CHAPTER – I
INTRODUCTION

1.1 CONCEPTUAL FRAMEWORK

Mental retardation has been known for a considerable length of time and distinctive terms have been utilized to identify it. In the twentieth century, the terms moron, Imbecile, and Idiot clarified the three levels of retardation. Amid the 1940s the term feeble-minded was utilized. As of late terms like 'mental sub normality' and 'developmental disability' are being utilized.

Until the twentieth century, retardation was characterized as a person's powerlessness to meet the significant demands of society. In 1905, Alfred Binet built up a strategy for recognizing students who could be relied upon to flop in the consistent school educational programs and who in this way required an uncommon instructional program, which was deciphered and utilized in the USA by Henry Herbert Goddard. Terman's 1916 version of the Standard Binet Intelligence Scale was immediately adopted as a standardized, objective, norm referenced method for recognizing retarded kids. IQ turned into a standard for categorizing of mental retardation. But, David Wechsler, who conceived a progression of intelligence tests, warned against the inflexible utilization of intelligence test scores as the sole criterion for diagnosing retardation.

The Mental Deficiency Act of 1921 in England considered “Mental defectiveness as a condition of arrested or incomplete development of mind existing before the age of eighteen years, whether arising from inherent causes or induced by disease or injury.”

Reference book Britanica characterizes mental deficiency as “A state of subnormal evaluation of the human organism in consequence of which the individual

affected is incapable of assuming the responsibilities expected of a socially adequate person, such as self-direction, self-support and social participation." Sarason and Dorris (1969) characterized, "Mental retardation refers to individuals who for temporary or long standing reasons function intellectually below the average of their peer groups, but social adequacy is not in question or if it is in question, there is little likelihood that the individual can learn to function independently and adequately in the community."

All these definitions were common at various times and in various countries. But, none of them could sufficiently clarify mental retardation. The attributes brought up by various creators are likewise inconsequential to each other. Hence, the American Association of Mental Deficiency (AAMD) set up a board under the Chairmanship of Rick Heber to build up a thorough meaning of mental retardation. Heber characterized mental retardation as "significantly sub-average general functioning existing concurrently with deficits in adaptive behavior and manifested during the developmental period" (Heber, 1959).

This definition was along these lines repeated as: "Mental retardation refers to significantly sub-average general intellectual functioning, resulting in or associated with, concurrent impairments in adaptive behaviour and manifested during the developmental period." This definition has three angles:

a. Sub-average Intelligence Functioning,
b. Developmental in Origin,
c. Impairment in Adaptive Behaviour.

A standard Intelligence test is administered to survey the IQ of children. On the off chance that the IQ falls beneath at least two standard deviation from the ordinary them the child has sub normal intelligence. In Stanford-Binet and Wechsler tests the IQ focuses are individually 68 and 70. The low intelligence shows amid the initial 18 years

of life, and the children who classified as mentally retarded should likewise demonstrate weakness in adaptive behaviour. Adaptive behaviour is characterized as "the effectiveness of degree with which an individual meets the standards of personal independence and social responsibility expected for an age and cultural group" (Grossman, 1977). Adaptive behaviour implies social change which fluctuates from basic self-improvement aptitudes to that of individual social alteration in adulthood. These are resolved on the premise of scores on an Adaptive Behaviour scale created by the AAMD Vineland Social Maturity Scale, or Adaptive Behaviour Inventory of children.

Adaptive Behaviour alludes to the adequacy of the individual or how much a man meets the standards of individual freedom and social duty expected of his age and social group. Desires contrast for various ages. Deficiencies are reflected in earliest stages and preschool years in the territories of sensorimotor skills, communication skills, self-help skills, and early socialization skills. In early school and teen age years, adaptive behaviour deficiencies are reflected in academic skills, activities of daily living, the utilization of suitable reasoning and judgment in mastery of the environment, and the utilization of social skills. In teenagers and adulthood, adaptive behaviour deficits might be reflected in any of the skills referred to for more youthful people or social obligations and performance, or vocational activities.

1.2 CAUSES FOR MENTAL RETARDATION

Mental Retardation happens because of hereditary and environmental factors which become an integral factor at pre-natal, perinatal and postnatal phases of advancement.

1.2.1 Hereditary

One of the most observable conditions related with mental retardation is Down's syndrome. Down, in 1865, was the first to utilize the term Mongolian idiocy to name a specific type of mental retardation, now alluded to as mongolism or Down's syndrome? Down's syndrome contains the non-sex deciding chromosome. Chromosomal abnormality clarifies many types of mental disorder. In non-dysjunction Down's syndrome one pair of genes neglects to isolate at origination, bringing about an additional or 47th chromosome after forty-six known as Tirsomy-21. The substance of the kid has palpebral fissures that are slanted and limited along the side, dotted iris, evenness of the nose connect, developed tongue, little ears, and short and wide neck. Other common abnormalities are flattening of the occiput, broad hands with the little finger bended, short broad feet with a wide space between the first and second toes, pelvic abnormalities, and hereditary heart abnormalities in very nearly 25% of patients. Intellectual development is impaired (IQ 25-69).

Whatever the IQ esteem, it appears to be protected to state that Trisomy-21 kids won't have the capacity to appreciate an autonomous life, regardless of the possibility that some of them achieve marginal intelligence. Mongolism or Down's syndrome is because of the nearness of three sorts of chromosomes and a standard trisomy-21 (95% of all cases); with normal mosaics, with 46 chromosomes/trisomy-21 (two three for every penny), and with translocations (a few for every penny). In spite of the fact that it is not realized that the causes are, a nearby relationship between maternal age and trisomy 21 has been repeatedly demonstrated.

These youngsters require additional care. Parental help is an essential need to guarantee that baby incitement programs underlining self-help skills, language acquisition, feeding, latrine preparing, and positive socialization, are given. People with

Down's syndrome are educable and ought to have presentation to their non-handicapped companions from their initial years. Previously, professionals prompted guardians to put their Down's syndrome individual in 24-hour institutional care in light of the false presumption that individual with Down's syndrome would be severely or profoundly retarded. Custodial care is at times justified unless serious medical, psychological or social difficulties.

The best broad improvement is found in scope with Down's syndrome if they are raised at home and very much animated. Ideal achievement happens when offices are sure and preparing starts early and is thorough.

Translocation is common. It happens as a result of defective cell division in which one chromosome is appended to another. In Mosaicism, the cell gets an additional twenty first chromosome, yet there are less abnormality in this type of Down's Syndrome.

1.2.2 Turner's Syndrome

Turner's Syndrome comes about because of the nonappearance of an X-chromosome in the female (XO). Learning problem are typically observed, including retarded hearing. Treatment incorporates utilization of female hormones to create female sex qualities. Klinefelter's Syndrome is found in male because of the presence of an extra X-chromosome (XXY) and a chromosome count of 47. The male usually creates female qualities. Mental retardation because of this factor stays inside the moderate range.

1.2.3 Inherent Defects

Microcephaly and Hydrocephaly are two sorts of disorders which include cranial and inherent deformities. These are of obscure starting point and they exist before birth. Essential microcephaly is acquired while auxiliary microcephaly is gained.

