UNIT 1 PHYSICAL DEVELOPMENT

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1.0 INTRODUCTION

In this unit we will discuss physical development during early school years which range from 6 to 11 years. Many writers prefer the term 'middle childhood' for this period. "Middle childhood is the period from about the age of 5 or 6 to about the age of 11 and 12. This is a time of leisurely growth between the more rapid growth of the preschool period and the onset of adolescence" (Elkind & Weiner 1978: 374).

The middle years of childhood between the ages of 6 and 12 are often referred to as the school years. This period is characterised by slow but steady physical growth, the perfection of motor abilities and the rapid development of cognitive and social skills.

However, all children do not follow same pattern of growth. Individual differences are high during this period as each child follows her own unique time table of growth. Some characteristics of this stage can be outlined as follows (Rajamal P. Devdas & N Jaya 1984: 125).

This stage extends from the age of 6 years to the time when the child becomes sexually mature. Some writers have even used the term late childhood. This stage begins when the child enters primary school; the child is mostly a first grade student. It has also been designated as the 'elementary school age'. Life in school is responsible for many changes that take place in the child's attitudes and behaviour.

Parents regard this stage as the 'smart' age, that is the time when the child thinks he knows everything and does not hesitate to inform others of his/her superior knowledge. To the psychologist, it is the 'gang-age'. The major concern of every normal boy or girl is to be accepted as a member of a 'gang'. This period is also characterised by new social expectations which the child faces. In order to achieve a place in the social group, the older child must master the developmental tasks society expects of him / her.

The mastery of developmental tasks is the responsibility of teachers and, to some extent, members of the peer group. Developing fundamental skills in reading, writing, calculating and attitudes towards social groups and institutes becomes as much the responsibility of the teachers as the parents.

Failure to master the developmental tasks at this stage results in poor personal and social adjustment in subsequent years.

1.1 OBJECTIVES

After reading this unit, you will be able to:

- define Physical growth in middle childhood;
- differentiate between growth and development;
- describe Motor development in this period;
- explain the characteristic features in physical development and growth; and
- elucidate some of the disorders that may obtain at the failure of physical development.

1.2 PHYSICAL GROWTH IN EARLY SCHOOL YEARS

In early school years the growth and development become relatively slower as compared to the earlier periods of development. Yet the growth has its own characteristic features and these are presented below.

1.2.1 Body Size: Height and Weight

This stage is a period of slow and relatively uniform growth until the pubertal changes begin. Increase in height is at the rate of 5 to 6 cms annually. An average girl of eleven years should have the height of 139.2 cm and the average boy of the same age, 138.3 cm.

Increases in weight are also slow and fairly uniform at this age. At the onset of puberty, the average girl of 12 years should weigh 29.8 kg and the average boy of the same age 28.5 kg.

Between the ages of 6 and 12, the average child will grow 2 to 2.5 inches and gain 3 to 6 pounds (Tanner, 1978). The average 6 year old child is almost 3.5 feet tall and weighs about 40 pounds (18.14 kg); the average 12 year old child is almost 5 feet tall and weighs about 80 pounds (Harris, C. 1993). Within this period, it takes children 6 years to double their weight and to increase their height by one-third.

The heights and weights of Indian children reported by ICMR (1968) are given below:

Heights and Weights of Indian Children

SEX	MEASUREMENTS	AGE IN YEARS						
		6	7	8	9	10	11	12
Girls	Standing height in centimeters	107.4	112.8	118.2	122.9	128.4	133.6	139.1
	Weight in Kg	16	17.6	19.4	21.3	23.6	26.4	29.8
Boys	Standing height in centimeters	108.5	113.9	119.3	123.7	128.4	133.4	138.4
	Weight in kg	16.3	18.0	19.7	21.5	23.5	25.9	28.5

(*Source:* Devadas, R.P. & N Jaya (1984) A Textbook on Child Development. McMillan India Ltd: New Delhi)

Some factors affect the size of body which is as follows:

Weight and height are influenced by many factors. Hurlock (1978: 111) has discussed following conditions which cause variations in body size:

1) **Family influences:** This involves both hereditary and environmental aspects. Genetic factors make some children fatter and thus heavier than others. Environment helps to determine whether hereditary potentials will be reached. At every age, environment has a greater influence on weight than on height.

2) **Nutrition:** Well nourished children are taller and reach puberty sooner than poorly nourished children. Poor nourishment during puberty can prevent attainment of hereditary growth potentials.

3) **Emotional Disturbances:** Persistent emotional disturbances cause an overproduction of adrenal steroids which inhibit production of the pituitary's growth hormone causing delay in the growth spurt. It prevents children from reaching the height they would otherwise attain.

4) **Socio-economic Status:** Children from homes of low socioeconomic status are smaller than children from higher and better socio economic status.

5) **Health:** Children whose health is good and who suffer from only infrequent and minor illnesses tend to be taller than other children.

6) **Endocrine Functioning:** Normal endocrine functioning results in normal size. By contrast, deficiency in growth hormone leads to dwarfism while an excess of growth hormone leads to giantism.

7) **Sex:** Girls at this stage tend to be slightly heavier than boys, and this difference is increased when girls begin their puberty growth spurt sooner than boys in the closing years of childhood.

The size and growth rates of boys and girls are comparable until age 9, and then girls begin to grow more rapidly than boys. For both boys and girls, the initial indication of the growth spurt is a sudden increase in foot length and shoe size (Tanner, 1978).

Thus, whether genetics will be the prominent deciding factor in determining body size of the child or the environment is the deciding facto, depends on the combination of factors. When children get enough to eat and are reasonably healthy, genetics account for individual differences. When children live in poverty and illness, belong to poor socio-economic class, the differences in growth appear (Harris, C 1993).

Height more than weight reflects a child's nutritional history. Undernourished children are shorter in stature than well nourished (Pollitt et. al.1982). Under all circumstances, physically abused children grow less well than non-abused children (Karp et al. 1989).

Self Assessment Questions

1) Fill in the blanks with appropriate choice given against the statement:

   a) Middle childhood is a time of ……..growth between the ……..growth of the preschool period and the onset of adolescence. (rapid/slow, slow/rapid)

   b) Middle years of childhood between the ages of 6 and 12 are often referred to as the …… (Pre school years/ school years).

   c) Environment has a greater influence on……than on…..…….(height/weight, weight/height)

   d) When children get enough to eat and are reasonably healthy, …….account for individual differences. (genetics/ environment)

1.2.2 Growth and Development Year Wise 6-11 Years

Growth is physical change and increase in size. It can be measured quantitatively. Indicators of growth include height, weight, and dentition.

Growth rates vary during different stages of development. This growth rate is rapid during prenatal, neonatal, infancy and adolescent stages and slows during childhood.

On the other hand development is an increase in the complexity of function and skill programme. It is the capacity and skill of a person to adapt to the environment. Development is the behavioural aspect of growth.

The new inches or pounds are added in "mini" growth spurts, usually lasting several months and occurring several times a year.

It's normal at this age for adenoids and tonsils to be large – in fact, tonsils may actually meet in the midline.

According to the developed countries data, the average growth and development for males and females 6 years of age through 11 years is given below:

6 years: The average height for females is 45 inches.

The average weight for females is 43 pounds.

The average height for males is 45¾ inches.

The average weight for males is 45.5 pounds.

6 years: The brain is now 90% of its adult weight.

6.5 years: Average age at which the first permanent tooth comes in. However, this age varies based on genetic and environmental factors.

6-puberty: The temporal and parietal lobes in the brain, related to language and spatial relations, develop the fastest during this time.

6-11 years: During this period of time, before the growth spurt of puberty, the growth

rate is very slow and steady, averaging approximately 2 to 3 inches a year.

6-11 years: The average weight gain each year during this period is approximately 5 to 7 pounds.

6-11 years: Strength capabilities double during this time.

6-11 years: A more proportional-looking body forms when the head and waist circumference, as well as leg length, decrease compared to the body height. 6-11 years: Bones continue to harden, but can handle pressure put on them more than mature bones can.

7 years: The average height for females is 47½ inches.

The average weight for females is 48.5 pounds.

The average height for males is 48 inches.

The average weight for males is 50.25 pounds.

8 years: The average height for females is 49¾ inches.

The average weight for females is 54.75 pounds.

The average height for males is 50 inches.

The average weight for males 55.75 pounds.

8-10 years: There is a growth spurt in the development of the right hemisphere of the brain. Right Cerebral Hemisphere Functions include improvement in the sensation, perception and appreciation of the stimuli. It also improves the cognitive functions such as spatial orientation, sequencing of objects etc., time perception, music appreciation, recognition of objects and faces and non verbal communication. The development of the right hemisphere function also leads to the development of emotions such as empathy, with and humour etc. Children can now more vigilant and attentive than before. The movements of the left side of the body including vision etc., becomes more refined and improved. Planning, organising etc., become possible due to the right hemisphere development.

9-15 years: "Research has found that female pubertal characteristics develop in this order: breasts enlarge and public hair appears, armpit hair, height increase, hips become wider than shoulders, menarche (which can be very irregular at the beginning), and more fully developed breasts" (Santrock, 2004, p. 375).

10 years: The average height for females is 54½ inches. The average weight for females is 71.75 pounds. The average height for males is 54¼ inches. The average weight for males is 69.25 pounds. Development of breasts, pubic hair etc., in girls is seen between 10 – 14 years of age.

11 years: The growth spurt of boys typically begins around this age, averaging about 4 inches per year. The average height for males is 55¾ inches. The average weight for males is 77.75 pounds. The growth spurt peaks for girls at this age, on average.

(*Source:* Age Norms: Child and Adolescent Physical Development Written by Lauren Nudelman 16.12.2008. http://parentingliteracy.com/norms/56-physical-development/135-age-norms-child-adol-physical-development Parenting library)

1.2.3 Motor Skills in Growth and Development (6-11 Years)

The truly attention-getting change in children will probably be associated with the first signs of puberty. For girls, breast development may start as early as 8 years, although 10 is the average. For boys, enlargement of the testicles and thinning and reddening of the scrotum, (the pouch of skin that holds the testicles) marks the beginning of puberty. Male puberty may begin as early as 9, although 11 is the average.

During these years, children of the same age are frequently at different points in their growth and sexual development. School-age children typically have fairly smooth and strong motor skills. However, their coordination (especially eye-hand), endurance, balance, and physical tolerance vary.

Fine motor skills may also vary widely and influence a child's ability to write neatly, dress appropriately, and perform certain chores, such as making beds or doing dishes.

There will be significant differences in height, weight, and build among children of this age range. It is important to remember that genetic background, as well as nutrition and exercise, may influence a child's growth.

There can also be a big difference in the age at which children begin to develop secondary sexual characteristics. Girls will grow buds of breasts at ten or eleven, her hips will take shape and she may begin to menstruate at eleven or twelve. Eleven is an early start for a first period and even at twelve and thirteen girls are not always emotionally prepared and welcoming of this powerful sign of approaching fertility.

When her periods begin the girl may be proud and excited to be growing up like all her friends or she may, in the back of her mind, be anxious about approaching adolescence and the complications that this introduces into her life. Her biology demands that she be a woman soon - whether she likes it or not. How she feels about it will be strongly affected by her impression of how well adult life has treated her mother and the women close to her. Womanhood may seem rich and pleasurable or scary and hard.

As for boys, the physical changes and emotional challenges are not so dramatic as they tend to mature physically a little later than girls. However around twelve some boys experience masturbation and nocturnal emissions. Boys of this age can be very competitive; and success at sport, or his social position in the playground may be close to his heart and a source of concern for him.

As you already know the head of the newborn is 1/4th the size of the body and that of a 6-8 year old is about 1/6th of the body and by adulthood it will become 1/8th of the body. In other words, the head becomes smaller in proportion to the rest of the body as one grows.

In middle childhood along with gross muscles, fine muscles develop rapidly.

1.2.4 Development of Teeth, Bones and Muscles

i) **Teeth:** By the time a child is 3 years old, the child has 20 teeth and these are the milk teeth. But by the time the child is in middle childhood, he/she has 28 teeth and these are all permanent teeth. An adult has 32 teeth.

ii) **Bones:** By middle childhood, all the bones in the body are formed and henceforth, these continue to grow in size and strength. Bones become brittle

when there is too much calcium in them and they break easily. During middle childhood, there is sufficient calcium in the bones to make them strong. This is one reason why the activity level in middle childhood is high. Strong bones provide better anchorage to the muscles.

iii) **Muscles and Fat:** All bones are covered with fat and muscles. Girls have more fat around their bones than muscles. At seven to eight years, girls start to gain more fat than muscles on their arms, legs and trunk, whereas boys have more of muscles than fat. This is why they have more strength. Boys can generally run longer distances, jump higher, etc.

Self Assessment Questions

1) Tick the most appropriate answer:

i) By middle childhood, the number of teeth in a child's mouth are

a) 20

b) 24

c) 28

d) 32

ii) Head to body proportion during middle childhood is:

a) 1/8

b) 1/6

c) 1/4

d) 1/2

iii) All the bones of the body are formed by:

a) infancy

b) early childhood

c) middle childhood

d) adolescence

iv) Boys are stronger because they have more:

a) bones

b) muscles

c) fat

d) calcium

1.3 MOTOR DEVELOPMENT

Have you seen 6-11 year old coming out of their classes after school is over? What would they be doing? Yes, you are right ! Some of them would be running, others would be skipping and still others leaping onto narrow edges and balancing themselves. In all these activities, the children are learning to co-ordinate their muscles for different types of movements.

The body has two types of muscles, namely, the large muscles such as those of the arms, legs, back, etc., and the small or fine muscles such as those in the fingers, toes, etc. You probably know that muscular activity is possible because of their contraction and flexion (relaxation). Different muscles placed in different parts and some in same parts of the body perform and control different movements. Some part of this control is automatic while some part is learnt. Movement due to muscular control which is learnt is called muscular coordination.

