*, New York : Russel Sage Foundation, 1964.
- Kohlberg, L.**, Early Education : A cognitive developmental view. *Child Development*, 1968, 40, 87-92.
- Kohlberg, L.**, Education, Moral development and faith. *Journal of Moral Education*, 1974, 4-1.
- Kolstoe, O.P.**, *Teaching Educable Mentally Retarded Children*, New York : Holt, Rinehart, Winston, 1976.
- Koppitz, E.**, Special Class Pupils with learning disabilities : Five years follow-up study. *Academic Therapy*. 1973, 13, 133-140.
- Kough, J. and Dettaan, R.F.**, *Identifying Children with Special Needs*, 1955, Vol. 1 Chicago. III. SRA.
- Kuppuswamy, B.**, A survey of mental retardation among children enrolled in middle schools of Mysore city. *Indian Journal of Mental Retardation*, 1968, 1 (1), 12-19.
- Lambert, N. Windmiller, M., Cole, L. and Figueroa, R.**, Manual. AAMD Adaptive Behaviour scale public school version. (Rev. Ed.) Washington, D.C. *American Association of Mental Deficiency*, 1975.
- Landreth, C.**, *Preschool Learning and Teaching*. New York : Harper and Row. 1972.

- Lehman, H.C.**, *Age and Achievement*, Prieston, H.J. Univ. of Princeton, 1953.
- Lenneberg, E.H.**, *Biological Perspectives of Language*. New York : Wiley, 1964.
- Lenneberg, E., H.** *Biological Functions of Language*. New York : Wiley, 1967.
- Lillie, D.L.**, *The Effects of Motor Development Lessons on the Motor Proficiency of Preschool culturally Deprived children*. Unpublished doctoral dissertation, Indiana University, 1966.
- Linton, R.**, *The study of Man*, New York : Appleton Century Crofts, 1936.
- Lombroso, C.** (1891) *The Man of Genius*. London : Walter Scott.
- Lorenz, K.**, Der Kumpan in der Unweltdes Vogels. *Journal of Ornithologies*, 1935, 83 (2), 137-215, 218-413.
- Lovaas, O.I.**, *Behavioural Treatment of Autistic Children*. Morristown, N.J. General Learning Press, 1973.
- Luria, A.R.**, Towards the problems of the historical nature of psychological process. *International Journal of Psychology*, 1971, 6, 259, 272.
- Mac-Donald, K.**, Early experience, relative plasticity, and social development. *Development Review*. 1985, 5, 99-121.
- Mandell, C. and Goldenberg, D.**, For Pre Kindergarten Screening DIAL. *Journal of Hearing Disabilities*, 1975, 8, 140-147.
- Marland, S.P.**, Education of the fifted and talented. Washington, D.C., U.S. Office of Education, 1972.
- McGourie, C. and Havighourst, S.** *Social development*. Review of educational research, 1947, 17, 345-360.
- Medinick, S.A. and Mednick, M.T.**, An associative interpretation of creative process in Taylor, C.W. (Ed.) *Widening Horizons in Creativity*. NYC : Wiley, 1964.
- Mehdi, B.**, *Battery of Verbal and Non-verbal Tests of Creativity* (Hindi), 1973.
- Mehta, P.**, *The Achievement Motive in High School boys*. New Delhi, NCERT, 1969.
- Meredith, H.V.**, Height and weight of private school children in three successive decades. *Schools and Society*, 1940, 72-73.
- Mohan, J.**, Mental retardation, giftedness and physical persistence. *Indian Journal of Mental Retardation*, 1972, 5 (1), 33-39.
- Mohan, V., Singh, S.D. and Kalra, S.**, Junior personality inventory. *Journal of Psychological Researches*, 1968, 12, 7-11.
- Mueller, M. and Smith, J.**, The stability of language age modification over time. *American Journal of Mental Deficiency*, 1946, 68, 537-539.
- Myers, R.E.**, An experimental training programme in creative thinking Mins : Univ. of Minnesota, Bureau of Educational Research, 1961.