On account of essential microcephaly the brain tissue is immature in relation to size of the head. Retardation ranges from mild to severe. Overproduction or under retention of cerebrospinal fluid is named hydrocephaly. The head is globe formed, the bridge of the nose is flat and the eyes are pushed downward, and turned out to be all the more widely spated. It is not inherited. Surgery is related to counteract additional disorder. Hydrocephaly, if not controlled, will lead profound.

Microcephaly is one cranial disorder which can have both hereditary and environmental causes. In such cases mental retardation ranges from moderate to severe.

1.2.4 Metabolic and Nutritional Disorders

Galactosemia is a carbohydrate problem which is transmitted hereditarily. In such cases, the babies neglect to use the galactose in milk. Unless the youngster is placed on a low lactose diet, mental retardation sets in. Additionally when the body neglects to change phenylalaline into tyrosine, it leads to phenylketonuria (PKU). PKU which can be distinguished effortlessly be pee culture of blood examination.

1.2.5 Phenylketonuria (PKU)

Phenylketonuria (PKU) is one of the biochemical abnormalities related with mental retardation. It was first noted in 1934 that few institutions retardates passed urine with a peculiear "mousy" odour. This was found to emerge from the discharge of phenylacetic acid. PKU results from the nonappearance of the enzyme phenylalnine bydroxylase, which normally changes over phenylalnine, a basic amino acid common to most proteins and numerous different foods, into tyrosine and its constituent parts. High level of phenylalnine harm creating brain tissue. Since brain harm is irreversible, permanent and severe mental retardation is an anticipated result.

It is an autosomal latent inborn mistake. In the event that the disorder is undiagnosed and untreated, dynamic brain damage starts. Until the 1950s, prognosis was poor; most influenced people has IQs of around 30 were institutionalized.

Neonatal screening utilizing urine test is currently widespread. Guthrie test is currently utilized, which uncovers overabundance phenylalanine through a blood test from 24 to 48 hours after birth. If PKU is analyzed, the newborn child is set on a low phenylalanine abstain and should from food. Dietary treatment must start within a couple of days of birth for maximal effectiveness. Grown-up IQ of people early treated PKU is around 90; IQ becomes lower with postponement of treatment so that around three years, maximal harm has happened.

The issues may turn out to be more severe when PKU is not treated. Pregnant women transmit unmetabolized phenylalanine to their foetuses and embryos at the basic pre-natal period causing antagonistic impacts on mental health. A common suggestion now is for women with PKU to keep a low caloric eating regimen all through their child bearing period. The most secure recommendation for women with PKU is not to have children. Low protein abstinence from food goes about as a counteractive action of such problem. Hypothyroidism or Cretinism is a common disorder leading low IQ. Utilization of Thyroxin can decrease Cretinism.

1.2.6 Gestational Factors

Gestational disorders like untimely birth also cause mental retardation. Indeed, even post development births are unsafe as due to extra growth, there are unfavourable impacts on the brain of the infant. Severe environmental hardship, exceptional sensory handicaps (deafness and visual impairment) add to retarded development. Numerous handicaps, for example, epilepsy, and cerebral paralysis also represent some level of

retardation. After birth the child can contract diseases, for example, meningitis and encephalitis which can also bring about retardation.

1.2.7 Lead Poisoning

Lead is found in the soil, water and environment. It happens more often in the natural atmosphere than other substantial metals. Lead is one of few metals that appear to have dangerous impacts. It can enter the body through one's eating regimen, eating of toxic paint, and introduction to a situation containing a high lead content. Foundries, metal works, battery industrial facilities, printing operations, and different plants have appeared to expand the measure of lead in the encompassing condition. Today most casualties of lead harming are babies and little children who are probably going to take palatable items into their mouths. Normal wellsprings of lead harming are lead paints in the good dividers, furniture, lodging rails, toys, battery cases, which the baby licks up, or biting of lead pencils and so on. The side effects of lead harming are dealt with by utilizing prescriptions and by keeping up a sound eating routine. Lead free condition is to be guaranteed. Anticipation is most important since it leads permanent harm of the brain. Medication manhandling, lead harming, and mercury harming all leads to brain damage.

1.2.8 Rubella

Rubella (German measles) is a viral disease. The postnatal rubella infection is transmitted through contract with blood, body squander discharges, nasopharyngeal emissions of infected people, and their attire. People are the main known hosts for the rubella infection. Almost 20 to 30% possibility of harm to the embryo happens when a mother gets the contamination amid the primary trimester of pregnancy. These were first announced by Sir Norman Gregg, an Australian ophthalmologist, 1941. The innate rubella syndrome as depicted by Gregg comprises of fetal oddities, visual deformities,

and hearing disability. Mental retardation is a common consequence of early harm to the hatchling. The infection is exchanged from the mother's blood to the placenta and then enters into the fetal circulatory system. It is evident that the prior in the pregnancy the mother gets the viral disease, the more inescapable the harm to the baby.

Anticipation seems to be the key to decreasing the effect of innate rubella, as there is little expectation of switching the impacts. Obviously, restorative surgery can be performed in situations where the embryo endures heart damage or has cataracts, and hearing aid can be given to the hearing-impaired child, however damage is not reversible.

Vaccination systems, for example, expansive measurements of gamma globulin have appeared to be insufficient in forestalling damage to the embryo once the mother has gotten the infection. Chemotherapeutic methodology additionally has demonstrated deficient as insurance against the devasting impacts of innate rubella.

1.2.9 Infection and Intoxication

Amid the pre-birth period the hatchling is susceptible to harm from maternal infection and intoxication. Inside the initial three months of pregnancy, the mother's contamination of rubella can prompt serious inconveniences, for example, mental retardation, heart issue, seizures etc. Around 85 percent of rubella babies experience the ill effects of these sorts of sicknesses. Consistent moderate intake of liquor can likewise create these inadequacies. Mental retardation happens because of innate syphilis, despite the fact that syphilis can be controlled. Postnatal infection caused by viruses, bacteria, parasites and fungi may likewise prompt mental retardation. Toxic agents harm the embryo.

1.2.10 Mother-fetal blood group incompatibility

Mother-fetal blood group incompatibility can prompt death and spontaneous abortion. This is hereditary. These are of two categories.

i. ABO incompatibility

ABO incompatibility concerns the blood of the mother and fetal blood groups. If the mother's and embryo's blood groups (A, B, AB, and O) are diverse, different issues can follow. ABO contradiction happens with second and later pregnancies. In any case, if the mother has O-type blood and hatchling has A-type blood, inconsistency can even happen in first pregnancy. Once bilirubin is created and it can cause brain damage unless distinguished and controlled. If there should be an occurrence of high bilirubin, the child can be put under direct sunlight that will reduce the abundance of bilirubin in the blood.

ii. RH-contradiction

If the mother conveys Rh-negative blood she is regulated RhoGam inside 72 hours after birth of an Rh positive child, later practice demonstrates that RhoGam can be managed periodically amid pregnancy.