Again, muscular coordination is of two types : fine and gross. The movement of the fine (small) muscles is called fine muscular coordination while the movement of large muscles is called gross muscular coordination. Activities such as running, balancing, skipping, climbing, etc., involve mostly the coordination of large muscles.

Gross muscular coordination

Let us make the following observation. There is a pencil lying on a table. Let us imagine how a one year old child pick it up and how a 3 year old and a 11 year old pick it up?

Generally, the one year old uses her entire palm to pick the pencil while the three year old may use more than one finger and thumb to pick the pencil. At the same time, the eleven year old may use the index finger and thumb and may also be able to manipulate the pencil with very fine movements, i.e., play with it using only the index finger and the thumb or twirl it around or apply just the right pressure for writing.

Fine muscular coordination

As the child grows older greater proficiency over fine movements is gained. This is the period when many activities which involve fine muscular coordination can be taught to the child such as writing, needlework, painting, etc.

It is known from experience that children learn to walk, run, jump, kick, etc., before they learn to feed themselves or write. What does this imply? It means that the gross muscular coordination is learnt before fine muscular coordination. Muscles develop over a period of time and when the muscles are developing, that period is known as the sensitive period.

Think what will happen if we insist on making a child learn an activity before the muscles are ready for it ? Yes, the muscles which are not yet completely formed will get damaged. Which muscles stand greater chance of being damaged? Yes, the fine muscles. This is the reason why children should not be forced to write before they are four and a half to five and a half years old. This is one of the important reasons that the formal schooling for children begin after 5 years of age. From 6-11 years, the handwriting gradually improves i.e., it becomes better and faster. Sensitive period is the time when one can learn a specific activity most effectively.

Around the sensitive period, the body is ready to learn a particular activity or skill most efficiently. If the child is given practice and encouragement at this time to learn that activity or skill, the child will learn it best. Children in the age group of 6-11 years learn maximum number of different activities. They play different types of games. What does this information indicate ? That many of the muscles are maturing at this age.

The following chart shows the motor development or certain activities and skills from 6 years to 10 years.

1.3.1 Activities and Skills Between 6-11 Years

At this time the children will be able to throw a ball at an estimated distance, catch the ball, and they can run with coordinated movements. They can judge and stop a small ball, and can balance on one foot for a very short while . Children at this age can balance and hop on one foot for longer periods.

They can jump at a good height and can skip with two legs. Can hop and jump in small squares and play games with alternate hopping rhythm. Jump as high as one. At this age, children can run and jump hurdles at the same time

1.3.2 Disorders in Physical Development During 6-11 Years of Age

Some of the disorders that may arise in children could be due to physical illnesses, fall and injuries, accidents etc. Some of the disorders are genetic while some are acquired. The disorders that are obtained during this period are given below:

Attention Deficit Disorder (ADD). Hyperactive or Hypoactive.

Hyperactive: Children with this disorder are distractible, impulsive, irritable, moody, slow in learning, and inattentive. Physically such children tend to move from one side to another, cannot inhibit action, and are constantly diverted by sounds and objects. They are chaotic in their behaviour, and tend to forget what they are told to do, cannot do sequentially ordered tasks. The child may be annoying and unpopular amongst peers.

Hypoactive: Children with disorder show less than normal activity levels and excessive daydreaming. They may be quiet and undistracting in their behaviour but may not be able to attend to specific tasks. This may go unnoticed for many years as they tend to be good and compliant in their behaviour.

Execution of motor skills: Children at this age show wide range of individual differences in the execution of motor skills and in their ability to master complex motor tasks. They show improvement in gross motor skills reflected in increased speed, power, coordination, agility, and balance. These children appear to be always in a hurry and their motor development is such that they can now ride scooters, wagons, bicycles or move on skates. They register considerable improvement upon gross motor skills previously acquired and now learns many new skills. They can run faster, with greater accuracy and can cover longer distance. They can now hop and jump in a highly coordinated manner and also can throw, catch and kick accurately as required. Team sports. Basketball, football, baseball, dancing, swimming, roller skating, tennis are some of the sports which can help them refine their motor skills still further. They also show intense interest in acquiring and improving these skills.

As for disorders in regard to these aspects, they may have certain congenital or acquired deficits in motor skills and activities. Many may not be able to show coordination of gross and finer motor skills due to deficiency or abnormality in their physique. Sometimes injuries may lead to certain deformity which may prevent these children involving themselves in different required and essential activities. Sometimes high fever and many physical illnesses may keep the children off from many of these activities and when they do recover, they may not be able to equal their peers and thus feel unhappy. In certain cases children afflicted with polio may have problems in doing any physical activities and similarly children suffering from brain damage due to fall etc. may show poor motor and physical coordination.

1.3.3 Improvement in Control and Coordination of Fine Motor Skills

Children at this age can perform progressively neater and smaller tasks. They can play musical instruments, a feat which requires dexterity and control over the small muscles of the hands and fingers. Tasks such as sewing and knitting, or drawing pictures in minute detail require fine motor control and at this age these aspects develop to a great extent and children are able to accomplish many of these tasks. However children with any kind of physical illness etc. will not be able to accomplish these tasks. .

The extent to which children develop their genetic potential for motor skills.

Motor skills depend upon body size, strength and brain maturation. And, the extent to which children develop their genetic potential for motor skills depends on temperament and personality factors such as energy level, venturesomeness, aggressiveness, and persistence as well as their attitude toward their body build and their eagerness to participate in group functions and competition. Shy children or children with low self-esteem will have difficulty competing with other children, and since motor skills are developed primarily in the context of the peer group, these children will miss out on the opportunity to acquire and develop such skills.

Participation

These children learn to participate in a large number of activities both at school and in the society (neighbourhood). Such participation enables the children to become active members of society. They participate in scouts, little league teams, etc., a context within which they develop friendships and share interests.

Progress in Physical Growth and Motor Development.

There is a steady and sustained growth during this period. There is an increased ability to execute motor skills and master more complex and elaborate motor tasks. Variation in growth among children in this age group is apparent. Not only do children of the same age grow at different rates, children today are taller than they were in previous generations, and they also mature at an earlier age. This phenomenon is known as the secular trend. Attitude about self becomes related to conception about body size and shape. They aquires ability to think about what other people think. Thus, others' reactions to him become important.

1.4 BODY PROPORTIONS

These years are a time of steady overall growth, but the growth rate differs for different body parts, such as legs grow faster than other body parts.

Body proportions change during these years. The disproportion of too large a head decreases; and the lower part of the face increases in size, thus eliminating some of the facial disproportions of the early childhood. The gradual eruption of permanent teeth changes the shape of the mouth. As childhood progresses, the trunk elongates and becomes slimmer. The chest broadens and flattens, the neck becomes longer, permitting the shoulders to drop and the pelvis to increase in size. The arms and legs are thin with no developments in their musculature. The hands and feet grow slowly. The hands and feet are generally longer for boys.

Children lose their 'baby fat'; their faces tend to become slimmer and narrower. School age children usually have a tooth either coming or going. They lose their

baby-teeth, the first one coming out at about the age of 6. Toothless smiles are common among this age group. With the appearance of permanent teeth and several molars, the shape of the child's face is changed. The transition from temporary to permanent teeth is usually completed by about 11 or 12 years of age. Both boys and girls have all their permanent teeth except the second and third molar.

At 6 years of age, the eyes have not yet reached their final shape and size. Many children between 6 and 8 years of age are slightly farsighted, but this condition corrects itself between the ages of 8 and 10 when their eyes reach adult eye size and shape (Jenkins, Shacter & Bower, 1966)[1]. One potential implication of this finding is that their early reading material should be printed in large type. Binocular vision (in which both eyes work together) is usually well established by age 6. Reading is best delayed until approximately 6 years of age.

Marked improvements are observed in posture. The rounded shoulders, slight spinal curvature and prominent abdomen of the early years are replaced by more erect bearing. Consequently, school-age children gain efficiency in using their arms and legs.

Brain growth has essentially been finished by age 10 or 12. Bone growth is concentrated in the face, arms and legs. Children are more flexible than adults because their ligaments are less firmly attached and there is more space between the bones at the joints. But since the Ossification[2] process is still incomplete, children are less resistant to breaks, fractures and muscle pulls than mature adults.

1.4.1 Muscle and Fat

Both in girls and boys, muscles increase in size and strength, although the number of muscle fibers remains the same. The muscles of 6-12 years old are still functionally immature when compared with adolescent. Sports, dance, skating etc. help develop muscle tissues while improving co-ordination.

Heart grows more slowly during school years and is proportionally smaller than at any other period of life (Schwartz et al. 1990)[3].

Body fat accounts for 15% of the average school-age child's total body weight. Girls tend to retain more fat than boys at age 6, but unless their eating habits differ, both accumulate body fat at an even rate from age 7 to adolescence. The appetite of the young child increases after six years of age. Thereafter children tend to eat more than they did earlier. Many even over-eat and become obese. The child who is overweight loses out in active play. As a result, he misses out the opportunity to acquire skills extremely necessary for social success.

The gastrointestinal system is quite mature by the time the child is in school. School age children experience fewer stomach upsets, steadier blood sugar levels and a greater stomach capacity than younger ones. Though children at this stage do not need to be fed as carefully or as frequently as preschoolers, caregivers still need to be vigilant in minimizing the child's junk food intake.

The lungs continue to grow until about age 8, though the respiratory airways grow well in adolescence. Lung capacity increases and the respiratory rate or the number of breaths per minute slowly decreases. Bowel and bladder control are usually well established by the school years. The ear and sense of hearing are well developed by school age and auditory sensitivity continues to improve.

1.4.2 Summary of Physical Development During School Years

Sensory systems are mature

Heart and lungs continue to mature.

Brain Growth is complete by age 11 or 12.

Growth during school years is slow and steady until puberty, when girls tend to mature first.

The average child grows 2-2.5 inches taller and weighs 3-6 pounds more each year.

Generally, girls are slightly taller and heavier than boys.

Growth is concentrated in the legs, arms and face.

Baby teeth are replaced by permanent teeth.

1.5 MOTOR SKILLS DEVELOPMENT

"Motor skills are fine coordinations in which the smaller muscles play a major role" (Hurlock 1978: 143). Childhood is often called an ideal age for learning motor skills. There are a number of reasons for this (Hurlock):

First, children's bodies are more pliable than those of adolescents and adults; hence all learning is easier.

Second, children have fewer previously learned skills that will conflict with the learning of a new skill.

Third, children are, on the whole, more adventurous than grown up people

Fourth, while adolescents and adults find repetition boring, children enjoy it. As a result, they are willing to repeat an act over and over again fewer duties than, until the muscles patterns have been trained to perform effectively.

Fifth, Children have more time to devote to the mastery of because they have fewer duties and responsibilities than they will have as they grow older.

Smooth co-ordination of small and large muscles is refined and used in many activities ranging from reading and writing to playing team games.

Motor skills are refined and expanded. Through play and endless practice, children perfect six basic motor behaviours: running, jumping, sequencing foot movements, balancing, throwing and catching. Improvement in motor skills keeps pace with maturation although practice affects performance of some skills, such as learning to kick a ball (Engelhorn, R. 1988)[4].

Jumping is a good index of motor co-ordination and strength. At the age of seven boys often exceed girls in the height of vertical jumping. Girls are superior to boys in the task of jumping and hopping into grids (Elkind and Weiner 1978). Rapid improvements in this skill are shown from the age 6 to 9.

Throughout this period, children channel more and more energy into controlled, goal directed activities such as sports and cooperative play. Also children become more competitive and tend to form larger, more complex groups when they play. The benefits of team sports participation include social contact with peers, the exhilaration of self-improvement, learning the value of team work, the fun of the sport and the

importance of physical fitness. Emphasis on competition and winning over learning sports fundamentals devoid all the essence from the sports activities. Sport is a very good medium of boosting motor developments and teaching values. Parents and teachers should encourage striving, improvement and excellence without creating an obsession for perfection.

Handedness is well established by age 6 and small-muscle ability and artistic skill improve steadily from then until 12. Children make great strides in writing and drawing during school years. With practice, school age children can learn to play a musical instrument and to master a variety of handicraft skills such as ceramics, needle work, painting and model building. In this regard, girls continue to have greater hand and finger dexterity than boys.

In addition to dexterity, eye-hand co-ordination improves substantially during the school years. By age 8, the child is better able to plan a movement and by age 10, there is an increase in the child's ability to control the speed and direction of their grasp (Bairstow, P. J. 1989)[5].

Interestingly, despite the steady progress in fine motor and eye-hand skills, school age children become noticeably more clumsy and less well coordinated during their growth spurt years. Children may be more distractible when they are growing; they are also not used to maneuvering larger feet and a taller frame. Daydreaming and other pre-occupations may also lead to the appearance of clumsiness.

1.5.1 Major Motor Developments

Children improve in running, jumping, sequencing foot movements, balancing, throwing and catching

Children add skilled movements associated with sports, games, music, hobbies etc.

Reaction time improves

Eye-hand coordination improves

Competitive sports participation is common during these years

Left-right discrimination improves

Handedness is well established

Fine motor skills improve. Girls have greater dexterity than boys.

1.6 LET US SUM UP

Physical growth during middle childhood is slow.

Weight range is between 16 to 30 kg and height ranges between 107 cm to 139 cm.

Full set of teeth present except wisdom teeth.

Children during this period are active and busy. Always on the go: jumps, chases, climbs.

Motor task performance is smoother, quicker. Eye-hand coordination improves and manual dexterity is also improved.

Can brush and comb hair without help. Dresses self completely

More caution with new activities. Practice activities to improve skills.

1.7 UNIT END QUESTIONS

1) Differentiate between growth and development and indicate the growth of body size in males and females through 6-11 years.

2) Write an essay on the physical development of children during elementary school years.

3) Describe motor developments that take place during middle childhood.

4) Delineate the typical body proportions that take place in school age period.

5) What are the major motor skill development that takes place during this period?