- Narayana, V. and George, V.C.**, *Conditionability of Mental Defectives*. Transactions of the All India Institute of Mental Health, 1970, **10**.
- Newton, N.**, Battle between breast and battle. *Psychology Today*, 1972, **6**, (2), 66-70, 88-89.
- Osborn, A.F.**, *Applied Imagination*, New York : Scribner, 1953.
- Osborn, A.F.**, *Applied Imagination*, New York : Scribner, 1957.
- Otto, W.R., McMennemy, R. and Smith, R.**, *Corrective and Remedial Teaching*. Boston : Houghton Mifflin, 1973.
- Paknikar, K.K.**, Vithoba Paknikar Scale of Performance. *Test for the Blind*. NAB, Bombay, 1978.
- Palit, J.B.**, An astrological approach. *The Retarded*, 1969, **1**, 7-9.
- Panda, K.C.**, Effects of social reinforcement. Locus of control and cognitive style and concept learning among educable mentally retarded children. EPS series No. 12, *American Psychological Association*, 1971.
- Panda, K.C.** Social reinforcement : Theoretical issues and research implications, *Psychological Studies*, 1971, **15**, 55-67.
- Panda, K.C.**, Educational strategies for the underprivileged children. Paper read at JAPP Annual Conference at Kharagpur, 1976. *The Orissa Education Magazine*, 1978.
- Panda, K.C.**, A process model approach for research in retardates, parental family, Theoretical and methodological consideration. *Indian Journal of Mental Retardation*, 1974, **71**, 14-24.
- Panda, K.C.**, Problems of Tribal Education : Some emerging patterns and Strategies for change, *In Tribal Problems of Today and Tomorrow*, 1977, 1-10.
- Panda, K.C.**, Poverty and Educational Planning : What psychology has to offer ? *U.G.C. Lecture Series*, 1977.
- Panda, K.C. and Das, J.P.**, Acquisition and reversal in four subcultural groups generated by Caste and Class, *Canadian Journal of Behavioural Science*, 1970, **2**, 267-173.
- Panda, K.C. and Das P.C.**, Effects of simulated information on assessment of cognitive competence : A test of expectancy hypothesis. *Indian Education Review*, 1980.
- Panda, K.C. and Lynch, W.**, Relationship among scores on intellectual achievement responsibility and cognitive style measures in educable mentally retarded children. *Indian Journal of Mental Retardation*, 1973, **6**, 55-66.
- Panda, K.C. and Guskin, S.L.**, Effects of Tutor's locus of control and expectancy information on tutor behaviour and pupil performance. *Indian Journal of Behaviour*, 1976, **1**, 36-44.
- Panda, K.C. and Lynch, W.W.**, Effects of race and sex on attribution of intellectual achievement responsibility for success and failure situations

among educable mentally retarded children. *Indian Journal of Mental Retardation*, 1974, 7, 72-80.

**Panda, K.C. and Lynch, W.W.**, Effects of social reinforcement on the performance of mentally retarded children, a review of research with implications for classroom practice. *American Journal of Education and Training of the Mentally Retarded*, 1972, 7, 115-123.

**Panda, K.C.**, *Elements of Instructions*. Books and Books, 1983.

**Parnes, S.J. and Brunelle, E.A.**, The literature of creativity. *Journal of Creative Behaviour*, 1967, 1, 1-52.

**Pate, J.F.**, Emotionally Disturbed and Socially Maladjusted children, In L. Dunn (Ed.) *Exceptional Children in the Schools*. New York Holt Rinehart and Winston, 1963.

**Phillips, E.L.**, Problems in educating emotionally disturbed children. In N.G. Harring and R.L. Schiefelbusch (Eds.) *Methods in Special Education*. New York : McGraw Hill, 1967.

**Piaget, J.**, *The Moral Judgement of the Child*. London Kegan Paul, 1932.

**Piaget, J.**, *The Origins of Intelligence in Children*. New York : International University Press, 1952.

**Piaget, J.**, *Six Psychological Studies*. University of London Press, 1968.

**Prabhu, G.G.**, Speech problems of the mentally retarded. *Indian Journal of Mental Retardation*, 1968, 1, (2), 87-94.

**Rath, R.**, Teaching and Learning problems of primary school children. *A challenge to the psychologists and educationists*. Presidential address to IAAP Conference, 1973.

**Rath, R.**, From social isolation to stagnation. *A study of Scheduled Caste groups Social action*, 1974, 24, 2.

**Reisner, F.K.**, *A guide to the Diagnostic Teaching of Arithmetic*. Columbus Ohio : Charles, 1972.

**Renzulli, J.S., Hartman, R.K. and Callahan, C.M.**, Teacher identification of superior studies. *Exceptional Children*, 197, 38, 211-14 and 243-48.

**Rheingold, H.L.**, The modification of social responsiveness in institutional babies. *Monograph and Society for research on child development*, 1956, 21, Sl. No 63.

**Ricciti, H.N.**, *Object Grouping and Selective order Grouping in Infants 12 to 24 Months old*. Merrill, 1965, 11, 129-148.