1.2.11 X-ray, Birth Injuries and Trauma

Contact to X-ray in the early months of pregnancy, utilizing unsafe medications, particularly those utilized medicines as a treatment of cancer, antiepileptic medications and hormones can harm the developing baby. Untreated convulsions of the mother, and accidents from falls resulting in damage to the stomach can harm the developing baby and prompt mental retardation.

Pre-natal, perinatal, and postnatal damage can cause injury. Mechanical damage or birth wounds can cause brain damage. Anoxia i.e., absence of oxygen, is likewise

accountable for mental retardation. Postnatal anoxia is caused by stun and respiratory troubles. The degree of brain damage amid birth will decide the level of retardation.

1.2.12 Brain Disease

Neurofibromatosis and Tuberous sclerosis are two cases of gross brain disease. Neurofibromatosis is innate and is characterized by caramel spots on the skin, and tumours in the brain and nervous system. Tuberous scelorsis is cheeks. This is inherited. Its treatment comprises of expulsion of tumours wherever conceivable and utilization of anticonvulsants if there should arise an occurrence of seizures.

1.2.13 Deprivation

Low Socio Economic Status (SES) through poor dialect condition, huge number of kids in the family, Emotional distress of mother amid pregnancy, and nourishing inadequacies of the mother amid pregnancy, cause disability in academic functioning. Environmental impacts clarify by for the highest number of cases for which no etiological grouping is given. Counteractive action centers upon the improvement of the ruined condition and the arrangement of brilliant instructive and social services.

1.2.14 Preventive Measures

It follows from the causes that specific preventive measures can be taken. These are:

a. Early screening and detection.
b. Vaccination against rubella.
c. Surgical treatment to correct hydrocephaly.
d. Amniocentosis to identify chromosomal deviations in the embryo i.e., blood examination.
e. Use of medications to control the impact of child illness. Urine test for metabolic disorder: PKU, Galactosemia.

f. Blood transfusion of children with Rh-factor and immunization of Rh-sensitized moms.
g. Laws that forbid the utilization of toxic paint on infant toys and furniture.
h. Dietary treatment of PKU and galactosemia.
i. Improved

1.3 IDENTIFICATION

How to know who is truly mentally retarded? In spite of the discussion over the idea of IQ, IQ keeps on to be a criterion identification of retardation and its classification. The idea of adaptive behaviour is likewise utilized as a part of characterization and identification. It refers to the effectiveness with which an individual adapts to the regular and social demands of his environment. There are some indications perceptible in these kids.

Behavioral Signs

Certain behavioral signs give a sign of the presence of mental retardation among children. These can be seen by teacher and guardians.

a. General academic retardation characterized by slow rate of learning, poor problem thinking skills, slow reaction to environmental demands.
b. Poor memory, failure to hold things mentally for long time.
c. Difficulty in creating ideas, particularly unique ideas. Nonappearance of clarity.
d. Inability to attain generalization and see common components among various occasions.
e. Slow dialect development, more often the dialect is limited as far as vocabulary and assortment.
f. Below average in imagination and inventive ideas.

g. Inability to postpone delight and fulfilment by prompt reward.

h. Short attention to focus and prejudice of frustration.

i. Limited play and social interests.

j. Lack of concentration, uplifted distractibility and insufficiency for understanding.

k. Lack of coordination in self-help skills (sucking, biting, eating, utilization of hands, legs, fingers, and so forth.).

l. Some have physical components like small or large head, little eyes, straight hair, fissured tongue, low set ears, and short stature, physical disfigurements and loss of motion of one or more limbs.

m. In instance of school going child there are repeated disappointments and failure to adapt to the lessons.

1.4 CLASSIFICATION OF MENTAL RETARDATION

There are some strategies for characterization of mental retardation. The medical classification depends on the reason, the psychological classification on the level of I.Q., and the educational classification on the present level of functioning of the mentally retarded individual/tyke. The proportion of children who fall under the different classifications of mental retardation are shown in figure 1.1.

The different categories give an understanding of the level at which the mentally retarded person's capacities are as for his education, behaviour and the level of his independence. The characteristics of mentally retarded people vary depending on the level of retardation, country, age, culture etc. The terms presently used to describe the different level of mental retardation are mild, moderate, severe and profound.

Sr. No.	Medical	Educational	Psychological	
			Wechsler	Standford Binet
1	Infections and Intoxications	1. Educable-IQ 60-85	1.Mil IQ 55-69	IQ-52-67
2	Trauma or physical agent	2. Trainable-IQ 30-59	2.Moderate IQ 40-54	IQ-36-51
3	Metabolism or Nutrition	3. Custodial-IQ Below 30	3.Severe IQ 25-39	IQ-20-35
4	Grossbrain disease (post natal)		4. Profound IQ Below 25	Below 20
5	Unknown prenatal influence			
6	Chromosomal anomaly			
7	Gestational disorder			
8	Environmental influence			

Figure 1.1: Classification of Mental Retardation

1.5 PSYCHO-EDUCATIONAL CHARACTERISTICS

1.5.1 Learning and Memory

Mildly retarded children have poor learning capacity and they forget things rapidly. They have a slow rate of responding. Thus, learning difficulty in the mildly retarded can be partly come by backing off the rate of presentation. Pictorial presentation of materials has facilitatory impact on memory. Sen and Sen (1969a) showed pictures on two events with a gap of one month. Memory enhanced when larger quantities of pictures were shown. Sen and Sen (1969b) in an experimental examination attempted to conclude the impact of earlier learning on subsequent learning in MR. The outcomes revealed that a higher level of earlier learning prompted a positive move in the learning of the second list. Repeated learning enhances memory in the mentally retarded. They are poor in short term memory. Mentally retarded children have practice

deficiency. If they are taught practice procedures, they enhance in memory. Presentation of materials utilizing concrete object enhance both learning and memory followed by pictorial and symbolic material presentation.

Das (1965) found that the retarded had longer response time. The retardates were observed to be more complex than normal child to evaluative verbal stimuli like "great" and "bad". Retardates could name colour faster than they could read words, and indicated generally less interference than normal in naming the colour of words. Intelligence level among the retarded was identified with the capacity to get and recognize verbal molded reactions. The mildly retarded students experienced absence of maintained and investigative consideration. In the expressions of Zeaman and House (1963) they have attention deficit. Inability to take care to facts is responsible for poor learning. These kids have low edge for disappointment and they credit their inability to external sources.

They learn better under circumstances of tangible and prompt reward, and they can't defer satisfaction. Non unexpected endorsement and consideration also enhances their learning. They have poor focus and limited attention spans.

If these are the features they show, then what is to be done to help them? Due to their slow rate of adapting, mentally retarded children require more broadened times of exercises for academic preparation. There is a need to build up their thinking capacity. Primary school teachers need to underline manipulation of concrete objects. Varied experience should be given to upgrade their inventive forces. The motto for them should be "learning by doing". The objectives of learning ought to be changed in accordance with a basic level because of the slow rate of learning, the requirement for more redundancy, and the mastery of less material.