1.8 SUGGESTED READINGS

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1.9 ANSWERS TO SELF ASSESSMENT QUESTIONS

1) a) slow/rapid, b) school years, c) weight/height, d) genetics

Endnotes

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UNIT 2 COGNITIVE, SOCIAL, EMOTIONAL AND MORAL DEVELOPMENT

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2.0 INTRODUCTION

Keep in mind that the school child's head is not where yours is. It is not just a matter of physical growth-it is perhaps more a matter of intellectual change……their heads may be closer to the clouds. And perhaps that's why they see magic more clearly than we adults do.(Lefrançois, G. R. 2001: 374).

In this unit we discuss four dimensions of development in middle childhood, that is cognitive development, social development, emotional development and moral development. "The elementary school years are the years 6 through 12 in a child's life, and are sometimes referred to as the latency period. However, in many areas of development, these years are actually action packed, not latent at all. They are filled with both motion and emotion as the child confronts the diverse demands of school; and entry into a rule bound society" (Morgan, King et. al. p. 450).

2.1 OBJECTIVES

After reading this unit, you will be able to:

- Elucidate Piaget's concepts of cognitive development in middle childhood;
- Define Social development in middle childhood;
- Explain Emotional maturity in school going children; and
- Describe Moral development of Kohlberg's theory.

2.2 COGNITIVE DEVELOPMENT

Between the ages of 5 and 7years, children's thought processes change dramatically. Using Piaget's terms, pre-operational thought is replaced by a rudimentary form of logic. The change is sometimes referred to as 5 to 7 shift. It is "the time during which the child makes a cognitive transition from the preoperational stage to the stage of concrete operations or from induction to logic" (Harris, A. C. 1993: 521).

In the middle ages the child was assigned adult status at age 7 when he was considered to be capable of being without his mother or his nanny (Aries, 1962). Impressive changes in brain development set the stage of 5 to 7 shift (Fishbein, 1984). Cross-model zones (nerve networks that permit information flow from one part of the brain to another) are well developed between the ages 5 and 6. These interconnections tie together different sensory events and modalities. For example, a child might associate an orange with its colour. Later on, associations will also be formed between the orange and its distinctive smell, flavour and its spelling.

Throughout the development, a reciprocal relationship forms between cognition and brain maturation. Brain maturation may support cognitive changes and cognitive activity can also accelerate brain activity.

2.2.1 Piaget's Theory of Cognitive Development: Concrete Operation

Concrete operation is the third stage in Piaget's cognitive theory. The ability to think logically about concrete or real world events and experiences is the hallmark of this stage. Concrete logic becomes possible when the children understand operations. Operations "are flexible mental actions that can be combined with one another to solve problems" (Morgan, King et al. 435).

Operations can be understood as the "set of powerful rules that can transform information from one form to another" (Harris, C.A 1993: 522).

These rules include mathematical operations (identity, addition, division etc.) and relations among categories (class inclusion, seriation etc.).

The operations are concrete in the sense that they are limited to concrete and objects. Abstract concepts are difficult at this stage to be understood.

Self Assessment Questions

1) Piaget's theory of development is related to

   a) physical development b) social development

   c) moral development d) cognitive development

2) Arrange the following developmental stages of cognitive development in the ascending order

i) sensorimotor stage ii) concrete operational stage

iii) preoperational stage iv) Formal Operational stage

Choose the correct option

a) i ii iii iv

b) i iv ii iii

c) i iii ii iv

d) ii iv i iii

3) Assertion: Concrete operation is the ability to think logically about concrete events.

Reason: The operations are concrete in the sense that they are limited to concrete and objects.

a) Both A and R are true. R is the reason for A.

b) Both A and R are true. R is not the reason for A.

c) A is true and R is false.

d) R is true and A is false.

2.2.2 Decentration

One of the most significant operations mastered by the school age child is decentration. Children in the concrete operations stage can decenter their thinking, taking into account several aspects or event at the same time.

The concrete operational child organises the world into hierarchies. In these hierarchies, a given thing can fall on more than one dimension at the same time. The following example

(discussed in Morgan and King: 451) will give us a clear picture of difference between the thinking of concrete operational and pre-operational. The latter stage lacks the ability to think about something from various dimensions.

The picture of seven people in a group, two adults and five children, is shown to some 4 year olds and some 9 year olds. "Are there more children or more people?" To this question, most 4-year olds will say, "more children", most 9-year olds will say, "more people". There are two dimensions in this question: people versus non-people, children versus adults. The 4-years old, being preoperational, can focus on only one dimension at a time (child versus adult dimension). The 9-years old recognised that both children and adults fall on the 'people' end of the people versus non-people dimension. These older children answered correctly because their flexible operations allow them to think in terms of hierarchy involving two dimensions, one broader than the other.

2.2.3 Conservation Tasks

In Piaget's terms, tasks that test the child's knowledge of the identity of matter. If the child can solve the conservation tasks (Table 2.1), he/she knows that the physical

characteristics of the entity can change but certain other properties stay the same. Concrete operational children are no longer fooled by perceptual appearance of number, volume, mass and other physical properties. They can now solve conservation tasks designed to measure the child's ability to understand apparent transformations. For instance, concrete operational children are no longer fooled into thinking that a flattened ball of clay is larger than the comparison ball, because they understand that the shape of the clay is immaterial to its weight.

The ability to conserve appears to follow a developmental sequence. Children can usually conserve numbers by about 6 or 7, mass and length by 7 or 8, weight around 9 or 10, and volume by 14 or 15 (Gold, R. 1983)[1].

Inhelder and Piaget (1955, 1958) called the developmental lag in conservation abilities 'horizontal decálàge'. *Decáler* in French means 'to displace'. Horizontal decálàge is the sequential mastery of concepts within a single developmental stage. When children had mastered the concepts of identity, reversibility and reciprocity, they can conserve along any physical dimension.

Identity: The notion that if form changes but nothing has been added or taken away, the amount will remain the same.

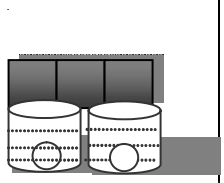
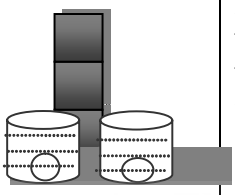
Reversibility: The notion that something which has been changed can be returned to its original state by reversing the process that lead to change.

Reciprocity: If the mass remains constant, a change in one dimension necessitates a change in another. For instance, if an object is flattened, it will become wider as it becomes thinner.

Following table (2.1) summarizes types of conservations and the age at which these concepts are mastered.

Table: Piagetian Conservation Tasks

Type of conservation	**Dimension**	**Change in physical properties**	**Conservation question**	**Age at which the task can be solved.**
Number	No. of elements in a collection	Rearranging or dislocating elements in a collection	Which line has more marbles? Preconservative child will say longer line has more and conserving child will say both have the same number	6-7 years of age
Substance	Amount of malleable substance	Altering its shape	Do the two pieces have the same amount of clay? Preconserving child will say no. Conserving child will say yes.	7-8 years of age
Length	Two sticks of the same length	Move one stick over	Which stick is longer? Preconsrving child will say one is longer. Conserving child will say both are the same length.	7-8 years of age

Area	Two identical pieces of card board with same number of blocks	Rearranging blocks on one cardboard.	Do the two pieces of cardboard have the same amount of open space? preconserving child will say no. conserving child will say yes	8-9 years of age
Weight	Weight of an object 	Altering space 	Which object weighs more? Preconserving child will say vertical shape weighs more. Conserving child will say both weigh the same.	9-10 years of age
Volume	Two identical balls of clay in two identical glasses	Change the shape of one of the balls	Do the pieces of clay displace the same amount of water? Preconseving child will say no. Conserving child will say yes.	14-15 years of age

(Source: Harris, 1993: 523)

The refinement of the ability to conserve may also be accelerated through training and practice. It has been also found that children in societies where concrete operational skills have little relevance develop these skills much late than their more urbanized peers.

The ability to conserve provides the child in concrete operations with a new sense of stability, security; and confidence in their judgments because they can rely on what they know rather than on what they perceive. Piaget tried to dissuade a 7 year old girl from insisting that the amount of water in a tall glass equaled that in a shorter glass. He argued:

"But a girl of your age was here yesterday and she said there was more water (in the glass) because (the water level was) higher."

"She's just silly, that's all," was the seven year old girl's reply.

(Quoted in Harris, p.524)

2.2.4 A New Egocentrism

Preschool children are unable to take the viewpoint of others. They have difficulty understanding that other people can reach conclusions different from their own. This preschool egocentrism is replaced in the school years by a different kind of egocentrism: one that permits more flexibility, logic and objectivity. School age children realise that their way of thinking is not the only way. They are now able to appreciate situations from others' point of view. Children at this stage can successfully solve Piaget and

Inhelder's 'Three Mountain Task': when asked what a doll seated to the left, right and front of the subjects might see, young school age children can occasionally select the correct drawing, but the accuracy of perspective taking significantly improves by the time the child is 11 or 12. But once they have formed a hypothesis about how or why things work, they tend to force contradictory facts into their hypothesis rather than changing the hypothesis to fit the facts.

2.2.5 Logical Reasoning

According to Piaget the school age child develops the ability to use inductive reasoning. Induction involves reasoning from a specific observation to a general principal. Children must apply this reasoning when they learn rules and operations. On interpersonal level, this reasoning forms the foundation of empathy.

Between the 3rd and 5th grade, great advances are made in the ability of the child to understand 'if-then' conditions. Additional improvements in reasoning skills occurs between the 8th grade and college I distinguishing 'if ' from 'if and only if' statements.

Deductive logic does not appear until the stage of formal operations (12 to adult).

Self Assessment Questions

1) Conservation in Piaget's theory of cognitive development refers to

   a) the development of inductive logic.

   b) taking into account several aspects of an event.

   c) flexible mental actions that can be combined with one another to solve problems

   d) knowing that an object has not changed in fundamental properties inspite of appearance.

2) Match the following and choose the correct option given below:

identity	(i)	sequential mastery of concepts within a single developmental stage
reversibility	(ii)	if the mass remains constant, a change in one dimension necessitates a change in another
horizontal decálàge	(iii)	if something has been changed, it can be returned to its original state by reversing the process that leads
reciprocity	(iv)	form can change, but if nothing has been added or taken away, the amount is still the same

   (a) i ii iii iv (b) iv iii i ii

   (c) iv iii ii i (d) iv ii iii i

3) Pick out the incorrect statement about concrete operational thought

   a) Children at this stage ca understand reversibility and transformations

   b) Children can take the viewpoint of others

   c) Children rely more on what they know rather than what they see

   d) Children's logic is guided by deductive reasoning

4) Studies found that conservation for different physical properties develop sequentially. Arrange the following in the order of development

(i) volume (ii) number (iii) mass and length (iv) weight

(a) i ii iii iv (b) ii iii iv i (c) ii iv iii i (d) iv ii i iii

2.3 CONCEPT FORMATION

Number: by the age 6 or 7, children's understanding of one-to-one correspondence is complete. For example, school age children realise that six remains six whether it is represented as 5+1, 9-3 or six stars.

Time: until age 8, children have difficulty placing events in their appropriate time sequence. Units of time (minutes, hours, years etc.) have little meaning to them. After age 8, children have a more precise understanding of time passage. They are usually able to classify past and future events according to how recently they occurred.

Spatial Operations: Children have difficulty understanding distance before they reach school age because they don't comprehend the basic units of measurement (miles, feet, km etc.). The ability to navigate within a new environment develops slowly during the school years. Young school children lose their spatial sense easily in unfamiliar and complex spaces. Older children can draw a map of area if they have had the chance to thoroughly explore the space, but even 10 year olds have trouble creating a cognitive map of an environmental space in order to give directions or locate an object (Siegal 1989)[2].

Classifications: Class inclusion or addition of classes is well developed in school age children. They are able to form class hierarchies and to understand that all things have multiple identities.

By age 6 or 7 most children can understand multiplication of classes. A 7-8 year old child in the stage of concrete operations can sort cutouts in two shapes and two colors into appropriate groups.

Seriation: In addition to classifying and grouping objects, school-age children are capable of sequencing and ordering objects with respect to some measurable dimension, such as weight or size. This process is called seriation.

2.3.1 Information Processing Approach to Cognitive Development

Information processing theorists suggest that concrete logic is a result of improved attention, perception, memory and problem solving skills.

Attention: The ability to focus on relevant information while ignoring distraction or irrelevant cues improves during school years. However, beyond 11 and 12, it shows much more improvement. Interest is high attention getter for children. Children remember interesting sentences, even though allocating less attention to them than to less interesting passages (Shirley & Reynolds, 1988)[3].

Perception: Concrete operational logic also influences the way children organise and interpret sensory information. Children can't spontaneously alternate between figure and ground until they are 10 to 11 years old. Children need to master the concept of reversibility to reverse their perceptions. The Embedded Figures test (Witkin et al., 1971)[4] requires that the child could see a figure in a number of ways.

Older children are capable of searching their visual environment thoroughly and systematically. Children below 6 and 7 years of age look quickly and randomly the figures.

Memory Capacity and Memory Storage: School age children are able to hold more information in memory and are better at mentally organising that material than younger children (Brown et al., 1983)[5]. Rehearsal occurs more spontaneously during the school years and is more efficiently applied. Memory is improved by organising and categorising items on a list into related groups. Older children are also more likely to use elaboration. Elaboration is a strategy for improving memory by changing the form of information and associating it with other information and visual images etc. Metamemory – the awareness of memory develops during school years.

2.3.2 Language Development

6 to 12 years old children continue to expand their reading and improve their understanding of words and word meanings. School age children, who are trained to see the relationships between words and who notice the common word structures, develop more extensive vocabularies than those without such training. However, children in this age group often make mistakes. But, like younger children these children also like words and enjoy using them.

School age children continue to refine their understanding of the structure of the language and the way words are organised into sentences. Six and seven year old children tend to be confused by irrelevant information, complex constructions and the implied meaning of certain words.

Children who have language difficulties are more likely to exhibit aggressive behaviour. Apparently, the child has a need to express herself if not verbally then physically (Burke et al., 1989)[6].