**Riggs, M.M. and Rain, M.E.**, Classification system for the mentally retarded. *Training School Bulletin*, 1952, 49, 57-84 and 151-158.

**Robinson, P.**, *Education of Poverty*, London : Methuen and Co., 1976.

**Robinson, H.B. and Robinson, N.M.**, *The Mentally Retarded Child*. A psychological approach (2nd Ed.) New York : McGraw Hill, 1967.

- Rosenthal, R. and Jacobson, L.**, *Pygmalion in the Classroom*. New York : Holt, Rinehart and Winston, 1968.
- Ross, S.**, *Improving Social behaviour of educable mentally retarded*. Final report. Palo Alto Medical Research Association. California, 1967, 199 pp.
- Rouse, S.T.**, Effects of training programme on the production thinking of EMRS. *American Journal of Mental Deficiency*. 1965, 69, 66-73.
- Roy, R.K.**, Reminiscence in retardates on a paired-associate task. *Journal of Mental Deficiency Research*, 1971, 15, 43-50.
- Rutter, M.**, *Maternal deprivation reassessed* (2nd ed.) New York : Penguin, 1981.
- Sarason, I.G.**, (1957), Test anxiety, general anxiety and intellectual performance, *J. Counselling Psychology*, 1957, 21, 485-490.
- Sarason, S.B. and Doris, J.**, *Psychological problems of mental deficiency*. New York : Harper and Row, 1969.
- Scrimshaw, N.S. and Gordon, J.E.** (Eds.) *Malnutrition, Learning and Behaviour*. Cambridge, Mass, M.I.T. Press, 1968.
- Sears, R.R., Maccoby, E.E., and Levin, H.**, *Patterns of child rearing*. New York : Harper and Row, 1957.
- Sen, A.K. and Patnalk, R.**, An experimental study of transfer of training in mental retardates, *Indian Journal of Psychology*, 1973, 48, 11-20.
- Sen, A.K. and Sen, A.**, Associative transfer as a function of prior learning in paired-associate task among mental defective. *Psychological Studies*, 1969, 3, 16-19 (b).
- Sen, A.K. and Sen, A.**, The relationship between memory and intelligence among mental retardates, *Indian Journal of Mental Retardation*. 1969, 2, 1-5 (c).
- Sen, S.K. and Sen, A.**, Associate transfer as a function prior learning in paired-associate task among mental defectives. *Psychological Studies*. 1969, 14, 60-63 (a).
- Silverman, S.R.**, Hard of Hearing Children. In D. Itallowel and S.R. Silverman (Ed.) *Hearing and Deafness*, NY : HRW, 1952.
- Sinha, D.**, *Age, Schooling, and Socio-economic factors in the development of certain perceptual skills* (Mimeograph, 1973).
- Sinha, D.**, Study of Psychological Dimensions of Poverty. A challenge and necessity. *Journal of Social and Economic Studies*, 1976, 4, 167-200.
- Sinha, D.**, Psychological Dimensions of poverty. *Every man's Science*. 1977, 213-217.
- Singh, S.B. and Virmani, V.**, Perceptual disturbances in primary and secondary mental retardation with special reference to Bender-Gestalt and draw-person tests. *Indian Journal of Mental Retardation*, 1970, 3, 40-49.
- Sircar, J.**, Cooperative study of hostility between mentally retarded and normal children. *Indian Journal of Mental Retardation*, 1975, 8, 19-24.