Examples of visual separation training would be:

a. Matching pictures, patterns on the floor,
b. Circling every one of the "a" s or 'b's on a printed page,
c. Having students match lower case and capitalized letters,
d. Having students find hidden objects in pictures,
e. Having students reproduce block designs/pictures.

Auditory segregation training would comprise of:

a. Identifying the voices of schoolmates,
b. Making students differentiate sounds in the wake of tuning in to rhymes.

Learning and Memory Training would include:

a. Asking children to compose words on little strip of paper; then cutting the words into syllables, stirring up the pieces and requesting that they recreate the words.
b. Distributing a few cards with arithmetical problem and some with answers randomly among students in the class, then requesting student to move from their seats to somewhere else in the room and read the problem on their cards. Then the children with the right answers should convey their cards to the child with the problem.
c. Making kids pick the right letters the teacher names from a mixed group of letters.
d. Demonstrating the idea of collaboration by directing a three-legged race.
e. Making students form two lines of unequal length to represent long and short ideas.
f. Developing comprehension of sequence: giving a few students sentence strips, each containing a historical fact or an occasion in a story. The students must

then physically arrenge themselves in the order in which the occasions happened.

Mentally retarded youngsters experience problem with memory. To make an interpretation of short term storage and long term storage the instructor needs to: (1) Involve the child in doing certain exercises, (2) Asking him to move, and verbalize a number line rather than simply verbalizing, (3) Asking him to set an objective before taking part in an assignment, (4) Giving a reward dependent upon effective fulfilment of an task, (5) Presenting material in shifting tones as opposed to utilizing a repetitive example of introduction.

Learned materials can be made more significant by giving examples. Material turns out to be more relevent when it is identified with past knowledge and experience. For example,

a. Have students close their eyes and frame a mental picture or photo of the traits of a word, or frame a mental picture connecting a word with involvement.
b. Use verbalization to relate facts. Ex: Columbus cruised in the blue sea in 1492.
c. Describe an occasion in the students' own particular words as opposed to repeating the occasion precisely as introduced in the book or in your own words.
d. Use drill and overlearning for most school learning. Practice ought to be dispersed over some stretch of time, with more incessant repetition in the initial stages. Practice should proceed until the point when students can recover the data effortlessly.
e. Recognize an pattern. See the likeness in the names Ram and Sham. Notice if all building numbers on one side of the road are even or odd. Improve mental symbolism. Utilize colour, size, and shape in visual presentation. Utilize

variety in sound-related presentation. Utilize chunking (reiteration of units or syllables). Utilize Rehearsal. Have students vocalize or repeat the data to themselves during training. Request students to compose, duplicate or follow the material to be learned.

Instructional techniques can be utilized by the teacher amid teaching learning process in case of mildly mentally retarded children.

a. Use material that matches the developmental level of the student.
b. Limit the length of the learning task to a extent comparable with the understudy's capacity to focus.
c. Present the task in small, consecutive steps.
d. Introduce a couple of components of an idea in any one period.
e. Early learning ought to bring success experience.
f. Present ideas utilizing concrete materials.
g. Provide distributed practice.
h. Provide for exchange of learning by showing a similar idea in an assortment of settings.
i. Present learning tasks that are valuable, in real life, circumstances.

Effective instructional techniques in arithmetic ought to use the following principles. They ought to be organized, developmental and successive, concrete, in short sections with restricted changes between steps, monotonous and reasonable. The major difficulties experienced in teaching math to mildly retarded students are their low levels of abstraction and their level of reading.

Different practices that will encourage the learning of arithmetic by mildly retarded students are utilizing reliable dialect, routine arrangements, and colour coding. Reliable dialect averts confusion. For example, "times", "multiply", and "find the

product" are some of terms one may use to clarify an augmentation problem. It is best to utilize a similar term until the point that students have a careful understanding of the procedure. Diverse dialects would then be able to be matched with what was previously utilized, for example, 12 times 11 can be restated as 11 duplicated by 12.

1.6 INTERVENTIONS

One of the major trend in the instruction of mentally challenged children has been the addition of educational services for the EMR. The impetus for this started in the summer of 1965 when the Head Start program was presented by the office of Economic Opportunity in the USA. The Head start program was initially meant to profit the financially denied children. However, it profitted a bigger number of EMR too.
The part of the intervention program in bringing cognitive, affective and psychomotor changes will be managed here under four principle:

a. Preschool intervention
b. School intervention: special class/special school
c. Post school adjustment
d. Mainstreaming/integration in Regular School.

1.6.1 Preschool

Blatt and Garfunkel (1967) studied the effect of non-automated responsive environment on the intellectual and social skill of EMR kids. Moreover they also planned to see whether preschool intervention would decrease the occurrence of intellectual and academic deficit. 59 preschool students having Mean IQ 77 were allocated to two year preschool intervention programs i.e. E1 preschool intervention in cognitive and affective processes; E2 preschool intervention with responsive environment, and C. at home control. The experimental group gained 7 IQ focuses over the ones at home, however the gains did not continue after the program was stopped.

Weikart (1967) described the result of longitudinal study on the efficacy of the preschool programe designed to compensate for the cultured deprivation.
Increment in IQ was not steady over a period of time even though increase in IQ was seen for the experimental group. Similar was the case of dialect ability. But in arithmetic, reading and language skill, and personal-social adjustment significant gains were taken noticed.

Hodges, McCandles and Spicker (1966) evaluated the effectiveness of a diagnostic curriculum to remedy cognitive, affective and motoric deficit among culturally denied children having low IQ and endeavored to enhance the progressive deficits. 142 psychosocially denied child, with IQs between 50-58 were selected for the investigation over a three year time span at first. The three groups of children were devided into Experimental, Kindergarten and Contrast at home control (AHC), with Mean IQs of 73.57, 75.27 and 74.18 respectively. The experimental group got an organized educational programs to remedy the particular shortages of individual children in areas of language and motor development, concept formation, and socialization. The Kindergarten group got the traditional school educational programs and the at home control group did not get any training. The experimental group had significantly higher IQ that the KG and AHC group, and the KG assemble was higher in IQ than the AHC group. Yet following two years of school entrance the differences were washed out. Language capacity scores had similar fate. Accomplishment in the first grade had been diverse significantly in case of experimental group. Individual social adjustment scores kept on being better for the experimental children.

The experimental group exhibited higher fine motor capability than the KG and AHC group. However, it can be expressed that, huge IQ gains can be made with intellectually subnormal children and the increases can be proceeded if the program is

long term. Modification and accomplishment gains noticing in the intervention program. Hence, whether preschool programs are necessary or not needs to be deliberately inspected before the costly projects are presented on a massive scale.

1.6.2 School Interventions: Special Education

The ordinary answer for the issues of retarded children in the public schools has been the making of special classes in which the special needs of these students are fulfilled by professionally trained teachers. Impeded children put in the regular classes or integrated classrooms perform better in standardized accomplishment tests. Special class students got higher positions in personal social adjustment compared to with their associates in the regular classroom. This may emerge out of placements differences i.e., good retarded children placed in regular classes and the dull among them sent to special classes.