Communication effectiveness also develops together with the cognitive and overall development. Asking others to clear their confusion and persuading others to do something for them and showing more sensitiveness of the listener's needs make their communication different from the preschoolers. Enhanced vocabulary also adds to their effective communication.

2.4 SOCIAL DEVELOPMENT

School children's world expands gradually from families to schools, from sibling to peers and friends, from parents and teachers. All these worlds play a crucial role in forming child's personality.

2.4.1 Relations with Parents and Siblings

As children grow through the school years, they want to spend more time with their friends and less time with their family. Adults other than family (teachers) are more important. Children want to make more and more of their decisions. Parents are challenged to provide guidance without being overly restrictive or protective. Children experience fewer failures and recover more quickly when they do fail if they know that their parents are proud of them and have faith in their competence and resilience. Children whose parents belittle them and communicate doubt on their abilities usually experience more failures and less achievement in school and a greater loss of self-esteem than those with more supportive parents (Grolnick & Ryan 1989)[7].

School age children are ready for more responsibility both at home and outside. Parents can help children take responsibility for some household chores and personal items. These involvements play an important role in their development of useful skills, self-confidence, and appreciation of tasks related to daily living. Research shows that children with household responsibilities behave in more nurturing, helpful and mature ways than those who have no such demands upon them (Baumrind 1971)[8].

Value development is affected by parents' behaviour throughout child rearing years. During middle years children have the opportunity to apply these values in making independent decisions. They also test them against other alternatives. When parents and peer values conflict in matters like truth telling, school age children often side with their peers. The values are more resistant to change when children know the reasons for the beliefs.

High self-esteem is the most important predictor of personal happiness and effective functioning. Self esteem refers to an individual's positive feelings about herself and competencies in specific areas. Self-esteem is influenced by the child's self-perception and her home and school experiences. Adults can help children gain /maintain self-esteem by helping them feel powerful, competent, virtuous and significant.

Although school-age children become increasingly independent as they mature, they still need reasonable, consistent guidelines to direct their behaviour. They might complain about restrictions, but in the end, controls make children feel secure and are seen as expressions of their parents' love and concern (Whaley and Wrong, 1988)[9]. Parents' role changes to consultants as well as caregivers. Children often negotiate for what they want, rather than having emotional outbursts.

Mothers are preferred companions. Fathers tend to encourage independence and assertiveness; mothers tend to train interpersonal skills.

Siblings' relationships tend to be particularly significant during middle childhood. Siblings teach and help each other. They practice social skills (expressing gratitude, annoyance, surprise and fear) by interacting with each other. Younger siblings emulate older ones.

2.4.2 Peer Group

Peer group is a group of equals. Same-age, same sex children assemble into informal peer groups during the school groups. Between ages 6 and 9, these groups are rather small, loosely organised groups whose membership changes frequently. Peer groups have a status hierarchy among the members. By the time children are in fifth or sixth grade, their groups have become more structured, more formalised, more exclusive and more cohesive. School age children expect each other to follow social norms that promote courtesy, fair play and respect for others (Hartup, 1983)[10]. Cooperation is a frequently chosen conflict resolution strategy among girls, while boys favour competition (Crick & Ladd, 1990).

Peers are agents of socialisation. Peers transmit information about attitudes and values and influence each other's behaviour through modeling and reinforcement.

Conformity is the mainstay of the peer group structure. If the child's moral reasoning leads him to be conscious of rules and to be viewed as 'good', schoolchildren conform to the group because they value their peers' opinions even more than those of adults.

Studies across cultures have shown that the tendencies for children to follow peers

are not inevitable. These tendencies depend upon socialising experiences of children. Peer groups in Soviet Union, unlike those in the United States, support and enforce the values of the adult culture (Bronfenbrenner, 1970)[11].

For peer acceptance social competence is important. "Social competence is reflected in children's ability to sense what is happening in social groups, in a high degree of responsiveness to others and in an understanding that relationships develop slowly over time" (Lefrançois, G. R. 2001: 461). Peer acceptance or rejection (socio metric status) is assessed by using two methods: Peer Ratings or Peer Nominations.

In an attempt to investigate definition of social status and the nature of social isolation, Gottman (1977)[12] studied 113 children in depth. His observations suggest five distinct categories of children:

Socio metric stars: those who are equally liked by all.

Mixers: those who interact often with peers; some well liked, others not.

Teachers negatives: Typically in conflict with teachers, some liked, others not.

Tuned out: usually not involved in what is going on; ignored rather than rejected.

Socio metric rejections: not only disliked but also actively rejected by everyone. They might be rejected because they are withdrawn or socially incompetent (withdrawn-rejected) or overly aggressive (aggressive rejected).

Friendship during these years is not reciprocal. Friends are seen as people who "do things for each other" (Selman, 1980)[13]. Friends are often the same sex: boy-boy, girl-girl. Selman (1980) suggests developmental progression in children's friendship:

- Playmates (3-7): friends are those who play together with
- Assistants (4-9): Friends are those who help each other
- Cooperators (6-12): Friends have to cooperate, share goals and procedures and make compromises
- Intimates and mutual supporters (9-15): Friends share goals and values, and provide intimacy and support; strong friendships can survive occasional disagreements
- Dependent but autonomous (12 and beyond): Adult like understanding of the mutual dependence of friends on each other, paired with the need to maintain individuality and independence and to cultivate other relationships.

2.4.3 Social Cognition

Social cognition refers to the knowledge of emotion of others. The realisation that others have feelings, motives, intentions and so on (Lefrançois, G. R. 2001: 585). With the expansion of social world, children's way of thinking about people also changes. Selman (1980) describes the development of children's ability to understand and verbalise another person's point of view in five stages, labeled 0 to 4.

Egocentric (3-7 years): there is no other perspective but mine. People feel the way I would in a situation

Social informational (4-9): Others have a point of view, but they would feel the way I do; aware but don't understand.

Self-reflective (6-12): begin to infer other views; we can have different point of views, I can see mine, they can see theirs

Mutual (10-12): can switch perspectives; maybe I can see theirs and they can see mine.

Social and conventional (12-adulthood): can analyse perspectives in abstract terms.

2.4.4 Self-esteem

Self esteem refers to self appraisal. According to William James, self worth is a direct function of the difference between what I would like to be and what I think I am (James 1892)[14], i.e. it reflects the discrepancy between the individual's actual performance and ideal competence.

School age children can assess their worth in general terms as well as in five areas: scholastic, athletic, physical appearance, social acceptance and morality. High self worth is associated with happiness; low self-worth with sadness and depression.

2.5 MORAL DEVELOPMENT

Together with the development of cognition and social skills, children develop along the dimension of the moral values and reasoning. They learn the rules for right and wrong and understand other laws and rules.

In this section, we will examine Jean Piaget and Lawrence Kohlberg's theories of moral development during school years.

2.5.1 Piaget's Ideas about Moral Development

In Piaget's (1935/1965) views the child enters a new stage of moral development when he enters the stage of concrete operations at age 6 or 7. He called it *heteronomous morality* or *moral realism* (heteronomous means under an outside authority). In this stage rules are regarded as unchangeable, absolute and imposed by an external authority. Egocentrism of young children encourages them to adhere to three beliefs:

Imminent justice: wrongdoing invariably leads to punishment.

Objective Consequences: morality of an act is judged by its objective consequences, not the objective intentions of the persons.

Absolutism: Young school children believe in the absolutism of moral perspective. They believe that there is only one correct moral conclusion per circumstance.

Stage of autonomous morality or *morality of cooperation* A new stage, is achieved around the age of 10. As children become less egocentric by age 9 or 10, they are also able to realise that rules are not fixed but arbitrary. They come to know that rules can change and it is possible to make personal decisions about obeying rules.

Moral authority of adults is replaced in part by a morality based on cooperation and mutual understanding. At this stage, it is not wrong to break the rules; rather, the motives, the rules, the specific situations are all considered in making a judgment. They feel praise and punishment should be distributed in a non-arbitrary, even-handed way. It is hard for children at this stage to understand that the same behaviour might evoke different responses from different people.

2.5.2 Kohlberg's Theory of Moral Development

Lawrence Kohlberg sought to refine and extend the ideas of Piaget and the pioneering work of James M. Baldwin (1894) by creating a comprehensive three-stage theory. Kohlberg studied moral development by posing moral dilemmas to groups of children as well as adolescents and adults. These dilemmas take the form of stories, one of

Kohlberg's best known dilemmas involves a man named Heinz, who must choose between stealing medicine and letting his wife die.

In Europe, a woman was near death from a special kind of cancer. There was one drug that the doctors thought might save her. It was a form of radium that a druggist in the same town had recently discovered. The drug was expensive to make, but the druggist was charging ten times what the drug cost him to make. He paid $200 for the radium and charged $2000 for a small dose of the drug. The sick woman's husband, Heinz, went to everyone he knew to borrow the money, but he could only get together about $1000, which was half of what it cost. He told the druggist that his wife was dying and asked him to sell it cheaper or let him pay later. But the druggist said, "No, I discovered the drug and I'm going to make money from it." So Heinz got desperate and considered breaking into the man's store to steal the drug for his wife. Should Heinz steal the radium? (Kohlberg & Gilligan, 1971: 1072-1073)[15].

Instead of the answer, Kohlberg analysed the reasons children gave for their answers. He identified three general levels of moral reasoning: preconventional, conventional and postconventional and described two stages at each level.

(i) Preconventional Level	Stage-1 Punishment-obedience orientation
	Stage-2 Instrumental-exchange orientation
(ii) Conventional level	Stage-3 Good-boy-nice-girl orientation
	Stage-4 System-maintaining orientation
(iii) Postconventional Level	Stage-5 Social-contract situation
	Stage-6 Universal-ethical-principles orientation

Moral reasoning of preschool children was influenced by a concern for obedience and punishment and for satisfying personal needs. When children enter the stage of concrete operations, they are able to turn away from their egocentric thinking, growing more concerned about appearing 'good'.

According to Kohlberg (1969, 1976) this shift in focus is characteristic of *conventional level of moral reasoning*.

Concern with law and order is an important aspect of conventional reasoning. Rule breaking is considered to be inherently immoral because it creates chaos in a stable social system. Reasoning at this level fits what many societies consider to be acceptable moral rules.

2.5.3 Moral Judgments and Moral Behaviour

In a classic study of 10,000 children, Hugh Hartshorn and Mark May (1928-1930)[16] found that students who support rigid moral standards don't necessarily behave in ethical and desirable ways. Nine to eleven year old children are quick to

find excuses to justify their own rule infractions. Solving moral dilemmas involves trying to coordinate several sets of conflicting needs and motives, including the laws of the culture, the morality of peers, parents' and teachers' guidelines and self-interest. The third and fourth grader may be able to identify moral of a story but may not be able to apply it. Moral decision making benefits from practice and maturity and from specific instruction on how to generalise moral principles to life.

2.6 EMOTIONAL DEVELOPMENT

Emotions play an important role in life. Emotional expressions change with the development with the dimensions of emotions when children grow towards maturity. Patterns of emotional development vary for children and are affected by various factors. Health, intellectual level, environment and social reactions have been shown to affect emotional development. Authoritarian child rearing encourages the development of anxiety and fear while permissive and democratic training encourages the development of curiosity and affection. Children of low socio-economic status tend to have more fears and anxiety than those of higher socio-economic status (Croake, 1969)[17]. Differences of emotional expressions are also found between girls and boys. Girls often dissolve into tears or temper outbursts. Boys express their annoyance and anxiety by being sullen and moody.

The common emotions of the late childhood differ from those of early childhood in two respects: in the type of situation that gives rise to emotional reactions and in the form of expression.

After the child becomes adjusted to school, the emotionality tends to subside because (Devadas & Jaya 1984):

i) The roles of the older child are well defined.

ii) He has a ready outlet for any pent-up emotional energy through games and sports.

iii) The feeling of frustration is less with the improvement in skills.

2.6.1 Common Emotional Patterns

Fear: A gradual shift from typical fears to general fears has been observed. In Hurlock's (1978: 198) words, "among older children, fears are concentrated on fanciful, supernatural or remote dangers; on the dark and on imaginary creatures associated with dark; on death and injury; on the elements, especially thunder and lightening; and on characters recalled from stories, movies, comics, and television. …afraid of failing, of being ridiculed and of being different".

All fear stimuli tend to be sudden and unexpected. But with growth children can adjust more quickly to sudden and unexpected circumstances and many fear producing conditions do not cause fear when they grow. Overt fear responses are curbed by social pressure. The facial expressions express fear; chidren may also express fear indirectly in a general motor discharge, retreat and withdrawal, imaginary ills and quaking (Hurlock, 1978: 199). Shyness, embarrassment, worry and anxiety are some fear related emotions. Shyness in older children may be expressed by blushing, stuttering, nervous mannerisms e.g. pulling at ears and clothing, shifting from one foot to the other.

Anxiety: Anxiety develops later than fear as it depends upon the ability to imagine something not present. It is often found during early school years and tend to increase

during fourth to sixth grade. Anxiety may be expressed as depression, nervousness, irritability, mood swings, restless sleep, quick anger and increased sensitivity to what others say. Anxious children are unhappy children because they feel insecure.

Anger: Anger is more frequently expressed emotion in childhood than fear (Hurlock 1978: 202). Thwarting of desires, interruption of activities in progress, constant faultfinding, teasing, unfavourable comparisons with other children are some of the factors that arouse anger in older children. Hurlock divided responses to anger into two major categories: impulsive and inhibited. Impulsive responses include aggressive behaviour. Temper tantrums normally decrease with age. Inhibited responses are kept under control. Children may withdraw into themselves. They express their anger by acting hurt, being sullen, feeling sorry for themselves, or threatening to run away.

Curiosity: Curiosity is the instinctive foundation of intellectual life. Asking questions is normal for children. Every adult faces what, why, how about things that adults have never noticed. Children feel curious about everything from their own bodies, dresses people wear, light switches, television sets, change in mother's hair style, to permanent tooth. The 'questioning age' is replaced by reading when they grow, if they feel that reading can answers to their questions.

