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## **Unit 5 □ Assessment of Learning Needs of Children with VIMD**

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**Structure :**

**5.1 Introduction**

**5.2 Objectives**

**5.3 Concept and definition of VIMD**

**5.4 Etiology of VIMD**

**5.5 Impact of VIMD on learning and Development**

**5.6 Screening, Identification and Assessment of Visually Impaired Children with Associated Disabilities**

**5.7 Multi-disciplinary assessment of visually impaired children with Associated Disabilities**

**5.8 Check Your Progress**

**5.9 Let Us Sum Up**

**5.10 References**

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### **5.1 Introduction**

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When a child has several different disabilities, he/ she has multiple disabilities. The group of multiply disabled visually impaired children is a heterogeneous group. The effect of multiple disabilities can be more than the combination of two individual disabilities. The problem is that these children do not seem to suit the schools where they are placed. Because children with multiple disabilities have problems with all muscle movement, with understanding and often with seeing and hearing as well, communication is very difficult for them. The status of education of visually impaired with multiple disabilities is in the low priority. Intervention at earliest possible stages will definitely improve their developmental skills, optimize abilities and build a foundation for future learning.

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## 5.2 Objectives

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After going through this unit the learners will be able to :

- ❖ Define the concept of multiple disability .
- ❖ State the current status of education of children with multiple disability .
- ❖ Describe the challenges in teaching the multiply disabled
- ❖ Highlight the importance of early intervention for visually impaired children with multiple Concept and Definition of VIMD

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## 5.3 Concept and Definition of VIMD

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### 5.3.1 Concept

When a child has several different disabilities we say, that he/she has multiple disabilities. For example, a child may have difficulties in learning, along with controlling her movements and / or with hearing and vision. The effect of multiple disabilities can be more than the combination of two individual disabilities. Provision of educational services are needed for those children with multiple disabilities whose cognitive functions are intact whereas only rehabilitation services can be planned for those whose cognitive functions are poor. Individual assessment is imperative for planning the educational programmes for these children.

These children and youngsters are excluded from formal education due to their multiple disabilities. Sometime "exclusion" is as hard and cruel as it sounds: the school simply closes its doors for these children. However, more times the school does not know about the child before the school could get involved, others consider the situation too complicated or can not expect that the child might profit from formal education.

### 5.3.2 Definition

A visually impaired child who has two or more disabilities concurrently that together constitute the so-called multiply disabled. There are many visually impaired children with one or more additional! associated disabilities.

### Characteristics

The main characteristics of multiply disabled visually impaired children are:

- a) They are different from others and need special programmes.
- b) They face more problems than others and need some help and can be included in regular school programmes with assistance and supportive devices.

### **5.3.3 Types of Additional Disabilities**

In order to develop programmes for the multi- disabled visually impaired children we classify them into four categories on the basis of their disabling conditions:

1. Deaf blind (Visual impairment+ hearing impairment)
2. Visual impairment + hearing impairment + mental retardation
3. Visual impairment + mental retardation.
4. Visual impairment + cerebral palsy + mental retardation/ hearing/ speech problems.

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### **5.3.4 Current status of Education of Visually Impaired Children with Multiple Disabilities.**

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The concept of specialized services to- children with multiple disabilities is relatively new in our country. The few services, which we can count on our fingertips, are located mostly in urban areas and can accommodate at the most a few hundred children. Services to young babies (0-6 years) are hardly available at present. Apart from non- availability of services, there are a number of areas of concern of such children, namely:

- ❖ A large population lives in remote rural areas where even the available basic health and education services are negligible.
- ❖ While the services for such children with multiple disabilities are almost non-existent, number of such children is consistently increasing due to the advancement of medical science.
- ❖ Moreover, most of such children do not reach these centres in time as parents are pursuing curative options in the crucial six years of the child's life. So a lot of learning that could have taken place gets delayed.
- ❖ Our policy makers, administrators and planners, adopted a pragmatic approach for the meaningful education of disabled persons. Nevertheless, as compared to the western countries, we are still lagging behind in the field of education

of multiply disabled children owing to a number of problems and limited resources. Some of the reasons for lack of tangible services to these children are cited below:

- ❖ Since the visually impaired child with additional disabilities requires a specialized training which is highly individualized and need based, this necessitates a right approach and availability of highly trained, skilled and dedicated professionals in different disciplines. The availability of such manpower in India at present is inadequate due to lack of proper training facilities for educators and other supportive staff.
- ❖ The teacher preparation in the area of disability at present is mostly focusing on the single disability area. As a result there are large number of single special teachers who can teach single disability but very few of them can teach children with additional disabilities. Because of the absence of trained teachers for teaching visually impaired children with additional disabilities, this area remained low priority area for many years in our country.
- ❖ The scattered population of visually impaired children with additional disabilities is another reason for not getting services timely. The residential facilities are inevitable for these children. But such facilities are hardly available to serve these children under education.
- ❖ Another problem is that these children do not seem to suit the schools where they are placed. Often parents of visually impaired child with additional disabilities are not able to identify which disability among the disabilities present in the child is more dominant. For example, the parents are perplexed whether the visually impaired mentally retarded child can be placed in a class with sighted mentally retarded or in a school for visually impaired. Because of the confusion the parents of these children do not bring them to the educational programmes. The principle that should be followed in case of such children is that a child with a dominant condition of visual impairment should be placed in a setting suitable for visually impaired children, while where the dominant disability is Mental Retardation; he/ she should be placed in the schools for mentally retarded children.

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## **5.4 Etiology of VIMD**

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Multiple disabilities are quite multiple and diverse in nature and are found to possess more dissimilarities than the similarities or commonness observed among

them. Each of them has a different story of its causation, symptoms and challenges provided to the sufferer. It is therefore, quite difficult to name certain type of causes or causative factors responsible for the germination and perpetuation of all types of visually impaired with multiple disabilities among the children.

However we can try to have the search for all the possible situations or factors that may be held responsible for bringing some or other types of impairments or disabilities in the mind and body of the children right from the time of their conception in the womb of the mothers in the following manner.

#### **5.4.1 Factors Operating at the time of Conception (Genetic Factors)**

There may go many things at the time of conception of the child in the womb of the mother through the transfer of genes and chromosomes to the offspring by the immediate parents that may work as a cause for providing disabilities among the children. A few of them are narrated.

- Chromosomal abnormalities may bring many disabilities and disorders among the children. The most frequent chromosomal abnormality is non-disjunction (unequal division) of chromosomes, and the most common clinical consequence is down syndrome. Children with this condition have 47 chromosomes instead of the normal 46. This extra chromosome may be provided by one of the parents, mother or father. Down syndrome may also be caused by abnormal translocation of chromosome. Hence the child has 46 chromosomes, but a pair of one is broken and the broken part is fused to another chromosome.
- Non -disjunction or unequal division of sex chromosomes may also provide a cause for a number of disabilities or disorders. The most common example is Klinefelter Syndrome. The males with this syndrome are born with an extra X chromosome derived usually from the mother. Many physical and mental abnormalities may be the product of this syndrome.
- Turner's Syndrome which affects girls is caused through the chromosomal loss. Girls with Turner syndrome have only single X chromosome and no second X or Y chromosome making a total of 45 rather than 46 chromosomes. As a consequence of the syndrome, they may have visual-perceptual impairments and sterility.
- Many abnormalities occur during chromosomal deletions. The examples are **Cat Cry Syndrome** (causing the individual to have a high pitched cry and

mental retardation) **William Syndrome** (causing mental impairments and physical deficits) and VCFS (causing mental impairments) Physical defects and language disabilities.)

- In addition to the chromosomal abnormalities (extra or deleted chromosomal material) genetic disorders may also result from an abnormality in a single gene. Human genome (the set of all genes) approximately contains 1,00,000 genes. Out of this vast stock a single gene defect is quite capable of playing a primary role in about 7,000 disorders or disabilities (mckusic, 1986). These abnormalities may be passed down from one generation to the next. Examples of such single gene disorders are the formation of multiple neurofibroma tumors on the body and in the brain, Huntington disease or Fragile X-Syndrome neurological disorder), each capable of generating one or the other types of motor sensory cognitive and learning disabilities.

#### **5.4.2 Factors Operating in the Womb of the Mother (Prenatal factors)**

What goes wrong with the child during the embryologic and foetal development in the womb of his mother certainly prove a potent factor for the causation of one or the other disabilities in the child. A few of such major factors working in this direction may be outlined as follows:

- i) **Maternal Chronic illness:** It has been found that a number of maternal chronic illnesses (during pregnancy) like thyroid disease, diabetes, hypertension and autoimmune disorders may adversely affect the growth and development of the child in the womb of his mother resulting into one or the other disabilities.
- ii) **Maternal infection:** A number of maternal infections like below are known to have devastating impact on the embryologic and foetal development.
  - Rubella also called as German measles is a highly contagious virus. If contracted by a mother during the first six weeks of her pregnancy, it may become a cause of having risk to their foetus developing congenital rubella syndrome. The consequences of which may be the outcomes in the form of microcephally, mental retardation, cataract deafness and congenital heart defects.
  - Varicella (Chicken pox) caused by a DNA hyper virus is also a fatal maternal disease that adversely affects the developing foetus. Varicella infection, if contracted by a mother during the first 12 weeks of the pregnancy may cause

congenital defects in the developing foetus characterized by limb defects, scars, microcephaly, chorioretinitis and cataracts.