In Illinois, Goldstein, Moss and Jordan (1965) sensibly planned an examination to stay away from the draw backs of past investigations. Children with an IQ of 85 were tried for a long time in their separate classes on IQ, achievement, social knowledge, parental perception, and relationship with neighborhood peers, response to success and disappointment encounters and productive thinking. The discoveries demonstrated that both special class and regular class students picked up in IQ to a similar degree. There was no significant distinction in achievement, however special class kids demonstrated less interest for interfacing with their neighborhood peers, than those in unique classes. Subsequently, special classes don't appear to be supported as far as cost, preparing of educators, hardware, and so forth are concern.

Studies announced by Jordan (1960) and Johnson (1961) on socio metric index of retarded children demonstrated that students with lower IQ feel more rejected and

are brought down in social status than their brighter peers in the special class a similar example that exists in the standard class. The major part of studies appear:

a. There is positive relationship amongst intelligence and peer acceptance.
b. Retarded children in special classes are more frequently positively picked by their companions than retarded children in the general evaluations when socio metric measures are utilized.
c. Retarded children who are isolated from their brighter peers have an altogether poorer self-concept.

Teaching reading and arithmetic to EMR students has also been explored. However no broad approach has been prescribed. For example, if a child is aurally disposed, he benefits from the phonic approach. If he is visually inclined he may benefit from a visual approach i.e., customized materials. In so far as arithmetic achievement is concerned it is recommended that arithmetical understanding is to be produced than mere arithmetical manipulation of symbols. Preparing in dialect capacity has just been talked about in this section. It can be said that group dialect improvement programs utilized deliberately do create critical dialect picks up.

Retarded children speak to a group that is heterogeneous concerning particular capacities, motivational patterns, learning styles and techniques and social histories. Subsequently, any genuine attempts to evoke most extreme achievement from a given child while getting advantage from what is thought about retarded kids generally, should reinforce such application with an knowledge of the particular child response pattern and performance level.

Further, the instructors should not to have negative anticipation as consequence of the level 'Mentally Retarded'. They ought to spur these children with reward, friendship, consideration, endorsement and acceptance. These children experience the

ill effects of a shroud of inadequacy highlighted in Edgerton's "The Cloak of Incompetence: Stigma in the life of the retarded", 1967. All the children studied in this book, had a miserable story to tell. In making arrangements for the education and training of mentally retardates due thought must be given to their motivation and need patterns and projects must be built in the appropriate directions.

In addition to, legitimate inspiration may also be accommodated making progress in school. This should be possible by tolerating the children, by rewarding them when they succeed, and by giving them social obligation and leadership role. The classroom of the mild retarded children should also be bigger than the normal classroom. It should contain high-interest, low vocabulary reading material along with games of therapeutic value. Craftsmanship and specialties can be utilized for self-expression. Home and family life education may also be incorporated into the educational programs. Guardians and educators need to utilize social reinforcement with these kids.

Their language is so ineffectively built up that improved language choices are recommended. These youngsters might be urged to talk during field trips, supper time, and to depict what they do at various circumstances.

1.6.3 Post School Adjustment

Post school line up studies with EMR students have been directed primarily to exhibit that such people lose their way of life as retardates, becoming economically independent and as socially satisfactory individuals from society once they progress toward becoming adults. A couple of these investigations were directed to exhibit that special education services were instrumental in helping the EMR accomplish fruitful grown-up alterations in untalented and semiskilled occupations. However, these effective changes appear to happen regardless of whether the individual had gotten his

instruction in special or regular classes. The real factor recognized to date, which appears to influence post school adjustment, is the length of spent time in school with those dropping out ahead of schedule (AT CA 15 or 16) is less ready to make an effective grown-up alteration. However, as per the long haul follow-up investigation of Baller, Charles, and Miller (1966), even these people in the end wind up noticeably effective individuals from society when contrasted to intellectually normal adults of tantamount financial class.

Post school studies with TMR adults have for the most part discovered that around 66% of these people have stayed in the society, and that the other 33% had either died or been set in a residential institution. Of those staying at home, roughly 30% worked for pay, and around 75% had learned satisfactory self-care skills and had created adequate social abilities to get along unsupervised in their prompt neighborhood. Again, these fulfillments appeared to be irrelevant to whether they got or did not get unique instructive administrations.

1.6.4 The Role of the Resource Teacher

Countless ways to deal with educating mildly retarded children in the resource room and integrated class setting have been proposed by various specialists. Among them the significant ones are which the resource room should embrace in addition to all different strategies specified at better places in this part.

a. The physiological technique for Seguin-and educational program focusing on the preparation of the senses and motor training.
b. Montessori's auto-educational framework is showing strategy in light of the presumption that training ought to be enjoyable and that students ought to decide for themselves those exercises that are best for them.

c. Piaget's approach which focuses on that youngsters learn by doing as opposed to by being instructed it proposes that kids must find coherent connections for themselves.

d. The unit strategy for Ingram-a showing technique practical knowledge and the utilization of academic subjects to real life.

e. Perceptual motor preparing an educational framework accentuating extraordinary perceptual and motor activities to fill in gaps in normal development.

1.6.5 The Role of the Regular Classroom Teacher

Mild Mental Retardation

a. Shaping and permitting suitable cooperation encounters among students with and without handicap.

b. Developing planned instructions.

c. Assessing change of states of mind among peer group and creating appropriate attitude among non-retarded students.

d. Accepting instructional duty regarding mainstreamed students. It is challenges but one must know how to meet the challenges.

e. The educator must utilize the developmental expertise preparing approach in sequencing skill training, attention training, consideration preparing, rehearsal training, figuring out how to learn, and instrumental improvement. He should attempt to simplify and show social adjustment aptitudes.

f. He must utilize cognitive strategy approach. Self-direction, problem solving, are a portion of the pertinent procedures.

Mental retardation is the most predominant type of disability in the population. This fluctuates from educable range through trainable to custodial group. The beginning

of mental retardation is hereditary in severe cases and sociocultural in mild cases. These children until were institutionalized and taught either in special schools or special classes. It is simply after 1980's mainstreaming the mildly retarded has been expanding. Different intervention strategies have been presented in various ranges of abilities. Resource room and regular classroom educator roles have been indicated and are of awesome significance in the education of mildly mentally retarded. The education and care of the severely retarded has also been expressed.

1.7 COMPUTER ASSISTED INSTRUCTION (CAI)

Computer Assisted Instruction and Computer aided learning are two sides of a similar coin. Instructions, lessons, syllabus and every single such thing composed made or intended to be passed on to the student using computers is known as Computer Assisted Instruction or CAI. The utilization of these instructions using computers by the student is known as Computer Aided Learning. The quality and quantum of advantage the student can get from the same is directly related to with the quality and content of the CAI.

Computer Managed Instruction and Computer overseen learning are identified with the utilization of computers in overseeing instruction and learning. This would involve utilization of computers for administration of Educational records and so on.
As indicated by Burke (1982), CMI is "the methodical control of instruction by computer. It is portrayed by testing, demonstrative learning, remedy and record keeping". Leib (1982) has given a more broad definition. As per him, "CMI Includes all utilizations of the computer help to the teacher in instructional administration without really doing the educating".