Joy, pleasure and delight: Joy is a pleasant emotion. In its milder forms, it is known as pleasure, delight or happiness. Joyful expressions range from a quiet, calm, self-satisfied contentment to a bubbling exuberance (Hurlock, 1978: 206). As children grow older, they learn to express their joy in the socially approved pattern for the group with which they are identified. They learn that gloating over a person they have defeated is poor sportsmanship. Success is the most pleasant situation for school children. This achievement can be academic, sports or other competitions. Company of friends and play are delightful to children of all ages. There may be individual differences from child to child. Some children may find joy when they see trees, birds and in contemplation. Some parents deliberately arrange some time for children for the activities that may be delightful and could save them from mechanical routine of school, tuitions, homework and competitions. A predominance of the pleasant emotions, such as love, joy and happiness is essential for normal development. These emotions lead to feelings of security which help children approach their problems with self-confidence.

All children should learn emotional tolerance as the control over the environment becomes increasingly difficult. Emotional tolerance, the ability to accept and adjust to unpleasant emotional experiences, is an essential condition to emotional balance.

2.7 LET US SUM UP

In this unit we have discussed four major dimensions of development of school going children: Cognitive, Social, Moral and Emotional development. Cognitive developmental views of Piaget characterise the developmental stage of the child at 6 to 11 or 12 years as concrete operational. As the child grows physically and mentally, his behaviour shows marked differences from the earlier stages. Socially, children of this age group like the company of their friends and peers more than their parents. They are busy in learning various skills which bring change in emotional expressions. Learning what is socially right and wrong goes along with the above dimensions of development. At this stage development is more affected by learning and training. This is where schooling becomes important.

2.8 UNIT END QUESTIONS

1) Discuss the cognitive development during school years in the light of Piaget's theory of cognitive development.

2) What are the social changes that are the characteristic of school going children?

3) Write an essay on the Kohlberg's moral development theory.

4) Observational application: How many friends does a typical child have? How important are they?

2.9 GLOSSARY

Operations : Flexible mental actions that can be combined with one another to solve problems.

Concrete operations : The ability to think logically about concrete or real world events and experiences.

Decenter : Children in the concrete operations stage can decenter their thinking, taking into account several aspects or event at the same time.

Conservation : Knowing that the physical characteristics of the entity can change but certain other properties stay the same.

Identity : The notion that if form changes but nothing has been added or taken away, the amount will remain the same.

Reversibility : The notion that something which has been changed can be returned to its original state by reversing the process that lead to change.

Reciprocity : If the mass remains constant, a change in one dimension necessitates a change in another. For instance, if an object is flattened, it will become wider as it becomes thinner.

Horizontal decálàge : The developmental lag in conservation abilities. Horizontal decálàge is the sequential mastery of concepts within a single developmental stage.

Seriation : School-age children are capable of sequencing and ordering objects with respect to some measurable dimension, such as weight or size. This process is called seriation.

Peer group : A group of equals. Same-age, same sex children assemble into informal peer groups during the school age.

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2.11 ANSWERS TO SELF ASSESSMENT QUESTIONS

SAQ 1: 1) d, 2) c, 3) a.

SAQ 2: 1) d, 2) b, 3) d, 4) b.

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UNIT 3 SCHOOLING AND DEVELOPMENT

Structure

3.0 Introduction

3.1 Objectives

3.2 School and the Life of Children

3.3 Basic School Skills- The 3Rs and A C

- 3.3.1 Learning to Read
- 3.3.2 Learning to Write
- 3.3.3 Developing Math Skills
- 3.3.4 Computer Skills

3.4 Teaching for Knowledge

3.5 Value Education

3.6 Other Subject Teaching

- 3.6.1 Physical Education
- 3.6.2 Teaching for Pleasure
- 3.6.3 Educational Excursions

3.7 Let Us Sum Up

3.8 Unit End Questions

3.9 Glossary

3.10 Suggested Readings

3.11 Answers to Self Assessment Questions

3.0 INTRODUCTION

I have been amazed to discover that town-bred people seldom know the points of the compass, never know which way the sun goes round, cannot find out which side of the house is out of the wind, and generally destitute of knowledge which every cow or sheep possesses.

Bertrand Russell (1926: 178)

In the last two units, we have discussed physical, cognitive, social, moral and emotional development of children in middle childhood. One important characteristic of the development that we need to take note of at this point is that all the aspects grow and develop simultaneously. A physically maturing child is also maturing socially and cognitively, emotionally and morally. The development does not take place like a sequence where physical development precedes social development and when the child is mature socially and physically, then only other developmental milestones follow; instead a growing child grows in all respects at a time. Societies and families influence this development greatly. One way of molding and shaping child is schooling whereby intellectual and cultural resources are devoted to the formation of educated and civilised man.

Schooling is all about the development of abilities by explicit instruction. The concept of schooling refers to the institutionalised nurturance of children's abilities through

education. Middle childhood is the appropriate time to develop skills through practice and planning. Secondary abilities (like writing and playing violin), differentiated from primary abilities (learning mother tongue and sense perception) need instruction and practice. Schooling refers to the formal methods adopted within a society to maximise the learning of secondary abilities. The group we are concerned with has already spent two years in kindergarten. They know little bit about reading, writing, and numbers; through nursery rhymes they already have their first lessons in singing, pronunciation and learning by heart. In this unit, we will discuss the contribution of schools to children's development between the kindergarten education and more specialised education after fourteen. What are the things they learn and what are the things they ought to learn? What are the things that are ideal for this age group to learn? In what ways schools can produce good human beings, good citizens without adopting cast iron rules?

3.1 OBJECTIVES

After reading this unit, you will be able to:

- Elucidate Aims of schooling;
- Describe the various forms of education at school;
- Explain Value education, physical education and performing arts;
- Analyse the order of various information and skills; and
- Describe the importance of educational trips and learning by doing.

3.2 SCHOOL AND THE LIFE OF CHILDREN

Writing about the education of young children, Russell (1926) has discussed the following aims of education:

i) Cultivation of intelligence is one of the major purposes of education.

ii) To discover special aptitudes in children so that they may be carefully developed in the later years.

iii) Everybody should learn the base subjects which need not be further pursed by those who are bad at them. Two principles determine the curriculum in the early school years: First, what children ought to know. Second, order in which the subjects are to be taught - teaching the easiest subjects first.

iv) Anything involving severe mental effort should not be undertaken before the age of seven.

John Dewey (1859-1952), an American philosopher, psychologist and educational reformer, intensely discusses the need of education to be centered at the life of the child. Education should adopt the spontaneous ways that the children themselves adopt to learn from their surroundings. Dewey strongly opposed the idea of 'drawing out' something from the minds of child. The young child, he writes, "is already running over, spilling over with the activities of all kinds. He is not purely latent being whom the adult has to approach with great caution and skill in order gradually to draw out some hidden germ of activity." The role of education is that of giving direction to their activities. Dewey has enumerated following instincts that one needs to recognise and shape by various facts, materials and conditions:

Social Instinct: shown in conversation, personal intercourse and communication.

Language Instinct: the simplest form of the social expression of the child- the greatest of all educational resources.

Constructive Instinct: the instinct of making, expressed first in play, in movement, gesture, and make believe and later becomes more definite, seeks outlet in shaping materials into tangible forms.

Investigation Instinct: the child has not much instinct for abstract inquiry. It grows out of the combination of the constructive impulse with the conversational. There is no difference for a child between experimental science and the work done in the carpenter shop.

Expressive Instinct or art instinct: grows out of the communicating and constructive instincts. It is their refinement and full manifestation. For example, they make the construction adequate, full, free and flexible, and give it a social motive.

Schooling should aim at providing a full bloom to the instincts in a healthy way. By recognising the fields of interest it furthers the development in the direction which may give a child purpose of life.

Self Assessment Questions

1) Which of the following is NOT the aim of schooling in middle childhood?

   a) Cultivation of intelligence

   b) Discovery of special aptitudes in children

   c) The easiest subjects should be taught first.

   d) Specialised subjects should be taught

2) The instinct to use paper and pencil shows primarily

   a) Expressive instinct b) Social instinct

   c) Language instinct d) Constructive instinct

3) Curiosity is another name for

   a) Expressive instinct b) Social instinct

   c) Investigation instinct d) Language instinct

3.3 BASIC SCHOOL SKILLS - THE 3RS AND A C

By the time a child is six years old he knows how to read and write; certain accuracy in sense-perception and rudiments of drawing, singing and dancing and a power of concentrate upon educational activities is developed. But the child will not be very perfect in all these respects at six years of age. Further teaching is required in all of them for some years to come.

3.3.1 Learning to Read

Reading is a basic intellectual skill that is associated with modern schooling. All the education is based on the ability to read what has been given in the books. A child's performance in other subjects also depends on the successful comprehension of what is written. Reading is taught in progressive steps. First, associating names for things

develop before six years age. Second, alphabet and letter sound associations are learned. Next, the child learns to pronounce common letter groups. The reading of simple text follows it. A fifth and sixth grader is generally fluent in reading like an adult. Good reading includes clear pronunciation, adequate voice modulation, recognising the emotional overtones in text, recognising the pauses and maintaining adequate speed so that a listener may follow what is spoken to. These skills can be developed by enacting the literary works, like stories and dramas. There may be some pronunciation mistakes when a child reads a word for the first time, but as he learns how to pronounce it, it is not prone to be forgotten. It is learnt forever. Development in reading can differ for different learners. Poor reading comprehension can be improved with the help of some techniques. But some children may not be motivated enough to learn this intellectual skill at the beginning. Reading text may be extremely boring to them. For such children reading books of their interest at home by mother or father or other family members may be a better way to develop an interest for reading rather than forcing it through school work.

3.3.2 Learning to Write

Writing skills, like reading, are developed by practice and an organised plan. There are differences between various thinkers on how to teach writing. Some favour the spontaneous development through expression of thoughts and activities at school. Others favour the study of literature for developing good writing skills. The refined skills of writing, Dewey suggests, comes when the language instinct is appealed in social way. The child always has something in his mind to talk about, a thought to express. Reading and writing as well as the oral use of language may be taught on the basis of the fact that the language is guided by realities.

The other point of view, supported by Russell, considers reading of literature necessary for good linguistic skills to be developed. Russell believes that expression of thought in speaking and writing should come without effort, in spontaneous manner, but it is difficult in a society that has lost its primitive aesthetic impulses. In such societies it is essential to produce a habit of thought which can be generated by intimate knowledge of good literature. Reading of literature purports other objectives as well that we will discuss later.

However, there are some ways to encourage good writing skills:

Writing exercises should be based on the activities of children, either personal or classroom activities.

Children should know writing for different purposes takes different forms: to record ideas, to write something imaginative, to ask for information, to have fun and so on.

Before giving assignment, teacher should discuss the purpose of the work and can also give some points to be elaborated.

Once the child begins writing, it should not be interrupted.

Children should be given time for revision, to reorganise and re-evaluate the piece.

Display or publish all papers, avoid giving importance to top students.

Plan reading and oral exercises around writing activity.

3.3.3 Developing Math Skills

"Arithmetic is a bugbear of childhood - I remember weeping bitterly because I could

not learn the multiplication table" (Russell). But, Russell adds, if it is tackled gradually and carefully, there is no need of the sense of blank despair. In Russell's views, arithmetic affords the natural introduction to accuracy. The answer to a sum is either right or wrong, never 'interesting' or 'suggestive'. This aspect makes arithmetic an important element in early education. But its difficulties should be carefully graded. Not too much time at a stretch should be devoted to them.

The formal teaching of geometry and algebra begins only after middle childhood.

Success with numbers also improves the speed with other school work. Training computation skills with abacus to the groups of children from first graders to fifth graders have shown tremendous improvement in children's ability to add, subtract and multiply. Teaching mathematics with concrete objects can bring more productive results than teaching through paper-pencils.

Self Assessment Questions

1) What do you mean by 3Rs in elementary education?

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.....

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2) What are the aims that reading skill fulfils?

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3) What steps will you take for the normal development of writing skills in the third and fourth grade students?

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4) Ask ten five grade students the words they find difficult to spell in Hindi and in English. Make a list of such words. On the basis of this list state,

   i) Do all children find the same words difficult?

   ii) What are the individual differences?

   iii) What are the differences between the difficulty in spellings in Hindi and in English?

   iv) Is there any relationship between writing correct spellings and intelligence? Elaborate with examples.

3.3.4 Computer Skills

Computer literacy has been added in schools as a basic skill together with reading, writing and arithmetic. There are two functions related to computers:

- Computer as a machine to be understood and mastered.
- Computers as an aid in teaching.

For the first purpose, it need not be included as a subject to be taught. Children can be provided these machines and some time to explore these machines. Teaching of computers as a subject should not be started before fourteen. Children enjoy working with and exploring these machines. As a teaching aid, it is a source of tremendous information. Care should be taken regarding the content children can access to and time devoted. Around the age of 11 or 12 most of the children today are familiar with various operations and functions of computers. But these computing machines may cause severe problems in the normal physical and social development if children give too much time to them.

While computers certainly reinforce learning and provide opportunity to explore, they don't seem to accelerate the acquisition of knowledge (Greenfield, 1984)[1].

3.4 TEACHING FOR KNOWLEDGE

Development of intellectual faculties is based on the development of intelligence. Russell defines intelligence as including both actual knowledge and receptivity to knowledge. He suggests that it is not possible to train intelligence without imparting information. Without intelligence our complex modern world can not exist, still less can it make progress. Intellectual development depends on the curriculum of young children: What is taught and how? How can we take maximum benefit from curriculum to make the child learn, not for exams but for the pleasure of knowing?

We have already discussed arithmetic, reading and writing. In this section, we take the subjects like: geography, history, science and languages. The first is geography. Geography is all about places, lands, forests, trees, rivers, mountains, weather and all about our Earth. Children's first love for the knowledge of this kind can be seen in their love for trains, airplanes and traveling.