- Sexually Transmitted Diseases (STDs) can cause severe complications for the developing foetus. The term STD stands for more than twenty five infectious organisms that are transmitted through sexual activity.
- iii) **Maternal substance abuse:** The intake of many substances by the mothers during pregnancy may cause a number of health hazards to the developing foetus like the following.
- Many of the medications and drugs whether prescribed or non-prescribed may prove fatal to the developing foetus. As example we can name antiepileptic drugs (Used for seizure disorders). Methotrexate (used for treating cancer) and captoprial (used for treating chronic hypertension). More often, they are associated with congenital malformation such as heart defect, hearing, vision and mental retardation.
  - The intake of the substances like cocaine, heroin, marijuana and other illicit drugs by the pregnant mothers may cause high risk for the developing foetus causing foetal death, growth restriction, language disorders and emotional behavioural and attentional difficulties.
  - Maternal alcohol intake during pregnancy can have serious effect on the developing foetus. Most seriously it can result in Fotel Alcohol syndrome (FAS). The child with FAS has altered facial features, such as small head, widely spelled eyes, upturned nose, large ears and small chin, he or she will also have developmental problem such as oppositional and defiant behaviour, poor judgment and social withdrawal. Alcohol related birth defects make also one of the leading causes of mental retardation among many children.
  - Exposure to tobacco in the womb of the mother may prove quite fatal by bringing many respiratory problems, and sensory impairments to the developing foetus.
- iv) **Prenatal anoxia (oxygen deprivation):** This is resulted through a number of causes like maternal anemia, cord anomalies and the premature separation of the cord. It may be associated with a number of disability conditions like cerebral palsy, mental retardation, seizures, hearing and visual impairments and behavioural problems.

- v) **Prenatal cerebral haemorrhages:** Resulted through a number of reasons like direct trauma, blood conditions of the mother and other causes, haemorrhage may produce a number of birth defects including cerebral palsy and mental retardation.
- vi) **Prenatal exposure to radiation:** Exposure to higher doses of radiation especially from the X-rays and radioactive substances involves a higher risk of congenital malformations, miscarriage, growth restriction and sensory impairments.

#### **5.4.3 Factors operating at the Time of Birth (perinatal factors):**

There may be a number of things that may go wrong at the time of delivery causing a number of deficits and problems to the child like the following:

i) **Anoxia (Oxygen deprivation):** The newborn baby may suffer from oxygen deprivation during prolonged labour or delivery for a variety of reasons like placenta separation from the uterus breech delivery (delivering feet first) etc. it can cause cells in the brain to die resulting in serious neurological impairments and as a consequence, the child may be affected by a number of disability.

ii) **Trauma and haemorrhage:** Trauma and haemorrhage caused to newborn children during prolonged labour, sudden pressure changes, complicated delivery, caesarean delivery and mal positions may result into brain damage and neurological impairments. It may further result in various types of disability conditions.

iii) **Premature birth:** Premature birth can be source of many problems and impairments to the newborn children. Their immature systems may make them quite vulnerable to infection and other chronic diseases. Moreover the underdevelopment of the brain may prove a potent factor for the causation of cerebral palsy, mental retardation and other accompanying sensory impairments.

iv) **Prenatal infection:** The new born infants at the time of their birth may be subjected to a number of infections on account of the unhygienic conditions prevailed during delivery. It may lead to the development of many physical and mental impairments to the child. The most common infection affecting newborn at the stage may be named as varicella (Chicken pox), and cytomegalovirus (CMV). The newborn affected with CMV are found to manifest the symptoms of mental retardation, vision and hearing impairments and learning disabilities at the later stage of their life.

#### **5.4.4 Factors operating after the Birth (Post-natal factors):**

There are many factors prevalent in one's environment that may prove a potent



source of causing one or the other impairments of disabilities among the children after their birth. These may be briefly named as follows:

i) **Chronic diseases and infection:** Chronic diseases like serious respiratory problems, heart diseases brain tumors, cysts, juvenile arthritis etc. may cause serious obstacles in the path of the developing children particularly related to their adjustment and education and thus may lead them to many physical emotional, social and learning disabilities. Similarly, there are a number of infections that can cause severe impairments to their physical, mental or learning functioning. The most common are meningitis and encephalitis that may cause damage to the brain resulting into a number of disability conditions like hearing and visual impairments cerebral palsy, mental retardation, epilepsy and learning disabilities.

ii) **Accidents:** Accidents are always uninvited. These can happen to anybody at any time giving serious blows to brain, skull fractures, spinal cord injuries and loss of limbs, hearing and vision.