CAI does not intend to prepare students how to work computers. It implies the students will take the assistance of the computers in their learning. Thus, the primary

state of utilizing CAI system is that student must be computer educated. As a result of this constraint, CAI is effectively utilized as a part of those nations where computer proficiency is at a satisfactory level. In a country like India, where computer education is under 2%, this innovation is just at the experimental stage.

The second reason why this framework is not yet famous in India is that a large percentage of teachers in India are not completely familiar with computer innovation, which is a major motivation behind why they can't good CAI Lessons.

Focus of CAI: To accomplish intellectual goal of learning.

Principal: The technique depends on the rule of machine on one hand and standard of modified instruction on the other. A machine includes a framework and a framework dependably experiences three principle stages-Input, Process and Output.

Purpose: The primary motivation behind the CAI Program is to give singular instructions to students keeping in view their own capacities and interests. A special device is required for this reason. This gadget ought to be adaptable as to store tremendous measures of organized information, from one perspective and then again, to give the client the selected information when he needs it. Computers satisfy these two conditions, which is the reason why they are utilized for the errand of giving instructions to students.

Consequently CAI might be characterized as the utilization of computers as a necessary piece of an instructional system in which the student is occupied with two path collaboration with the computers by means of a terminal. One more characteristics of CAI is that whatever information a student gets through CAI is efficient and at the ideal level as indicated by the necessities of students. Learning accomplished by the methods for data in this manner got is typically intensive.

Structure: Linear and branching, the two sorts of instructional projects are utilized as a part of CAI. Students are directly associated with the computer by means of instructional material. Whatever response is made by the student after studying the program is additionally recorded by the computer. On the basis of this response, the computer chooses as to which information is to be next made accessible to the student. If student's response is right, the computer likewise gives him proper input.

17.1 Steps Involved in CAI

a) Pre-Tutorial stage: The primary Purpose of this is students must accomplish the targets by utilizing a particular sort of instruction. Here, objectives of instruction are first decided and then instructional program is arranged and nourished in the computer.

b) Tutorial Phase: Its primary concentration is to choose a proper instruction and present before the student. It will also control the student's responses. The student may choose at least one than one Instruction at any given moment.

1.7.1 Instructional Modes of CAI

When a lesson is presented in a CAI, direct interaction between the student and the computer is seen. Computer makes the instructional material directly accessible to students. The student reads the lesson in the way it has been programmed in the computer and gives his response.

In the event that that response is correct, the computer gives him feedback, and if response isn't right he is given another instruction to take after. This procedure goes ahead till the finish of the lesson. The computer records the responses of different students and furthermore gives the last Evaluation of every students.

The following methods for instruction are utilized to apply a CAI program in the learning procedure:

a. Tutorial strategy: In this technique, data is displayed in small units and inquiries are asked at the end from the each unit. The computer assesses the responses of each students and gives them immediate feedback. Therefore, in this method, students are given abundant opportunities to learn by their individual capacities and speed.

b. Drill Method: In this technique, the computer shows the students through examples. Students attempt to take in the ideas through examples and recall them. If they can't take in the idea by concentrate one example, they are given another example. This drilling proceeds till the students obtain mastery over the idea or sort of issue. At the point when a correct response is given by the student, he gets reinforcement from the computer and is told to continue further.

c. Discovery Method: A problem is introduced before the student here. The computer asks that he find the answer for the problem by experimentation. Since the problem is displayed here through example, this technique depends on inductive method for teaching.

d. Play Method: In this technique, knowledge is imparted to students through recreational exercises like games. This strategy is particularly appropriate for little youngsters.

e. Problem Solving Method: Here, the computer displays the problem before the students in such a way, that they are constrained to reflect it till they reach at the solution applying reflective thinking. A few prompts are additionally given by the computer to enable a student to take care of the problem.

f. Enquiry Method: In this technique, the computer answers those inquiries of students which are as of now put away in the computer.

g. Extra Creative: Students are educated by this method to make new drawings, pictures or sketches on the screen or to compose letter on the screen in an adapted way.

1.7.3 Importance of CAI

a. It is an importance source of gathering facts and information for students and in addition teachers

b. Students are given the chance to drill with it

c. It is also useful in the process of assessment

d. It can be helpful for setting up a decent educational time-table

e. It is also valuable for looking for answers for administrative and educational problems.

f. It is also utilized for planning payrolls

g. It is extremely useful for creating different sorts of aptitudes.

1.7.4 Teacher Education and ICT

Education as we probably are aware is instrumental in confirming that future era is all around educated and skilful. Thus, the progress of any country relies on the nature of instruction offered and its practices.

Education in India had experienced different stages and phases of improvement beginning from the Guru Kul arrangement of training in the Vedic age to the new system of education in the post independent period. At all phases of development there was a worry for getting quality instruction on the down to earth angles in training.

The great Indian thinker had emphasized on building up the internal potential of people by reflecting upon the unique capability of people. Getting educated is

exclusively dependent upon the individual teacher's part to set conditions and create situations for learning.

Traditionally, the teacher used to be the total source of learning for the students. But now, many time, the teachers don't have sufficient information and knowledge to supplement the perspective of the student.

Next, as unfortunately, in light of the fact that the quality and accessibility of Education changes so significantly between areas, the training arrangement of our country often fails to convey the level of Education important to ensure good competency. Numerous Educational Institutions a limited sources for purchasing books, stationary, furniture and other classroom materials. Teachers additionally need sufficient capability and preparing to draw in their students in learning. Their lesson designs are often obsolete or irrelevant. Presently, if the teacher's scope of gathering information and knowledge are limited how you can expect enchantment and marvels from teachers and in addition students? These endanger the accessible nature of Education

Bur, now the pace of innovative revolution and rise of an information society has changed the traditional role of teacher. In present scenario, teachers need to enable their students in: how tom learn, how to grow in future, how to develop study skills, how to conduct fundamental research, how to examine, assess and get to information and furthermore how to address and dismantle unauthentic structure of knowledge and insight if need. Thus, in this period of rapid change and uncertainly there is one thing of which we can be sure teachers should adjust to change on the off chance that they are to survive and keep pace with new techniques and advances. Arguably the area of most rapid change is that of data and correspondence Technology.

The current curriculum framework 2005 as proposed by NCERT India focuses on the issues:

a. Connecting learning to life outside
b. Shifting from repetitive learning to developing information
c. Providing a wide range of experience for the general development of the child
d. Bringing adaptability in the examinations.

The teacher teachers and individual teacher should sincerely and persistently work hard toward this objective. Also, the achievement of utilization of this objective turns out to be simple by the utilization of easy to understand ICT in both the fields of children Education framework and teacher instruction framework.

ICTs offer numerous new potential outcomes for teacher Education. Utilizing ICTs as a device for the preparing of teachers is as vital as acquainting the essentials of ICT with the forthcoming teachers. ICTs bolster successful expert improvement of teachers through a normal utilization of advancements.