When they learn this subject only through books and question-answers, the natural curiosity to a vast area of knowledge is lost. The knowledge is difficult to be imparted by instruction without curiosity.

Geography should be taught partly through the pictures and tales about travelers, and partly by cinema, showing what a traveler sees on his journey. Geography should be given a large place in the teaching of young children. Later on, they should be given books with pictures, maps and elementary information about different parts of the world. They should be instructed to put together little essays about the peculiarities of various countries.

At a slightly more advanced stage, history can be introduced. It should follow after geography because the sense of time is rudimentary at first. It should be started with the illustrated stories of eminent personalities. Stories about Rani Laxmi Bai, Raja Ram Mohan Roy, S. Radhakrishnan, Ramanujam, Newton, Columbus, Darwin and others, will be extremely interesting to young children. Necessary simplifications, pictures and cinema, if possible, will make the history a favourite to the young minds. Visits to the places of historical importance will be educative. Care must be taken in teaching history to not to introduce topics interesting to elders before the child is mature to understand them.

Two aspects are first relevant and interesting for the children to know:

The general pageant and procession, from geology to man, from savage man to civilised man and so on.

The dramatic story telling of incidents which have a sympathetic hero.

History tells about the journey of man from the savage life to modern advances: the discovery of fire, writing and printing, cities and architecture, agriculture and industries, scientific and technological advances, land and air travel; the conquest of human race fighting against chaos outside and darkness within: the rise and fall of civilisations, wars and racial divisions between nations; and the true conquerors who dispelled the darkness within and without: Buddha and Socrates, Archimedes, Galileo and Newton, Ambedkar and Gandhi; history creates a link between and individual and the entire humanity.

Science Teaching: The teaching of science is very basic at this stage. Formal teaching of proper physics and chemistry begins only after fourteen. The sections 'learning by doing' should be practiced by every teacher to develop true spirit of observation and experimentation. Teaching of science contributes to the development of imagination as much as the poetry and stories, if taught properly it can contribute more to imagination than poetry and stories. Knowing about the sun, the planets, some rudimentary interest in the functioning of machines, man and nature, man and his body and health, knowledge all these things lay a strong foundation for curiosity and aptitude for science.

Language Teaching: Teaching of languages should be started at the very young age. In childhood it is possible to learn to speak a foreign language perfectly which can be difficult to be achieved in later years. Teaching of language should be free from mental fatigue. It can be possible with the games which depend upon the understanding the language and answering the questions and solving the puzzles, and with plays and acting. Languages learnt at this time are learnt perfectly and with less waste of educational time than at any subsequent period.

Literature: Teaching of literature aims at: training for memory when children learn poems and text by heart and the development of sensitivity to the beauty of language in speech and writing. Learning by heart should be associated with acting. The play will be in their thoughts for along time. Good literature is intended to give pleasure and if children cannot derive pleasure from it they are not likely to derive benefit. But the content should be chosen carefully.

3.5 VALUE EDUCATION

Education should aim at developing ideal character. Ideal character can be assumed to have many virtues. Four characteristics discussed by Russell seem to encompass all the rest: Vitality, courage, sensitiveness and intelligence. All the four qualities can be made common by proper physical, emotional and intellectual care of the young.

i) **Vitality:** Vitality is rather a physiological than a mental characteristic; it is presumably always present where there is perfect health. Where it exists, there is pleasure in feeling alive, quite apart from any specific pleasant circumstances. It makes it easy to take an interest in whatever occurs and thus promotes objectivity, interest in outside world and power of hard work. Vitality is a safeguard against envy, because it makes one's own existence pleasant.

ii) **Courage:** courage is a major ingredient in a perfect character. Two forms of courage are: absence of fear and the power of controlling fear. Combination of self-respect with an impersonal outlook to life is the major requirements of universal courage. Parental love, knowledge, and art are some of the sources which take us beyond self. 'The perfection of courage is found in the man of many interests, who *feels* his ego to be but a small part of the world' (Russell, 46). This state can be achieved only when the instinct is free and intelligence is active.

iii) **Sensitiveness:** It is assumed to be a corrective of mere courage. Courageous behaviour should not be based on ignorance. Sensitiveness belongs to emotions. If sensitiveness is to be good, the emotional reaction must be in some sense appropriate. Pleasant behaviour and sympathy are desirable forms of sensitivity.

iv) **Intelligence:** Intelligence is an aptitude for acquiring knowledge. This aptitude is acquired both by exercise and information. The objective of imparting information is fulfilled through subjects as we have already discussed. The aptitude for acquiring knowledge can be developed by giving direction to curiosity that is the foundation of intellectual life.

vi) Curiosity about general propositions shows a higher level of intelligence than curiosity about particular facts. Curiosity must be associated with the habits of observation, belief in the possibility of knowledge, patience and industry. These things will develop naturally with proper intellectual education. Open-mindedness and co-operation develops with the development of intelligence.

All the above values can create a society with ideal characters. These qualities cannot be imparted through books. It is where the personality of teacher is important. Emotions are contiguous in character. These values automatically pass from the teacher to a disciple if a teacher practice these values and sincerely works for their cultivation without making his disciples consciously aware of the exercise.

There is one more thing that we often hear of, i.e. discipline. Discipline and order are important. But it depends more on our aim. Dewey says, "If you have the end in view of forty or fifty children learning certain set lessons, to be recited to a teacher, your discipline must be devoted to securing that result. But if the end in view is the development of a spirit of social cooperation and community life, the discipline must grow out of and be relative to it". In Dewey's views, school classroom is just like a busy workshop where there is no silence, there is a certain disorder, confusion, bustle that results from activity. Deeper and wider discipline, Dewey added, lies in constructive work directed towards a purpose.

3.6 OTHER SUBJECT TEACHING

3.6.1 Physical Education

Physical education completes the education together with education for knowledge and education of values. Sport activities at this age fulfill two purposes: inculcation of values and fullness of growth. Being part of a team and working for a common aim naturally instills co-operation. Budding powers of children find a full bloom through physical movements. Physical education is not only about sports it is about health and hygiene also: inculcating good habits, personal cleanliness and how to safeguard oneself from common diseases.

3.6.2 Teaching for Pleasure

Dance and music are two recommended activities that are good for body and training for the aesthetic sense, besides being a great pleasure to children. "Collective dance is a form of co-operation that young children easily appreciate" (Russell). Singing should begin a little later than dancing because its rudiments are more difficult than dancing and because it does not give muscular delight like dancing. After nursery rhymes, they should learn beautiful songs. But more difficult singing should be reserved for older children and it should not be enforced.

3.6.3 Educational Excursion

Educational excursions or trips are meant to make children familiar about their surroundings, about processes involved in creating and producing the things that they use. How do they get things they eat? For this they need to know about agriculture. Teaching from books will never be complete until children see the process themselves. Stories about printing will be helpful only when they see the process. It is true about everything in their surrounding: from historical places to libraries; forests to fields, from villages to cities and so on. If the knowledge is imparted first through words and then children get an opportunity to see and experience, there will be the possibility that all the natural curiosity about the things to be learned has been lost. Words at this stage are still difficult to tell the children all the colors of life that they have before them. Small trips to nearby places will help a lot to maintain their curiosity and kindle their willingness to learn more. Dewey discussed an example of a child for whom it was very difficult to believe that the river Mississippi taught in the class is the same river that he sees everyday in his way to school. This difficulty can be related in conceptualising all that is in the books. If trips are not possible for certain topics, cinema and pictures can compensate for this.

3.7 LET US SUM UP

Middle childhood is the time for shaping children's abilities, giving proper direction to their curiosities and instincts, making them strong emotionally and intellectual. Children's mind is prepared to learn new skills, taking responsibilities and habits of observation. All these goals can be accomplished through schooling. Schooling is the process of preparing young minds for future life so that they can live a healthy, happy and useful life. The teacher is important for children at this stage. A teacher like an artist sets the notes of children's mental and emotional life perfectly. He acts like a leader who knows what decisions are going to be important for children. On the whole, in an efficient teacher's hands, the process of schooling prepare the child successfully for further specialised education.

3.8 UNIT END QUESTIONS

1) What should be aims of schooling in middle childhood?
2) What are the basic school skills that children acquire during middle childhood?
3) What subjects should be taught to the children at the ages between 6 to 12 years. Elaborate your answer with examples.
4) Write an essay on the contribution of schooling in the development of children. Contrast between ideal and practical state of affairs.
5) Write short notes on the following:

   (i) Educational excursion (ii) teaching for pleasure
6) What do you mean by value education. Do you think that we need it now more than ever? In what ways do you recommend value education can be imparted?

3.9 GLOSSARY

Schooling : the process of development of abilities by explicit instruction. The concept of schooling refers to the institutionalised nurturance of children's abilities through education.

Social instinct : natural urge in children expressed through conversation, personal intercourse and communication.

Language instinct : the simplest form of the social expression of the child. Language instinct provides the greatest of all educational resources.

Constructive instinct : the instinct of making. Expressed first in play, in movement, gesture, and make believe and later becomes more definite, seeks outlet in shaping materials into tangible forms.

Investigation instinct : the child has not much instinct for abstract inquiry. It grows out of the combination of the constructive impulse with the conversational.

Intelligence : refers to both actual knowledge and receptivity to knowledge.

Value education : education aimed at the development of ideal character.

3.10 SUGGESTED READINGS

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3.11 ANSWERS TO SELF ASSESSMENT QUESTIONS

1) d) specialised subjects should be taught, 2) a) Expressive instinct 3) c) Investigation instinct

Endnotes

[1] Greenfield, P. M. (1984) Mind and Media: the effects of television, video games and computers. Cambridge, MA: Harvard University Press.

UNIT 4 IDENTIFICATION OF PROBLEMS IN SCHOOL CHILDREN AND REMEDIAL MEASURES

Structure

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4.0 INTRODUCTION

Schooling, we discussed in the previous unit, is the process whereby society provides its younger members means to live a cultured and happy life. Schooling as a formal institution contributes by intellectually, emotionally, socially and physically transforming children as responsible citizens and individuals. It systematically nurtures their curiosity and by teaching basics gives them a desire to learn more. This desire to learn more differentiates an educated from an uneducated. But all the children may not learn equally. The individual differences exist among them, we all know. But the degree of individual differences may be such which makes it mandatory to provide individualised educational program to facilitate learning. There exists a group of children for whom

it is difficult to learn like an average children of the same age. Such children are called 'exceptional children' or 'children with special needs'. Education of these children is called 'special education'. The exceptionality may be positive or negative. On the one end of it we have 'gifted children' and on the other extreme we have 'children with learning disabilities' and other impairments. Children at both the ends find it difficult to adjust in their group in terms of learning or socially and emotionally. For an educator, it is important to find out the type of difficulty a child is facing. Early recognition of the problems and timely remedial measures could help the child in benefiting from the whole learning process.

In this unit, we will discuss problems in school children and what diagnostic and remedial measures should be taken by an educator to maximise the learning output of children with difficulties.

4.1 OBJECTIVES

After reading this unit, you will be able to:

- define Exceptional children
- describe children with physical handicaps and perceptual difficulties (blind and deaf);
- define Attention deficit and hyperactive children;
- describe Mentally retarded children;
- explain Diagnostic and remedial measures by educators; and
- analyse the issue of Integrated education and mainstreaming.

4.2 EXCEPTIONAL CHILDREN

Kirk (1972: 4)[1] defines an exceptional child as, "child who deviates from the average or normal child (1) in mental characteristics, (2) in sensory abilities, (3) in neuromuscular or physical characteristics, (4) in social or emotional behaviour, (5) in communication abilities, or (6) in multiple handicaps to such an extant that he requires a modification of school practices, or special education services, in order to develop to his maximum capacity".

From the above definition we come to know that

Exceptional children can not profit from the regular school program. Special methods and materials are required to teach them.

The exceptionality may be due to problems in vision, hearing, perceptual-motor, movement related, communication, intelligence, socio-emotional.

Exceptionality has a positive dimension (gifted or talented children) and a negative dimension (handicapped, learning disability, behavioural problems etc.).

There is another group of children referred as *children at risk*. Such children have no learning disability, but they are at a risk to develop it later. The risk factor may be caused by conditions during birth, nurturing, or environment. This group includes students experiencing learning, socialisation and maturational difficulties and difficulties in general classroom.

Special education is defined as individualised educational instruction designed to meet the unique educational and related needs of students with disabilities.

Special education is provided for the following groups of students:

Group A	**Group B**
1) Learning disabled	Gifted and talented
2) Speech or language impaired	
3) Mentally Retarded	
4) Emotionally or behaviourally disturbed	
5) Physically impaired	
6) Autistic	
7) Deaf-Blind	
8) Traumatic brain disordered	
9) Severely Multiple handicapped	

Self Assessment Questions 1

Choose the right sentence

1) Special educational programs will be required for
   a) Children with learning disabilities
   b) Physically impaired children
   c) Emotionally and behaviourally impaired children
   d) All of the above
2) Exceptional children are those who
   a) Can profit from the regular school program
   b) Can not profit from the regular school program and the deviations can be positive or negative
   c) Only those who deviate positively from the average same age group children
   d) Only those who deviate negatively from the average same age children
3) An educator should aim at
   a) Discouraging individual differences
   b) Carefully observing the degree and kind of individual differences and designing individual program to suit the needs of children
   c) Only b
   d) Both a and b

4.3 LEARNING DISABILITIES (LD)

Pioneering work to define the nature and causation of the concept learning disability is credited to William Cruickshank in 1950s and 1960s. Samuel Kirk, in 1968, officially sanctioned the term *specific learning disability*.

Learning disability (Reber and Reber, 2001: 391) is "a syndrome found in children of normal or above intelligence characterised by specific difficulties in learning to read (dylexia), to write (dysgraphia) and to do grade appropriate mathematics (dyscalculia)".