- Skeels, H.**, Adult status of children with constricting like experiences. *Monographs of the Society for Research in a Child Development*, 1966, 31.
- Skodak, M. and Skeels, H.M.**, A final follow up study of one hundred adopted children. *Journal of Genetic Psychology*, 1949, 31, 248.
- Skuse, D.**, Extreme deprivation in early childhood-II. Theoretical issues and a comparative review. *Journal of Child Psychology and Psychiatry*, 1984, 25, 543-572.
- Sloan, W.**, Motor Proficiency and intelligence. *American Journal of Mental Deficiency*, 1951, 55, 394-406.
- Smith, J.O.**, Group language development for educable mentally retardates, *Exceptional Children*, 1962, 29, 95-101.
- Smith, R.M.**, Creative thinking abilities of educable Mentally Handicapped children in the regular grades. *American Journal of Mental Deficiency*, 1967, 71, 571-575.
- Spark, H.L. and Panda, K.C.**, Antecedents of Cognitive Competence, Physical proficiency and certain achievement related measures of a selected group of disadvantaged children in the Powhatan country school system : *A research investigation*. Washington, D.C. Health Education, and Welfare, 1971, 1-233.
- Spearman, C.**, General intelligence, objectively determined and measured. *American Journal of Psychology*, 1904, 15, 201-293.
- Spitz, R.A. and Wolf, K.M.**, Analytic depression : An inquiry into the genesis of psychiatric conditions in early childhood. II. In a Frued *et al.* (Eds.) *The Psychoanalytic Study of the Child*. Vol. 2, New York : International Univ. Press. 1946, 312-342.
- Stearns, K.E.**, *Experimental Group Language Development of Psychosocially Deprived Preschool children*. Ph.D. Dissertation, Indian University, 1966.
- Stern, G.D. and Birch, J.**, A proposal for clarification of the terminology used to describe brain injured children. *Exceptional Children*, 1957, 23, 346-349.
- Strauss, A. and Lehtinen, L.**, *Psychopathology and Education of the Brain Injured child*. New York : Grune and Stratton, 1947.
- Swanson, B.M.**, *Understanding Exceptional Children and Youth*. Chicago : Rand, McNolly and Co. 1979.
- Sweeney, T.**, *Rural Poor Students and Guidance*, Houghton Mifflin Company, Boston, 1971.
- Taylor, C.W.**, (Ed.) *Creativity : Progress, and Potential*. New York : Wiley, 1964.
- Taylor, V.A.**, *The Development of the Social Group Among Mentally Retarded Children*. Phillyss University, Erid. Oklahoma, 1967.
- Terman, L.M.**, *Genetic Study of Genius*. Vol. 1 Stanford : Stanford University Press, 1925.
- Terman, L.M. and Merrill, I.**, *Measurement of Intelligence*. Boston : Houghton Mifflin, 1937.

- Terman, L.M. and Ogden, M.**, *Genetic Studies of Genius* Vol. 5. Stanford California, Stanford Univ. Press, 1969.
- Thorndike, E.L.**, *Measurement of Intelligence*. New York : Teacher's College, Columbia University, 1927.
- Thurstone, L.L.**, *Primary Mental Abilities*. Psychometric. Monograph, 1938.
- Thurstone, L.L.**, *Primary Mental Abilities*. Psychometric Monograph. No. 1 Chicago University Press, 1941.
- Tisdall, W.J.**, *Productive Thinking in Retarded Children*, *Exceptional children*, 1962, 29, 36-41.
- Torrance, E.P.**, *Guiding Creative Talent*. Englewood Cliffs. New Jersey : Prentice Hall, 1962.
- Torrance, E.P.**, *Education and Creative Potential*. Minneapolis : University of Minnesota Press, 1963.
- Torrance, E.P. and Myers, R.F.**, *Teaching Gifted Elementary Pupils how to do Research* Minneapolis : Perspective Publishing Co. 1962.
- Torrance, E.P. and Yamamoto, L.**, *Assessing Creative Thinking abilities of Children*, University of Minnesota, Oct. 1950.
- Tripathy, K.M. and Misra, G.**, Cognitive activities as a function of prolonged deprivation. *Psychological Studies*, 1975, 20, 54-61.
- Tryon, R.C.**, Individual Differences. In F.A. Mass (Ed.) *Comparative Psychology*, 1942.
- Vandenberg, S.G.**, *The Genetics of Intelligence*, by L.C. Deighton (Ed.) *Encyclopedia of Education*. N.Y. Mcmillan, 1971 (a).
- Vandenberg, S.G.**, *What do we today about the Inheritance of Intelligence and how do we know it ?* In R. Cancro (Ed.) *Intelligence, Genetics and Emotional Influence*, N.Y. Grune and Stratton, 1971 (b).
- Vergheese, A. and Rao, D.L.N.**, Murthy Mongolism—A review of some aspects. *Transactions of All Indian Institute of Mental Health*, 1961, 2, 20-33.
- Vernon, P.E.**, *The Structure of Human Abilities*. Methuen and Co. 1950.
- Wallach, M.A.**, Creativity. In P.H. Musen (Ed.) *Manual of Child Psychology*. Vol. 1 New York : Wiley and Sons, 1970.
- Wallas, G.**, *The art of thought* : London, Watts, (1926, 1945).
- Ward, W.C.**, Creativity in young children. *Child Development*, 1968, 39, 737-754.
- Wechsler, D.**, *Measurement and Appraisal of Adult Intelligence*. William and Wildeins, New York : 1958.
- Weinstein, L.**, Schools for emotionally disturbed children — Effectiveness as viewed by referring agencies, parents and teachers. *Exceptional Children*, 1969, 35, 703-711.
- Weikart, D.P.**, Preliminary results from a longitudinal study of disadvantaged