1.7.5 A Framework for utilizing ICTs in Teacher Education

In getting ready for infusion of ICTs into teacher preparation programs, the elements imperative to programs, the variables vital to a programme prosperity must be considered. A holistic framework proposed by the UNESCO (2002) considers the variables, e.g. cultural, educational, technological resources that are essential in arranging the joining of innovation into preserves educational modules.

These variables have been talked about below:-

'Context and Culture' recognizes the way of life and other logical variables that must be considered in imbuing innovation into teacher curriculum programs. It incorporates the utilization of innovation in culturally appropriate ways and the

improvement of regard for various societies and settings, which should be instructed and displayed by teachers.

'Leadership and Vision' are basic for the effective planning and implementation of innovation into teacher training and require both initiative and support from the organization of the teacher training institution.

'Long lasting hearing' recognizes that learning does not stop after school.

'Planning and Management of progress' is an element or subject conceived of the present context and accelerated by innovation itself. It implies the significance of cautious arranging and effective administration of the change procedure.

These elements/subjects might be understood as strategic combination of methodologies that assistance teacher teachers build up the four central abilities.

The ICT capabilities are sorted out into four groups:

"Teaching method" is centered on teacher's instructional practices and information of the educational programs and requires that they create applications inside their orders that make powerful utilization of ICTs to help and extend educating and learning.

'Collaboration and Networking' recognizes the informative capability of ICTs to expand learning past the classroom dividers and the suggestions for teacher's improvement of new learning and aptitudes. Technology carries with it new rights and duties, including equitable access to technological resources and regard for intellectual property, included inside the 'Social Issues' part of ICT ability.

Finally, 'Technical Issues' is a part of deep rooted learning topic through which teachers refresh aptitudes with equipment and programming, as new eras of innovation develop.

Different capabilities which are to be produced with respect to student teacher through ICT would be:-

i. Surfing the Internet and finding helpful data from the web for the development of lesson designs.

ii. Developing lesson plan incorporating student utilization of innovation in the learning procedure.

iii. Evaluating and choosing suitable programming for a specific subject according to student need.

iv. Generating printed documents like student assignments, bulletins etc. using an variety of utilizations programming like word preparing and desktop learning.

v. Managing student information; utilizing information administration instruments for proficiently overseeing learning.

vi. Using innovation to assemble, compose and report data about for student execution like Excel and Access for database.

vii. Developing devices to assess innovation based student ventures including multi-media, word preparing, database, spreadsheet, control point, desktop distributing and web/broadcast communications.

viii. Using the Internet to help proficient advancement including finding proficient associations, speaking with different teachers electronically and taking an interest in online expert improvement workshops and classes.

ix. Developing assignments and venture work for student; giving them more extensive and more profound learning in a field of study; creating basic considering and imbuing innovativeness among students.

1.7.6 Objectives of Using ICT in Teacher Education

"Knowledge is the most democratic source of power ", extremely righty opines Alvin Toffler.

The point of teacher instruction is to create abilities and fitting information among teacher learners for utilizing and incorporating the right innovation in a proper way. Each teacher should know how to utilize technology, pedagogy and subject area content successfully in their daily classroom teaching. Obviously just introducing innovation with the instructive procedure is insufficient. One must guarantee technological integration since innovation itself won't prompt change. Or maybe, it is the route in which teachers coordinate innovation that can possibly acquire change in the training procedure. Hence, disposition and self-productivity towards innovation assume an essential part. For teachers to end up noticeably familiar with the use of training innovation implies running past negligible fitness with the most recent devices to building up a understanding of the unpredictable web of connections among clients, advancements, practices and apparatuses. The teachers must understand their part in smart classroom. Thus, learning about innovation is essential in itself.

In techno-instructional method there are three areas of learning, in particular:

Substance, instructional method and innovation.

a. Content (C) is the topic that will be educated.
b. Technology (T) incorporates current advancements, for example, computer, Internet, computerized video and normal place innovations including overhead projectors, writing boards and books.
c. Pedagogy (P) depicts the gathered practices, forms, methodologies, technique and strategies of teaching and learning. It additionally incorporates information about the points of instruction, evaluation and student learning.

Talking honestly, innovation joining involves the understanding and negotiating of the connections among the previously mentioned three components. Good teaching is not just adding technology to the current teaching and content domain. Or maybe, the presentation of ICT causes the representation of new ideas and requires creating sensibility to the dynamic, value-based connection between each of the three parts proposed by the TPCK framework.

ICT as a guide improves the way toward learning and helps in achieving more elevated level of destinations, for example,

a. Developing the capacity in understanding fundamental computer operations and ideas.
b. Using a variety of projects to finish learning tasks.
c. Establishing aptitudes in the utilization of communication network.
d. Exhibiting abilities in the choice and utilization of technology to accumulate handle, and investigate information and planning of reports.
e. Development of fundamental information and aptitudes among teachers with the right inclination.
f. Creating interest for lifelong learning among teachers through remarkable utilities like movement, the Internet and so forth.
g. Planning and designing powerful learning situations with essential technology support.
h. Making the best utilization of technology and upgraded lessons to improve student's learning.
i. Using innovation to enhance innovativeness and expert practice.
j. Identifying helpful learning material from different courses.

k. Fashioning an atmosphere of qualities that encourage addressing, investigation, problem solving, basic leadership and group co-operation.

l. Fulfilment of the undertakings of the teacher. The teacher needs to go up against active part in building up his own checklist for assessment of learning materials and utilize it with regards to (a) the student profile, (b) the learning condition and (c) the specialized quality of the computer research facility of the organization. Also, the errands of the teacher are:-

   i. Design one's own particular agenda.

   ii. Review programming to be acquired on the World Wide Web.

   iii. Report his/her evaluation of courseware to the Principal so a purchase choice can be made.

1.7.7 Importance of ICT in Teacher Education

At present a new time has advanced in the training part by methods for ICTs. Diverse ICTs are presently set to become instrumental to help expand access to teacher education, strengthen the relevance of teacher instruction to the undeniably advanced work place and raise teacher instructive quality, helping make teaching and learning into a drawing in, active process associated with real life.

ICT plays incredible part with regards to teacher training:-

i. It imagines interest to the student teacher's eyes, ears and all the more importantly the head.

ii. ICT satisfies the necessities of student teachers by giving things and bundles of higher standard and interest.

iii. It helps in changing the meaning of education, learning and information; a definition that increasingly incorporates media digitized proficiency.

iv. Multimedia gives a sort of control over the learning condition to the student teachers and they encounter learning from their disappointments and practices.

v. ICT encourages the student teachers to have control on lesson, pace sequence, content, criticism, which thus upgrades the productivity of learning.

vi. Unlike books, it is intelligent in nature and makes inspiration and interest among student teachers thus meeting the individual extraordinary needs successfully and productively.

vii. Develops the capacity of self-learning and interfacing exclusively.

viii. ICT aides in executing ICT driven separation instruction open doors for obtaining of another learning.