LD children may show following characteristics (learning disability is often abbreviated as LD):

- LD is a chronic condition of probable neurological origin
- It varies in its manifestation and severity
- It influences individual's self-concept
- It primarily excludes other disability categories
- An untreated or poorly treated LD can have adverse effects on educational, vocational, social and activities of daily living.
- LD can also be defined as one or more significant defects in essential learning processes.

4.3.1 Characteristics of LD Children

The characteristics of the learning disabled children are:

- LD is a mixed group of disorders.
- Learning disability may transcend the school setting and persist in adulthood
- LD children are normal in intellectual functioning. LD mainly lies in their way of learning and in their perceptual systems.
- Behavioural problems are not initial components of their behaviour, they may feel frustrated due to the gap in learning but they might show emotional problems.
- Boys are more likely to be characterised as LD than girls.
- LD may range from mild to severe. Some student may be passive or inactive, and other may show higher level of physical activity than other students.
- Students may show problem in one area not in the other.
- Delay in developmental milestones.

Behaviour and affective characteristics: hyperactivity or hypoactivity, act impulsively, may overreact with intense and surprising emotions which affect their social adjustment.

Disorders of attention: LD children show problems in sustaining attention (the ability to focus on information), easily distracted, have short attention span

Perceptual motor impairment: Students with learning disabilities often experience poor auditory and/ visual discrimination. They may show problems in directional orientation. They tend to be awkward, clumsy and uncoordinated. They often have poor handwriting.

Disorders of memory and thinking: problems in short or long term memory (acquiring and recalling information) and in metacognition. Metacognition is an ability to monitor and evaluate one's actions. Organising, categorising, arranging and planning will not be adequate.

Specific academic problems (especially in linguistic and calculation skills): LD children are often several years behind their peers in reading, comprehension, fluency and spelling, experience word, letter, number and sound reversals. *Dyslexia* is characterised by serious reading problems. LD students may have problems identifying words and understanding what they read. Oral and written language difficulties compound reading problems. Written language problems include poor handwriting, spelling, sentence structure, and composition skills. These students may have problems in recalling math facts, writing numbers legibly, learning arithmetic concepts and abstract math reasoning.

Disorders of speech and learning speech sounds: may repeat sounds, stumble over words and have halting speech; difficulties in understanding pragmatic aspects of language and also show word finding difficulties

Some central nervous system signs or irregularities

It should however be kept in mind that (i) all LD students do not share all the above characteristics; (ii) some of the above characteristics may be found in students who do not show LD.

4.3.2 Causes of LD

Environmental model holds poor learning environment, unstable families, disadvantaged environments and faulty school instruction responsible for LD. This model is important because improvement of LD according to this model lies in the change in environment: proper schooling and removal of unhealthy influences.

Brain Damage model suggests that 20 percent of students with LD have sustained brain damage or neurological damage. The term minimal brain dysfunction is often used because of the lack of proper neurological causes. It is assumed that the child may have experienced injury to central nervous system during birth or before birth.

Organic and Biological Model suggests that chemicals used in food coloring and flavoring substances, imbalances in neurotransmitters and vitamin deficiency (especially B complex) could cause LD. Developmental or maturation unpreparedness for certain tasks is also believed to underlie some LDs.

Genetic Model suggests an inherited genetic influence may be cause reading and language problems. More research is required to discover the relationship between genetic inheritance and specific LD.

The causes of LD may be embedded in the child as well as in the environment and may be complicated by organic, genetic or biological anomalies.

4.3.3 Identification Process of LD

Early detection or screening is dependent on early observation of behavioural and learning characteristics by class teacher who should possess the knowledge of the symptoms and characteristics of specific learning problems.

A multidisciplinary team including class teacher, school psychologist and other clinical personnel must determine the degree of disability.

Measurements of achievement by teacher made tests, curriculum-based measurement and standardised test is highly recommended. The following tests are used for the assessment and identification of LD:

Wechsler Intelligence Scale for Children-III (WISC-III) for the assessment of cognitive abilities (Wechsler, 1993)[2].

Woodcock-Johnson Psycho-Educational Battery-Revised (WJ-III) for the assessment of achievement in reading, writing and mathematics by age and grade level (Woodcock & Mather, 1989)[3].

Brigance Diagnostic Inventory of Basic Skills for the assessment of a variety of skill sequences in readiness, reading, language arts and math (Brigance, 1983)[4].

4.3.4 Remedial Programs for LD

Individualised teaching program is required so that the child may get specific instruction in the areas of specific need, like reading, writing or math. Following methods are used as special techniques to teach the children with special needs:

Direct Instruction: This is a highly structured and organised teaching strategy which is started after the analysis of learning problems with specific learning tasks. It is carried on in steps with clear goals to be achieved at each step. Feedback and corrections are used and are shown to affect children's participation and performance positively. Together with DI, *cognitive instruction* is also used. CI emphasises attending, responding, rehearsing, recalling and transferring information.

Multisensory instructional strategies highlight learning by seeing, hearing, touching and movement.

Study skill training or meta-cognitive skills assist students in learning how to take notes and tests, prepare compositions, and remember to bring necessary materials.

Social skill training is used to help children in getting along with peers and adults in various settings and circumstances.

Inclusion strategies are the provisions by state and national authorities that students with learning disabilities should be educated with nondisabled students of their age. Additional instructional resources can be used for children with LD while teaching them in a general classroom. Teachers should make effort to adopt such methods as to enhance the understanding and participation of LD children with other children.

Peer mediated instruction and *computer assisted instruction* are the other methods used. For all these methods to be adequately implemented, it is extremely important that the classroom teacher and school psychologist should be sensitive to the problems and needs of such children and provide appropriate educational settings to LD children.

Self Assessment Questions 2

1) Write the specific learning difficulties that the following terms denote:

   a) dyslexia

   b) dysgraphia

   c) dyscalculia

2) Assertion (R): LD is defined as one or more significant defects in essential learning processes.

Reason (R): LD children are normal in intellectual functioning. LD mainly lies in their way of learning and in their perceptual systems.

a) Both A and R are true and R is correct reason for A.

.....

.....

b) Both A and R are true. R is not a correct reason for A.

.....

.....

c) A is true. R is wrong.

.....

.....

d) A is wrong. R is true.

.....

.....

3) State whether true or false

a) Students may show problem in one area not in the other.

.....

b) LD is a chronic condition of probable neurological origin.

.....

c) WISC-III is used for the assessment of writing and mathematics.

.....

d) Inclusion strategy should not be emphasised by an educator.

.....

4.4 MENTAL RETARDATION (MR)

A child who scores below 70 on a standardised IQ test and have significant difficulties adapting to his environment is considered mentally retarded. Classification of MR is based on severity: mild, moderate, severe and profound.

The concept of mental retardation "is based purely on IQ test scores; no judgments are made about origins or causes, about emotional, motivational, social or familial factors, or about prognosis" (Reber & Reber, 2001: 430). The terms like educable mentally retarded and trainable mentally retarded are based on the causation of MR.

Causes are divided into two broad categories: physical and cultural/familial causes. Physical causes include genetic and chromosomal disorders and brain damage that occurred prenatally (due to disease, malnutrition, drug exposure), during birth, or

postnatally (due to accident or illness). Almost all cases of severe and profound mental retardation have physical causes. Cultural familial causes are more insidious. The child with cultural familial retardation shows no brain damage but may come from deprived environments and from environments that have dysfunctional elements.

Persons with retardation are unable to make adequate degree of adjustments to many life circumstances because of their limited intellectual and adaptive capacities.

4.4.1 Identification Process MR children

Two types of assessments are required for children to be identified as retarded: intelligence and adaptive behaviours. A student may not be labeled on the basis of one test. Comprehensive testing includes observation of behaviour by teacher, curriculum based assessments, interviewing and standardised tests.

Some of the widely used intelligence tests are: the Stanford-Binet Intelligence Scale (Thorndike, Hagen & Sattler, 1986)[5], The Revised Wechsler Intelligence Scale for Children –III, The Kaufman Assessment Battery for Children (K-ABC)[6]

Checklist are used to assess adaptive behaviour. Some frequently used checklists are:

The Vineland Adaptive Behaviour Scale[7]: questions in this checklist are related to age appropriate self-help, locomotion, communication, occupation, socialisation and self-direction skills.

The Adaptive Behaviour Scale-Public School Version (ABS-PS): This scale is an outgrowth of a project begun in 1965 by Parsons State Hospital and the American Association on Mental Retardation to develop a measure of adaptive behaviour to be used for patients with disabilities. It was revised in 1974 by Lambert in order to use it public school children (Lambert, Mihira & Leland, 1993)[8]. Using class teacher as informant, this test measures: independent functioning, physical development, economic activity, language development, economic activity, language development, numbers and time, vocational activity, self-direction, responsibility and socialisation are included in Part I. Part II measures violent and destructive behaviour, antisocial behaviour, rebellious behaviour, withdrawal, stereotyped behaviour, odd mannerisms, inappropriate interpersonal manners, unacceptable vocal habits, unacceptable tendencies, hyperactive tendencies, psychological disturbances and medication use.

4.4.2 Remedial Measures for MR

Services for children with mental retardation begin with *early intervention programs* that focus on providing guidance for families. *Preschool programs* focus on school readiness and socialisation activities. *Regular classroom programs* for mild and moderate retardation provide individualised academic and other functional programs and interaction with nondisabled peers. *Resource room programs* are provided for remedial help to some students. *Self-contained classroom program* is provided to moderate and severely retarded children as a segregated classroom. The programs focus on age appropriate and developmentally appropriate skills.

The curriculum can be designed to meet the needs of children and should be organised around the behaviours and information needed for adequate functioning. It should also accommodate traditional subjects, such as reading, arithmetic, science, health and other subjects to facilitate proper adjustments. *Full inclusion programs* and *individualised education programs* are both used together to give better results.

Behaviour therapy programs are used to decrease disruptive and inappropriate behaviours and emotional disturbances. Behaviour modification techniques help students to attend the learning tasks, maintain attention and shape new learning behaviours.

4.4.3 Effective Teaching Strategies

i) A teacher can use same instructional programs can be used for retarded children as used for non-retarded, but they may require more time and effort to learn.

ii) The focus of the curriculum should be on functional tasks. For instance, functional reading may include signs for one student and sections of newspaper for another.

iii) The teacher must have the knowledge of each student's ability so that programs could be designed to meet their individual needs.

iv) The teacher must structure learning situation and reduce distractions.

v) The teacher must present material clearly, sequentially and with positive reinforcement for correct responses.

vi) In case of incorrect responses, the teacher should encourage the student to make further effort and reevaluate the program whether it is appropriate for the student.

4.5 ATTENTION DEFICIT/HYPERACTIVITY DISORDER

Attention-deficit hyperactivity disorder or ADHD is the term used to describe children whose ability to learn and profit from new experiences is impaired by their distractibility, impulsiveness, lack of concentration, restlessness, inappropriate talking and lack of regard for inappropriate situations (DSM-III-R, 1987).

ADHD children can be inattentive or hyperactive-impulsive. Following symptoms characterise a inattentive child:

- Fail to close attention to details leading to careless mistake.
- Having difficulty sustaining attention to tasks or to play activities.
- Having difficulty in listening what is being said.
- Having difficulty following through and completing homework assignments.
- Having difficulty in organising tasks.
- Avoiding tasks that require strenuous activity.
- Losing materials that are necessary for the tasks they need to complete.
- Easily distracted by extraneous activity.
- Forgetting schedules for daily activities.
- Hyperactive-impulsive children display excessive energy and are restless and agitated. They may show the following behaviours:
- Fidgets and squirms in seat
- Leaves desk or seat in the classroom at inappropriate times

- Runs or climbs in situations when it is inappropriate
- Avoids engaging in quiet leisure activities
- Talks excessively
- Blurts out answers impulsively, often before the question has been completed
- Displays difficulty waiting in lines and taking turns
- Butts into conversations or other people's games, interrupting and intruding on others.

These symptoms must be persistent and extreme to the extent that the student cannot function adequately.

There is no agreement between professionals regarding the etiology of ADHD. It is viewed as a result of medical disorder rather than a pure behavioural problem. The neurological causes may be related to the structure of the brain, chemical imbalances, some functions of the brain or combination of these and other factors. Poor diet and poor parenting may underlie the disorder.

Following is one sequence for assessment and identification:

- Administering and collecting rating scales from relevant persons
- Orienting the family and the student to the evaluation
- Interviewing the student
- Administering standardised tests, such as IQ, achievement and continuous performance
- Conducting direct observations in several settings including school, community and home if possible.
- Interviewing the parents
- Conducting a medical evaluation
- Integrating all the data
- Giving feedback and recommendations to the team
- Programs for treatment and education of children with ADHD.

Medical management: involvement of a physician who determines whether or not medication may be effective for controlling hyperactivity.

Psychological counseling helps the student understand and cope with ADHD and the negative effects that often result even before the problem is recognised. It is most effective when the child's family is also involved.

The arrangement of the environment (classroom or school) in a manner that enhances the is student's success. Teachers need to permit students to move when necessary and work where they can most effectively.

Educational planning accomplished most effectively by multidisciplinary team. Individualised education programs are designed to address the needs of the students with ADHD.

Behaviour management instruction helps the child recognise behaviours that interfere with normal functioning. Behaviour modification techniques are used to encourage and organise activities appropriate in a situation.

Self Assessment Questions

1) Write four strategies used to identify problems of students.

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2) What is the difference between inattentive and hyperactive impulsive children?

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3) What do you understand by individualised educational programs?

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4) What help can be taken from computer assisted instruction for children with various disabilities. Would you recommend it for all the students without discrimination?

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4.6 ORTHOPEDICALLY HANDICAPPED

Many muscle and bone disabilities in childhood create problems of adjustment in school and may also affect their education achievement.

Cerebral Palsy (CP) Palsy refers to the lack of muscle control and cerebral denotes brain.