Thus, accidental injuries may prove a quite big source for the generation of many multiple disabilities to the children at the post-natal stage.

iii) **Radiation and Toxic agents:** Exposure to radiation and radioactive elements as well as toxic chemicals like arsenic, lead, coaltar derivatives and carbon monoxide and carbon dioxide gas may be associated with a number of a disabilities like cerebral palsy, mental retardation, eye and ear problems and learning disabilities etc.

iv) **Malnutrition:** Mothers suffering from inadequate nutrition and starvation, may bring serious difficulties to their breast fed infants and children below the critical age leading to one or the other impairments at the later stage.

v) **Child abuse:** In many cases, child abuse may be found a causative factor for generating one or the other types of disability among the children. Child abuse can result in broken bones, head trauma, spinal cord injuries, oxygen deprivation due to strangulation, severe eye and ear injuries, etc. all leading to one or the other type of physical mental and sensory impairments. Besides this, it can provide a germinating and perpetuating base for the ignition of social, emotional and behavioural problem among the abused children.

vi) **lower socio-economic status or poverty:** Poverty may be associated with a number of disabled conditions in terms of their generation as well as perpetuation. The story may well begin with the malnutrition and almost starving conditions of the pregnant mothers, the most unhygienic and uncared delivery of the children and

inadequate supply of the essentials needed for the children's early development. Lack of medical care and treatment may further aggravate the problems and the child may develop serious limitations and deficiencies in terms of his adequate physical, mental, emotional and social development ultimately making the child retarded and disabled in so many aspects.

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## **5.5 Impact of VIMD on learning and development**

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### **5.5.1 Where should children with VIMD be taught?**

While emphasizing the need and importance of education to the children with VIMD Sailor (1991) writes "There is a single process called 'education' and it is delivered through the vehicle of the local school". In this way, in the opinion of many educators, neighbourhood school may prove a better placement alternative for the education of the multiple disabled children. It is least restrictive in all sense besides being quite accessible to all children irrespective of their socio-economic status and geographical location.

Such access to least restrictive environment in terms of integrated settings of the neighbourhood school may prove to the welfare and progress of the children with VIMD. Most of the developed countries have come up with legislative provision to have the education of the multiple disabled in the integrated setting of the normal schools along with their non-disabled peers.

It further states that special classes separate schooling or other removal of children with disabilities from the regular educational environment occurs only if the nature or severity of the disability is such that education in regular classes with the use of supplementary aids and services cannot be achieved satisfactorily.

The same also holds quite practicable in the case of the children with all types of disabilities in our country. We cannot achieve the target 'the education of all (Sarv Shiksha) without adopting integration or inclusion as the main philosophy of our placement option for a huge scattered population of our disabled children. It is neither possible nor practicable to have segregated setting or special schools for each category of multiple disabled children. At present, we have some schools for a few special disabled categories like deaf and dumb, mentally retarded, cerebral palsy, and blind in our country. But we have a large number of diverse categories of multiple disabled (e.g. mentally retarded with Visually Impaired, learning, emotional or physical impairments deaf or blind with physical, mental and emotional problems, etc). The

special schools meant for a particular category of disability cannot serve the purpose of the education of the children with multiple disabilities. Moreover, the number of such special schools meant for a few special categories of disabilities are quite meagre and inaccessible to the vast majority of the disabled children population of our country. In such circumstances the integrated set-up of the regular class rooms of the neighbourhood schools is the only proper first alternative available for the educational placement of the disabled children (including multiple disabled) in our country.

A few of such things concerning the adaptation and support are mentioned.

- Adaptations in the classrooms, work situations, drinking and toilet facilities and other learning, playing and recreational places for the needed mobility and positioning of the multiple disabled students.
- Educating and equipping the class teachers with essential knowledge, skills and attitudes (through pre-service or in service education) for teaching and dealing with the multiple disabled children.
- Arranging the aids and devices that are helpful in the teaching of multiple disabled children.
- Making use of the related services like counselling, physiotherapy, medical services, orientation and mobility services, etc.
- Seeking the service of the special education expert and professionals for providing needed assistance and guidance to the class teachers.

### **5.5.2 Curriculum considerations for Visually Impaired children with Multiple Disabilities VIMD:**

After making decisions about the placement alternative for the children with multiple disabilities, it becomes essential to make a decision about the type of experiences to be given to these children in an inclusive set-up of the normal classrooms and regular schools. Since VIMD students represent a quite wide spectrum of disabled conditions, therefore, it is quite a challenging task to seek inclusion of the students with disabilities in the general education curriculum.