Hence, ICT is a capable new advancement with goal-oriented part in teacher training, Digital and Internet based multimedia and sound changes the present trend in the field.

1.7.8 Computer Education program for Indian Schools

A pilot Project on Computer Literacy and studies in schools (CLASS) was started in 1984-85 of every 248 chose auxiliary/higher optional schools. The goal is to familiarize students and teachers with the extensive variety of computer applications and its potential as a learning medium. Sixty-one asset focuses were set up to prepare teachers and provide support to participating schools. Efforts have been made to begin an era of indigenous programming through NCERT, New Delhi. The project is together planned and upheld by the Department of Electronics, the division of Education, Computer Maintenance Corporation (CMC) and the NCERT.

Under the current game plans, CMC Ltd. is in charge of acquisition, establishment and support of the equipment in schools, while NCERT is in charge of scholarly sources of information including teacher training, and checking through 61

Resource Centers, building schools and colleges all through the country. The schools are chosen by the government in discussion with the concerned state government. In a survey undertaken by the Ministry of Human Resource Development, various deficiencies in its execution were taken note. The chief short coming were:

a. Multiplicity of offices included
b. Instruction outside school hours
c. Inadequate training of teachers and insufficiency of instructional material
d. No set educational programs.

1.8 NEED OF THE STUDY

Education goals towards getting desirable change people to encourage alterations with one's condition, it manages giving important learning experiences to the students. Since in a formal learning circumstance the final result is predefined, planning and organizing and controlling of experiences to achieve the ends is easier. However in augmentation which is require based and "flexible" in nature it ends up noticeably hard to design and execute learning experiences in 'tailor-made' form.

It is expected that the result of the present research will also be valuable to the professionals working with student trainees and teachers of children with special needs or even to parents and relatives of the child or to an institute for children having special needs in the society. These follows were constantly maintained by other researchers (e.g. Cotton and D. Mioduser at el 2000). A category of productive benefits can arise from the use of the approaches of computer assisted instruction concluded that computer-assisted instruction (CAI) approach as an intervention for low performing students or slow learner is much better than any other approach for intervention. (E. H. Kroesbergen et al, 2003). Gore, Morrison, Maas and Anderson (1989) tried to evaluate the meta analysis with regard to mathematics interventions for elementary school

children with special needs. The finding demonstrated that the CAI program was viable in enhancing essential perusing aptitudes with and without utilization of drill and practice computer program.

Education of disabled children has been accepted slowly in India, as an important activity which requires special facilities and adoption of specially prepared curricula and teaching strategies. The challenges for educators regarding teaching various concepts to children are as old as education. Various strategies have been used to teach the children with slow learner. This topic is expected to throw light on the effects of computer assisted instruction on development of motor, academic and communication skills among children with mental retardation. The finding will be useful to develop more packages to teach the concept to special children and create awareness on this in special education. Hoogeveens (1989) study was focused on testing the approaches of the techniques of individual itself and he found it to be very effective. Having interest and experience in the field of special education, the researcher felt that using the educational software in teaching and learning could be helpful for the disabled children to improve their performance according to their abilities. It is a common phenomenon that training with systematic planning enable a child to learn various skills with more efficiency and easily especially in the case of mental retardation. Very few studies are available related to implantation of ICT in special education and using educational software for improvement of various skills in the children with handicapped in India. The result of this study could be significant and likely to provide the input for charting an entirely new teaching and learning programme for the children with mental retardation. Therefore it is expectation that the findings of this study will be important and expected to provide the contribution for formulating or chartering a completely new teaching and learning programme for the mentally challenged children.

All these factors and facilitating conditions motivate the researcher to study the "***Impact of CAI on the development of Motor, Academic and Communication Skills in Children with Mental Retardation"*** Hence the present study has been undertaken.

1.9 OPERATIONAL DEFINITIONS OF THE TERMS USED

The terms used in the study have been defined as under:

Computer Assisted Instruction (CAI):

A list of simple problems/examples is stored in the computer. The learner communicates with the simplest set first and if learner responds corrects then next problem is given and the same time difficulty level increases otherwise it would help to fixed learning by repetition. Wrong answer is supplemented with the information and similar new problems are presented.

Mental Retardation (Intellectual Disabled)

"It is a disability characterized by significant limitations both in intellectual functioning and in adaptive behaviour as expressed in conceptual, social and practical adaptive skills, this disability originates before age of 18 years" **(Luckasson et al. AAMR, 2002).**

Skills

The skills are the purposeful behaviours of person in the environment and functional assessment is the measurement of such type of behavior of a person, while interacting with the environment which is interpreted according to the assessments intended use. NIMH developed FACP which covers four areas e.g. personal skill, social skill, academic skill and occupational skills.

Academic skills

In the present study, academic skills include identification of colours, receptive language, reading, concept of size etc.

Motor Skill

A motor skill is an intentional movement involving a motor or muscular component that must be learned and voluntarily produced to proficiently perform.

Communication

Communication is simply the act of transferring information from one place to another, whether this be vocally, written or visually or non-verbally.

1.10 OBJECTIVES OF THE STUDY

1. To compare the motor functioning level of experimental and control groups before training.
2. To compare the academic level of experimental and control groups before training.
3. To compare the communication level of experimental and control groups before training.
4. To compare the motor development of experimental and control groups after training.
5. To compare academic level of experimental and control groups after training.
6. To compare the communication level of experimental and control groups after training.
7. To compare the motor development of experimental group after one month of training.
8. To compare academic level of experimental group after one month of training.
9. To compare the communication level of experimental group after one month of training.

1.11 HYPOTHESES

1. There exists no significant difference between experimental and control group in motor functioning level before training.
2. There exists no significant difference between experimental and control group in academic level before training.
3. There exists no significant difference between experimental and control group in communication level before training.
4. Motor functioning level of experimental group is better than control group after training.
5. Academic level of experimental group is better than control after training.
6. Communication level of experimental group is better than control group after training.
7. Motor functioning level of experimental group in post-test-II is better than the experimental group in post-test-I.
8. Academic level of experimental group in post-test-II is better than the experimental group in post-test-I.
9. Communication level of experimental group in post-test-II is better than the experimental group in post-test-I.

1.12 DELIMITATIONS OF THE STUDY

The present study was restricted to special school of mentally challenged students of Rohtak and Mahendergarh Districts of Haryana. The study was done only in classroom setting. CAI package developed by NIMH was used in training of the sample. A small sample of 38 students with mild and moderate intellectual disability were taken for study. Teaching through computer is difficult unless the teacher and parents takes extra efforts.

1.13 SCHEME OF THE STUDY

Out of six chapters, Chapter I is Introduction, which includes need of the study, objectives, hypothesis of the study, Chapter II is devoted to the Review of the Related Literature. In Chapter III, the design of the study variables involved, sample, tools and statistical techniques have been presented. Chapter IV deals with the Analysis and Interpretation of data along with the Discussion of Result. In chapter V the Findings, Educational Implications of the study and Suggestions for Further Research have been worked out. Chapter VI is devoted to the Summary of the study.