Cerebral palsy is a disorder that affects movement and posture as a result of damage to those areas of brain that control movement. The brain injury, usually caused by oxygen deprivation, can occur prior to birth, during birth or soon after birth. Cerebral palsy is not a disease. It does not become progressively worse, nor is it infectious in any form. It is not hereditary. There are three types of cerebral palsy depending on which areas of are affected:

Spastic: hypertonic form, characterised by stiff, tense, and poorly coordinated movements

Athetoid: low tone form, characterised by purposeless uncontrolled involuntary movements and contorted purposeful movements.

Ataxic: characterised by balance problems, poor depth perception, and poor fine and gross motor skills.

Mixed types of symptoms can also occur.

The problems associated with poor movement and balance skills may complicate educational activities. They may also show sensory and communication problems.

Other physical ailments are brain injury, poliomyelitis, muscular dystrophy, and multiple sclerosis.

Together with regular medication and health check ups these children may also need specialised instructional help and some technical equipment to assist them. But a teacher's effective strategies will be more required as the students live a stressful life due to the ailments. A teacher should take care of the following:

i) The teacher should be familiar to the condition of the student. The information can be obtained from the parents or the student. Without adequate knowledge of the student's condition, strategies and programs will be difficult to be planned.

ii) Permit the use of computers, calculators, watches that have database, recorders and other equipment that will facilitate learning.

iii) Organise the furniture and other objects in the rooms so that the students with extra equipment (wheelchair, standing board, computers etc.) can move with ease.

iv) Pace the lessons so that the student with a physical disability can have a rest time between lessons.

v) Ensure that the student understands the directions well.

vi) Have the student do assignments that are necessary, if he miss the school. Do not give him extra drill and practice.

vii) Counselor or the mental health professionals can be approached for an advice. Teacher should support the student learn and should avoid making complaints to family.

4.7 HEARING AND VISUAL IMPAIRMENTS

A small percentage of school children do not hear or see well. Some children are born blind or deaf while other sustain injuries or illness/infections that affect their vision or hearing. The detection of mild to moderate sensory impairment is challenging. It often goes unheeded and the child may be misdiagnosed as mentally retarded.

Hearing loss is much common than blindness. The most severely affected area of development for a person who is hearing impaired is the comprehension and use of oral language. Hearing impaired child will not develop language without extensive training. It is difficulty to measure such children on intellectual abilities which further makes it complicated to design an educational program for them. Five basic educational options are available to students with learning impairment:

i) Full time placement in a regular classroom

ii) Part time placement in a regular classroom and part time placement in a special educational classroom

iii) Special class placement in a regular school

iv) Separate day school placement

v) Separate residential school placement.

Academic curriculum for the hearing impaired may be same as the hearing students. Teachers can use specific methods to teach them. But, for one reason curriculum may not be the same for such students as they might have started their formal later than the normal students. The educational approaches for hearing impaired significantly than normal hearing children. Oral / aural approaches emphasise oral language as a means to transfer information. For the students who are hard of hearing oral language is used and amplification in the form of hearing aids and other sensitive amplification devices are employed. Students are encouraged to use their voices when they speak. Manual approaches rely more exclusively on sign language and non-oral means to communicate information to students. The use of sign languages as a means of instruction is currently being preferred in all educational programs for hearing impaired. Audio-verbal training is also provided to students to make better use of their residual hearing. Many students with hearing impairments have more auditory potential than they actually use. Speech reading, cued speech, sign language, finger spelling and total communication are the approaches used. Technical devices like cochlear implants, computers and assistive communication devices will also prove greatly beneficial. Teachers after choosing appropriate methods, approaches and technical assistive devices, should keep in mind that

i) If interpreter is used, the general lesson will be discussed with the interpreter before delivery in the class.

ii) Face the student when speaking; don't speak when facing the blackboard.

iii) Use videotapes and films with captioning

iv) If using sign language, wear clothing that contrasts with you skin colour.

v) Have a system in place for identifying cues in schools that are only conveyed by sounds, such as bells, fire alarms and intercom announcements.

vi) Be aware of the extraneous noises in the classroom that can be distracting for the students with hearing aids.

vii) Allow the students to move freely about the class room so that they can speech-read from other students as well as the teacher.

viii) Make sure that the classroom is well lit with the light on your face not behind you.

The most important task for educators is to develop methods to determine which approach may be more suitable to provide the student the best educational opportunity to learn. So far, it has been observed that some students become frustrated with oral instruction while other students may develop some oral skills with this approach.

4.7.1 Visual Impairments

The blind students have severely impaired vision. They must be taught to read by Braille. Partially sighted can use magnifying glass to read print or they can use books with larger prints.

Following needs in various areas for visually impaired children have been identified:

Needs of students with visual impairments

Concept Development and academic skills Maximum use of vision, determination of learning mode, academic support, listening skills, organisation and study skills,	**Communication skills** Handwriting, use of Braille writer, use of slate and stylus, use of word processors, use of adaptive equipment, note taking skills
Social/emotional skills Knowledge of self, knowledge of human sexuality, knowledge of others, interaction skills	**Sensory motor skills** Development of gross motor skills, fine motor skills, identification of textures tactually and underfoot, identification of kinesthetic sources, identification of olfactory sources
Orientation and mobility skills Development of body image, concrete environment, spatial concepts, directional concepts, traffic control, use of long cane, public interaction skills, independent travel in a variety of environments	**Daily living skills** Personal hygiene, eating, dressing, clothing care, money identification and management, use of telephone, time and calendar activities, knowledge and use of community services
Career and vocational skills Awareness of works people do, awareness of works that visually impaired can do, laws related to employment, work experience	

4.7.2 Role of the Teachers

i) Teachers should eliminate the clutter in the classroom so that the students can move without hurdles. Make tactile map of the classroom, school and other places so that the student will know how to easily move through the areas.

ii) Allow the student with visual impairment to use a computer with a speech synthesizer. Braille printer may be useful for proof reading.

iii) Teacher should learn some braille. Students do not spell words in letter to letter correspondence with English.

iv) Other students can read assignments for visually impaired that are not available in Braille. Audio tapes can also be prepared for such assignments.

v) Recognise that some vocabulary words men nothing to a person who has never seen them.

vi) If the student has some vision, use large print with lots of contrasts such as black letters on yellow paper.

4.8 GIFTED AND TALENTED CHILDREN

Lewis Terman (1925), in a classic study on the development of intelligence, followed the development of more than 1500 children who scored genius range of intelligence. From his findings and others, an agreed on definition of giftedness has evolved. Gifted children are those who demonstrate achievement or potential in any of the following areas, singly or in combination:

i) General intellectual ability (high IQ or achievement test scores)

ii) Specific academic aptitude (excellence in certain subject areas such as mathematics or science)

iii) Creative or productive thinking (the ability to discover new things and find new alternatives, the ability to look at life in new ways)

iv) Leadership ability (the ability to help solve problems)

v) Visual or performing arts (talents in art, music, dance, drama and related disciplines)

vi) Psychomotor ability (excellence in sports).

Gifted children come from all levels of society, all races and all ethnic groups. Gifted children process information differently than non-gifted children. Options for educating gifted children include early admission to school, acceleration and enrichment.

Some gifted children may have trouble in social adjustment and may also show emotional disturbances. They may also feel boredom with regular curriculum. High development rates may be perceived by other children as showoff.

If the talent of some gifted children is not nurtured and developed through guidance and enrichment, it will be a great loss to society as well as the individual who might have a successful and happy life otherwise.

Enrichment is an attempt to broaden a child's knowledge by a variety of methods. It refers to the attempts made by the teacher within the classroom setting to add depth, detail and challenges to the curriculum for students at a given age. Special activities may be provided like independent study with advanced text or independent small projects. To be successful enrichment activities need a purpose and specified outcomes. These activities should be well planned and organised keeping in view the talent of the student and his maturity level; otherwise these will be boring and useless to the children.

4.8.1 Role of the Teacher

i) Teacher should readily provide resource materials like reference books and computers.

ii) Allow students to express their interests in the subject being taught in the class

iii) Students who have done extra research on subjects should be allowed to display it to others.

iv) Divergent thinkers should be allowed to speak and add to the class discussion. Then guide them to find more information.

v) Guests speakers may be called on t speak on a subject of particular interest

vi) Praise and encourage novel ideas and ways of completing assignments

vii) Student may be allowed to go to advanced classes, when the subject of his interest has been taught, where he had already excelled by self-study.

viii) Arrange the reading materials in the libraries to be used by the students

ix) Provide training to the artistic talents like music and painting or other arts.

x) Ensure that the gifted and talented student has a firm grasp of the core material as well as the enrichment curricula.

4.9 INTEGRATION

During the past few centuries, schooling and educating the exceptional children have seen a movement of inclusion the children with problems (physical, behavioural, social, perceptual, learning or intellectual) in the same classroom and school settings with their peers. Integration is a process of providing equal opportunities to all the children by equalising and mainstreaming, thus eradicating the pain caused by exclusion. The assumption behind the integrated schooling is that of the refining instructional procedures to such a limit that they can be made suitable to each and every student's needs. Secondly, while exceptional children learn and are educated with the normal children, their needs may be fulfilled by individualised instruction programs, providing the equipments and materials as per their requirements. The teacher must be sensitive to the abilities and disabilities of children and trained to attend various problems in school children.

4.10 LET US SUM UP

In this unit, we discussed about the problems that may be faced during school years. Schooling a process of imparting knowledge, sharpening cognitive tools and shaping a person socially and emotionally. But we know that the process of learning is not the same to all the children. Some children learn slowly and some learn very fast. Both the groups on the extreme are included in the exceptional children. We discussed children with learning disabilities, visual and hearing impairments, attention and hyperactivity disorders, orthopedically handicapped children and mental retardation. Apart from these, there are children with emotional and social disturbances and language, speech and communication disorder. Gifted children represent the small group of talented children who strongly need enrichment activities so that their talents could be nurtured.

All the impairments interfere with the normal educational achievement and social adjustment. A teacher's role is important in diagnosis, and more than that, in designing individualised instructional programs. Care must be taken not to generalise and misdiagnose any condition. Schooling deals directly with the most sophisticated thing in the world, i.e., the human mind. So every activity, inch by inch, should be well planned and organised.

4.11 UNIT END QUESTIONS

1) What do you mean by learning disability? What are the instructional procedures used for students with learning diability?

2) What is cerebral palsy? What kind of instructional scheme could be followed for the student who finds it difficult to read and write?

3) What do you mean by mental retardation? How MR children can be integrated into a normal school? What would be specific things that a teacher should take care of?

4) What is ADHD? Write an essay explaining the specific programs for such children in school and in families.

5) How societies on the whole can be made responsible to take care of children and to provide all the children equal opportunities to grow, develop and learn?

6) How could inclusion programs benefit students with hearing and visually impaired children?

7) What kind of enrichment programs can be designed to benefit gifted and talented children?

8) Write short notes on the following:

a) Enrichment, b) Integration, c) Special Education

4.12 GLOSSARY

Exceptional children : children who deviate from the average or normal child in mental characteristics, sensory abilities, neuromuscular or physical characteristics, social or emotional behaviour, in communication abilities, or in multiple handicaps to such an extant that he requires a modification of school practices or special education services, in order to develop to his maximum capacity.

Special education : individualised educational instruction designed to meet the unique educational and related needs of students with disabilities.

Learning disability : found in children of normal or above intelligence characterised by specific difficulties in learning to read (dylexia), to write (dysgraphia) and to do grade appropriate mathematics (dyscalculia).

Mentally retarded : A child who scores below 70 on a standardised IQ test and have significant difficulties adapting to his environment is considered mentally retarded.

Attention-deficit hyperactivity disorder (ADHD) : children whose ability to learn and profit from new experiences is impaired by their distractibility, impulsiveness, lack of concentration, restlessness, inappropriate talking and lack of regard for inappropriate situations.

Enrichment : an attempt to broaden a child's knowledge by a variety of methods. It refers to the attempts made by the teacher within the classroom setting to add depth, detail and challenges to the curriculum for students at a given age.

Integration : a process of providing equal opportunities to all the children by equalising and mainstreaming, thus eradicating the pain caused by exclusion.

4.13 SUGGESTEDREADINGS

Dash, M. (2005). *Education of Exceptional Children.* New Delhi: Atlantic Publishers & Distributors.

Hallahan, D. P., Kaufman, J. M. & Lloyd, J. W. (1985). *Introduction to Learning Disabilities.* Second Edition. Englewood Cliffs NJ: Prentice Hall, Inc.

Reber, A. S. & Reber, E. (2001). *The Penguin Dictionary of Psychology*. Third Edition. Penguin Books

Skinner, C.E. (ed.) (2001). *Educational Psychology*. Fourth Edition. New Delhi: Prentice Hall of India.

A Teacher's Handbook on IED (1988), NCERT, New Delhi.

4.14 ANSWERS TO SELF ASSESSMENT QUESTIONS

SAQ 1: 1) d, 2) b, 3) c.

SAQ 2: 2) a, 3) True, True, False, False

Endnotes

1 Kirk, S. A. (1972). Educating Special Children (2nd Ed.). Boston: Houghton Mifflin.

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3 Woodcock, R. W. & Mather, N. (1989). The Woodcock-Johnson psycho-educational Battery-revised. Allen, TX: DLM Teaching Resources.

4 Brigance, A. (1983). Brigance Diagnostic Inventory of Basic Skills. North Billerica, MA: Curriculum Associates.

5 Thorndike, R. L., Hagen, E. P., Sattler, J. M. (1986). Technical Manual: The Standford-Binet Intelligence Scale (4th ed.). Chicago: Riverside.

6 Kaufman, A. & Kaufman, N. (1983). Kaufman Assessment Battery for Children, interpreting manual. Circle Pine, MN: American Guidance Service.

7 Sparrow, S. S., Balla, D. A. & Cuccheti, D. V. (1984). Vineland adaptive behaviour scales: Interview edition, survey form manual. Circle Pines, MN: American Guidance Service.

8 Lambert, N. K., Mihira, K., & Leland, H. (1993). Adaptive Behaviour Scale-School (2nd ed.). Austin, TX: PRO-ED.