Depending upon the nature and severity of their impairments particularly related to the areas of physical and mental development, now it should be decided how a particular multiple disabled student will have access to the general education curriculum. Wehmeyer, has pointed out some or all of the following options for this purpose.

**Curriculum adaptation:** The students can participate in the general education curriculum, but may need modifications in the presentation of instruction, expected performance, response modes, changes in materials, and the like.

**Curriculum augmentation:** The students need additional instruction or strategies to participated in the curriculum.

**Curriculum alternations:** The students need additional content that is not found in the general education curriculum. Students with severe or multiple disabilities may need instruction in basic social communication, daily living, and motor skills that are not found in the general education curriculum.

In view of the above observation, while paying a little more individual attention and use of assistive technology, many of the multiple disabled students may be well adapted to participate in the general education curriculum without further accommodation. There will remain some students who may need special considerations within or beyond the inclusive setting.

The curriculum needs of the children with VIMD, then may be extended to the following beyond the general education curriculum or experiences meant for all the children; non-disabled or disabled.

- Developing communication skills.
- Developing behaviour skills for the improvement of challenging behaviour (like stereotype, self-injurious, aggressive and socially inappropriate behaviour)
- Care skills (like feeding oneself, toilet habits, dressing, making motor movements and postures with or without assistance, grooming and personal hygiene).
- Acquisition of leisure and recreational skills for participating and enjoying such activities.
- Development of essential basic functional academic skills pertaining to reading, writing and arithmetic.
- Development of the skills for using assistive devices, and technology for improving their functioning.

### **5.5.3 Methods and Techniques for meeting the curriculum needs of the children with VIMD**

To teach the children with multiple disabilities in a fully inclusive set-up or

partial and more special set-up is really a quite challenging task. All of them have their unique strengths and limitations and therefore, essentially needs individualized ways to provide instructions to them in an effort to respond to their unique learning characteristics resulting from their multiple disabilities. In general, we can have the following things into our consideration while providing useful learning experiences to them.

1. The beginning in this direction needs to be made by taking care of their seating arrangement in the classroom and other work situation both in the inclusive and partial inclusive settings. The necessary adaptation in this regard should always be made for the multiple disabled children in view of their disabled conditions. As far as possible, they should be seated close to the teaching and supervising places of their teachers and instructors.
2. The next task is related to the communication skills. Any process of instruction and interaction in the classroom requires a process of communication between the teachers and the students. To have such communication link is a bigger problem for the children with multiple disabilities and the biggest for the teacher/ instructors.

**Deaf-blindness:** A method of total communication approach is now mostly used with the instruction of deaf-blind children. It involves the use of multimedia to teach and learn as per needs of the individual's disability conditions. For example, if a student has some residual vision, he may be advised to use a powerful magnifier. Similarly the student with some residual hearing may be advised to make use of a powerful hearing aid besides communicating with finger spelling. In such cases, the use of other senses like touch, taste, smell and kinaesthetic awareness should also be made for supplementing information of his environment and fulfilling his curricular and extracurricular needs. However most of the instruction and communication with the deaf-blind children (especially when no significant residual vision or hearing capacity is available) is usually carried out with the use of tactile techniques involving the sense of touch. That is why, Braille proves a quite stable reading medium for the deaf-blind and the use of a dual communication board can help them properly indiscriminating the reception or expressive functions of responses from a communication partner.

**Mental retardation-deafness:** On account of their cognitive impairment these children may experience a lot of difficulty in the learning of oral language. The main

focus in their instruction should therefore be on the teaching of sign language. However they should also be taught a bit of functional oral language with the help of total communication approach.

**Mental retardation-blindness:** Learning Braille (a major source of communication and learning for, the blind) may pose a serious difficulty for these children on account of limited mental capacities. The use of the senses other than visual can be employed for the teaching of these children. It may involve the use of recorded metal activity based teaching, oral instructions, etc, as the way of teaching and guiding method for them.

**Blindness-cerebral palsy:** Cerebral palsy may make the affected children unable to make use of their gross or finer movement of hands and other limbs for various instructional purposes. In some cases, it may also create problems in their speaking. Depending on their impairment thus the blind cerebral palsy affected children may not be able to make use of Braille. In such cases, they should be helped with the aural modes of learning, e.g. use of tape recorder, radio, speaking machine, etc.

**Deafness-cerebral palsy:** On account of their problems with motor movements, speech and comprehension, etc., it will not be difficult to make use of gestures of sign language with the group of multiple disabled children. In these cases we have to rely on making use of sight as a mode of their instruction. The help of visual communication board assisted with mechanically operated movement techniques they can prove useful in their instruction.