- preschool children. *Paper read at Council of Exceptional Children*. St. Louis, Missouri, 1967.
- Weikart, D.B.**, Early childhood special education for intellectually subnormal or cultural different children. *Michigan Educational Research Foundation*, 1971.
- White, B.L.**, *Human infants : Experience and Psychological Development*. Englewood Cliffs, N.J. Prentice Hall, 1971.
- White, B.L.**, *Exploring the Origins of Human Competence*. *APA Monitor*; 1976, 7 (4), 4-5.
- Whiteman, M. and Deutsch, M.**, Social Disadvantage as related to intellectual and language development. In M. Deutsch *et al.* (Eds.) *Social Class Race and Psychological Development*. New York : Holt, Rinehart, and Winston, 1968, p. 16-114.
- Whiting, J.W.M. and Child, I.L.**, *Child rearing and Personality*. New Haven : Yale University Press, 1953.
- Williams, J.D., Teubner, J. and Harlow, S.**, Creativity in rural, urban and Indian children, *Journal of Psychology*, 1973, 83, 111-116.
- Yamamoto, K.**, Role of creative thinking and intelligence in high school achievement. *Psychol. Reports*, 1964, 14, 783-789.
- Zeaman, L.M.**, Intelligence and dismeasurement: a symposium. *J. Educational Psychology*, 1921, 12, 127-133.
- Zigler, E.**, Mental retardation, current issues and applications, In L.W. Hoffmann and M.L. Hoffmann (Ed.) *Review of Child Development Research*, New York—Russell Sage Foundation, 1966, 2, 107-168.



- Terman, L.M. and Ogden, M.**, *Genetic Studies of Genius* Vol. 5. Stanford California, Stanford Univ. Press, 1969.
- Thorndike, E.L.**, *Measurement of Intelligence*. New York : Teacher's College, Columbia University, 1927.
- Thurstone, L.L.**, *Primary Mental Abilities*. Psychometric. Monograph, 1938.
- Thurstone, L.L.**, *Primary Mental Abilities*. Psychometric Monograph. No. 1 Chicago University Press, 1941.
- Tisdall, W.J.**, *Productive Thinking in Retarded Children*, *Exceptional children*, 1962, **29**, 36-41.
- Torrance, E.P.**, *Guiding Creative Talent*. Englewood Cliffs. New Jersey : Prentice Hall, 1962.
- Torrance, E.P.**, *Education and Creative Potential*. Minneapolis : University of Minnesota Press, 1963.
- Torrance, E.P. and Myers, R.F.**, *Teaching Gifted Elementary Pupils how to do Research* Minneapolis : Perspective Publishing Co. 1962.
- Torrance, E.P. and Yamamoto, L.**, *Assessing Creative Thinking abilities of Children*, University of Minnesota, Oct. 1950.
- Tripathy, K.M. and Misra, G.**, Cognitive activities as a function of prolonged deprivation. *Psychological Studies*, 1975, **20**, 54-61.
- Tryon, R.C.**, Individual Differences. In F.A. Mass (Ed.) *Comparative Psychology*, 1942.
- Vandenberg, S.G.**, *The Genetics of Intelligence*, by L.C. Deighton (Ed.) *Encyclopedia of Education*. N.Y. Mcmillan, 1971 (a).
- Vandenberg, S.G.**, *What do we today about the Inheritance of Intelligence and how do we know it ?* In R. Cancro (Ed.) *Intelligence, Genetics and Emotional Influence*, N.Y. Grune and Stratton, 1971 (b).
- Verghese, A. and Rao, D.L.N.**, Murthy Mongolism—A review of some aspects. *Transactions of All Indian Institute of Mental Health*, 1961, **2**, 20-33.
- Vernon, P.E.**, *The Structure of Human Abilities*. Methuen and Co. 1950.
- Wallach, M.A.**, Creativity. In P.H. Musen (Ed.) *Manual of Child Psychology*. Vol. 1 New York : Wiley and Sons, 1970.
- Wallas, G.**, *The art of thought* : London, Watts, (1926, 1945).
- Ward, W.C.**, Creativity in young children. *Child Development*, 1968, **39**, 737-754.
- Wechsler, D.**, *Measurement and Appraisal of Adult Intelligence*. William and Wildeins, New York : 1958.
- Weinstein, L.**, Schools for emotionally disturbed children — Effectiveness as viewed by referring agencies, parents and teachers. *Exceptional Children*, 1969, **35**, 703-711.
- Weikart, D.P.**, Preliminary results from a longitudinal study of disadvantaged