Thus in many cases of the children with multiple disabilities who are not going in use natural speech or who need an additional mode of communication to communicate effectively. We have to plan necessary for the use of augmentative system of communication (use of aids supplementing the existing vocal communication skills) and alternative system of communication (methods of communication used by a person without vocal ability.) therefore, adequate care should always be taken for teaching the use of these modes of communication to the multiple disabled children.

3. The next serious task is to help the children with multiple disabilities to learn and make use of the necessary other functional skills like daily living skills, social skills, recreational and leisure skills, vocational skills, academic skills, behaviour management skills, etc. Like their non-disabled peers, the children with multiple disabilities may not be capable of learning the above mentioned functional skills through a mere imitation, observation or verbal instruction.
4. Whenever needed, the students with multiple disabilities should be allowed to

have a facilitator who can provide physical support to assist the students who cannot speak or whose speech is limited to typing on a key board or pointing at pictures, words or other systems on a communication board.

5. Students with multiple disabilities should be provided such learning experiences or made to participate in such activities that are provided to the same-age peers without disabilities. The methods and techniques used for providing them necessary learning experiences should be as appropriated as possible.
6. There may be proper provision for incorporating choice making activities into the classroom programmes for providing needed learning experiences to the students with VIMD.

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## **5.6 Screening, identification and assessment of Visually Impaired Children with associated disabilities**

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### **5.6.1: Screening**

**Prenatal Screening:** A number of prenatal testing procedures such as testing of maternal serum AFP, Multiple Marker Screening, chorionic villous sampling, Amniocentesis, Ultrasound, and Fetoscopy are available to detect the disorders of the foetus. On the basis of the results of screening appropriate corrective steps to prevent intellectual disability should be taken on the advice of a qualified physician. The following screening should be done:

#### **(i) Blood Tests in the Mothers**

Haemoglobin levels (Hb %) to detect anaemia.

- Blood glucose levels to detect diabetes
- Blood VDRL to detect syphilis
- Blood group and Rh typing for blood group incompatibilities
- Blood antibody titers to detect specific infections
- Alpha foetus-proteins to detect neural tube defects in the foetus

#### **(ii) Ultrasonography (During Pregnancy)**

Many types of foetal pathology including those associated with VIMD later one can be identified during the" trimester of pregnancy by means of ultrasound technique. Some of them are neural tube defects, such as hydrocephaly, microcephaly, and some cerebellar lesions.

**(iii) Maternal Serum AFP (Alpha-fetoprotein)**

Maternal serum AFP (Alpha-fetoprotein) screening test is used to detect spina-bifida, anencephaly, Down's syndrome and other disorders. It is specifically targeted to women under age 35. The testing, which measures the amount of alpha-fetoprotein from foetal urine, takes place at 16-18 weeks of pregnancy.

**(iv) Multiple Marker Screening**

Multiple Marker Screening measures alpha-fetoprotein (AFP) and human chorionic gonadotropin (UE3). It enhances the effectiveness of screening for neural tube defects (NTD), Trisomy-21 or Down Syndrome, and Trisomy-18. It is done by a blood test that is offered to women between the 15<sup>th</sup> and 20<sup>th</sup> week of pregnancy.

**(v) Chorionic Villous Sampling**

Chorionic Villous Sampling or CVS can be used as early as the seventh to ninth weeks of pregnancy. It identifies Down syndrome and other birth defects. In CVS, a tiny piece of the chorionic villous tissue is removed. This tissue grows from an enveloping membrane that eventually gives rise to the placenta. It will show chromosomal abnormalities carried by the foetus.

**(vi) Amniocentesis:** Amniocentesis is used to detect certain birth defects during the 15<sup>th</sup> week of pregnancy. Amniocentesis is a test performed on high -risk women. It involves the withdrawal of a sample of fluid surrounding the foetus. This fluid is then tested for possible abnormalities. The test is usually advised to women who have reached 35 years of age. Amniocentesis will detect Down syndrome, Tay-sachs, Sickle cell anaemia, and many other genetic disorders. The test increases slightly the risk of miscarriage.

**(vii) Ultrasound:** Ultrasound is another pre-natal technique. It uses high frequency sound waves to locate the position and measure the size and structure of the foetus and placenta in the womb. Ultrasound is also used during amniocentesis to help guide the needle insertion. This technique can rule out foetal abnormalities such as faulty structure of the heart.

**(viii) Fetoscopy:** Fetoscopy is an experimental technique used to observe the foetus. A viewing instrument is inserted into the womb.

**Neonatal and Post-natal Screening and Diagnostic Procedures**

- APGAR score
- Urine screening for metabolic errors- example, PKU (Pheny)



- Blood biochemistry tests for Cretinism, Rickets, Jaundice etc.
- Blood antibody titers to detect infections
- Chromosomal analysis for Down Syndrome, Deletion syndromes etc.
- Neonatal neuro - behavioural assessments
- EEG (electro-encephalogram) for seizure disorder
- Visual screening for Visual Impairment (Visual acuity, funds examination, retinoscopy etc)
- Auditory screening - hearing impairments (Tympanogram, BERA etc.)
- Ultra Sonogram
- Ct Scan( Computerised tomography)
- MRI (Magnetic Resource Imaging) for intracranial pathology and structural abnormalities.

### **5.6.2: Identification and Assessment of Multiple Disabilities**

The early identification and diagnosis of multiple disabilities among the children always serves the best purpose in the interest of the disabled children. By following the rule, "earlier the better", therefore, beginning should be made for their identification at the prenatal stage. At the "prenatal stage" the developing foetus may be screened for the possible disabilities by making use of the tests like the following:

- i. **Alpha-fetoprotein test:** In this test, a blood sample of the mother is taken after sixteen weeks of pregnancy for diagnosing some disabilities in the developing foetus (with an assumption that the foetus will pass sub-stances carrying symptoms of disabilities in the blood stream of the matter). With such a test, we can detect mother who are at risk of having a foetus, with neural tube defect (a defect involving the spinal column or brain), Down Syndrome, or some other birth defects (Batshaw and Perret, 1992).
- ii. **Magnetic Resonance Imaging (MRI):** MRI through its ultra fast imaging sequence can prove a valuable asset in the proper diagnosis of defects and impairments. For example, MRI of a central nervous system helps to identify the malformation of the brain seen in spinabifida and the cause of enlarged ventricles (hydrocephalus).

At the "post-natal stage" the newborn infants may be subjected to some specific tests like the following for the identification for the possible disabilities.

1. **APGAR Scoring System:** Known as APGAR test, it is the first screening that can be done to the newborn after their birth between one and five minutes. It takes into account the infant's heart rate, respiratory effort muscle tone, reflex irritability and skin color. Each of these five components of the Apgar test is scored between 0 and 2, with a maximum total score of 10. The below average score (less than 5) may provide an alert for something wrong with the child. The perception of the colour of the skin may also provide a vital clue such as Jaundice may be detected by a yellow caste to the skin and eyes.
2. **Other Medical Examination and Observations:** The other useful medical test and observations can be properly administered to the newborns and infants for the detection and diagnosis of a number of disabled conditions like the following.
  - Phenylketonuria (PKU) causing toxic accumulations of phenylalanine in the brain (a major cause of multiple disabilities) can be detected by a simple blood test of an infant preferably of one or two weeks old.
  - Blood and urine test can be carried out for the detection of hypothyroidism (the failure of the thyroid gland to function) which is known to cause cretinism an irreversible condition of severe mental retardation.
  - The blood test of the mother and the newborn can help in detecting Rh incompatibility known to cause a number of disabilities including cerebral palsy and mental retardation.
  - Help of EEGs combined with either videotape or direct observation may be taken for the identification of seizures in the infants at their neonatal and post-natal stages.
  - Similar to the Apgar score another scoring system exists for the detection of hypoxic ischemic encephalopathy. It is known as the Sarnat scoring system which can be followed by a (T or MRI scan (neuro imaging procedures) for accurate diagnosis. Hypoxicischemic encephalopathy if undetected and untreated earlier may give birth to a number of disabilities and health hazards like strokes, generalized atrophy in the brain, dyskinetic cerebral palsy, mental retardation and learning disabilities.
  - The direct clinical observation of the infants may prove helpful in the

identification of a number of disabled conditions. Most of the hearing and visual defects, motor deficits, mobility and physical impairments can be diagnosed early by observing the infant's lack of normal reflex and body movement. The other major defects and deformities like spina bifida (known for causing a number of multiple disabilities) can also be detected with the help of a close clinical examination).

3. **Use of additional testing and collection of Data:** After suspecting one or the other disabilities in the growing child, efforts are made to have surety of the suspected screening along with its full assessment by adopting the measures like the following:
  - Use of intelligence tests.
  - Use of adaptive behaviour scales
  - Use of interesting inventories, attitude scales, aptitude tests and personality interviews
  - Use of case history and medical report of the mother and the child
  - Use of the techniques and measures for the assessment of motor, communication, language, self-help, social and emotional abilities of the children.
  - Use of observation, rating scale and situational tests
  - Seeking interviews with the parents and teacher about their experiences with the child's inabilities and strengths.

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## **5.7 Multidisciplinary assessment of visually Impaired Children with Associated Disabilities**

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### **5.7.1 What is Multidisciplinary Assessment?**

The individuals with Disabilities Education Act (IDEA) requires that children with developmental delay or disabilities receive a timely, comprehensive, multidisciplinary evaluation and assessment. **The purpose of the assessment is to find out :**

- The nature of your child's strengths delays, or difficulties, and
- Whether or not the child is eligible for early intervention services.

Multidisciplinary means that the evaluation group is made up of qualified people who have different areas of training and experience. Together, they know about children's speech and language skills, physical abilities, hearing and vision, and other important areas of development. They know how to work with children, even very young ones, to discover if a child has a problem or is developing within normal ranges. Group members may evaluate the child together or individually.

Assessment refers to the procedures used by these professionals to find out if the child is eligible for early intervention services. As part of the Assessment, the team will observe the child, ask the child to do things, talk to the parents and the child, and use other methods to gather information. These procedures will help the team find out how the child functions in five areas of development: cognitive development, physical development, communication, social-emotional development, and adaptive development.

Following the child's assessment, the parents and a team of professionals will meet and review all of the data, results, and reports. The people on the team will talk with the parents about whether their child meets the criteria under IDEA and state policy for having development delay, a diagnosed physical or mental condition, or being at risk for having a substantial delay. The purpose of these on going procedure are to identify the child's unique strengths and needs, and determine what services are necessary to meet needs.

Hence, assessment in general is a process of collection of information about an individual or a group and taking a decision for that particular individual or group for future course of action.

Assessment refers to the process of gathering and analysing information in order to make instructional, administrative and/or guidance decision about or for an individual (Wallace, Larsen and Elksnin, 1992)

Definition of assessment focuses on three aspects:

1. Collection of information
2. Analysis of information
3. Making decision for instructional, administrative steps and guidance

**Collection of information:** Collection of information regarding the students includes information regarding his personal history, the past achievement, the environment he is living, the resources available within his reach and current performance in different skills. These information could be collected by: (a) taking

personal history, (b) administering test, (c) observation of the students and (d) interview with the student, parents and caretakers etc.

**Analysis of information:** Information collected has to be analysed by the special educator or the professionals related to the student from different angles. A student's performance in specific areas may be due to deprivation of exposure or cultural factors. This factor has to be carefully understood by the special educator for decision-making for educational intervention.

**Making Decision for Instructional, Administrative Intervention and Guidance:** Assessment is being used for making a decision for placement in a particular class and for availing Government facilities and programming educational intervention for the student. Special Educators help in guiding the parents for future course of action to be taken for the student.

Special Educational Assessment is the systematic process of gathering educationally relevant information about children with special needs to make legal and instructional decisions about the provision of special services. The special educator pursues information that relates to everyday concerns of the classroom. However, educational intervention is also part of an interdisciplinary effort to understand the handicapped student's learning problems. It is performed in conjunction with the work of the professionals, such as physicians, speech-language, and physical therapists.

Educational assessment focus mainly on many areas of learning school, as well as any other factor affecting school achievement, Academic, language, and social skills are examined. Environmental factors may also be considered, along with analyzing the student's observable and measurable learning behaviour and learning strategies.

Training the mentally retarded children needs detailed psychological and educational assessment. There have been efforts in developing many psychological test and educational test for conducting assessment for development of systematic intervention programme for the children with mental retardation.

### **5.7.2: Purpose of Assessment:**

Assessment is carried out for a specific purpose. Generally, assessment helps in either decision-making for administrative purpose or for remedial purpose. Especially, in special education services, there are a few purposes to be met through assessment. The purpose of assessment determines the types of assessment tools to be used, the method of assessment to be selected and the process of collection of information to

be conducted. Some of the purpose of assessment are listed below:

1. Initial screening and identification.
2. Determining eligibility.
3. Determination of current performance level and educational need.
4. Decision about classification and programme placement.
5. Determination and evaluation of teaching programmes and strategies.
6. Development of educational programme (Individual or group).
7. Monitoring student progress.
8. Evaluating the effectiveness of educational intervention programme.

### **5.7.3: Types of Assessment:**

Special Education Assessment involves collection of information relevant to educational need of the children. This includes personal data, educational performance, the resources, the family involvement in training and voluntary supports that could be gained for training mentally retarded student. For all these information, it is essential to collect information through different methods. These methods may be:

- (a) Formal
- (b) Informal

**Formal:** In this method, the information is collected by administering test/ behavioural scales/ checklist, interview or administering questionnaire. The information is collected through very structured situation. It needs lots of preparation for the tester or observer.

**Informal:** In this method, the information is collected through natural interaction between the subject and observer. As because the information is being collected in a natural situation, there is a chance of getting appropriate response from the subject.

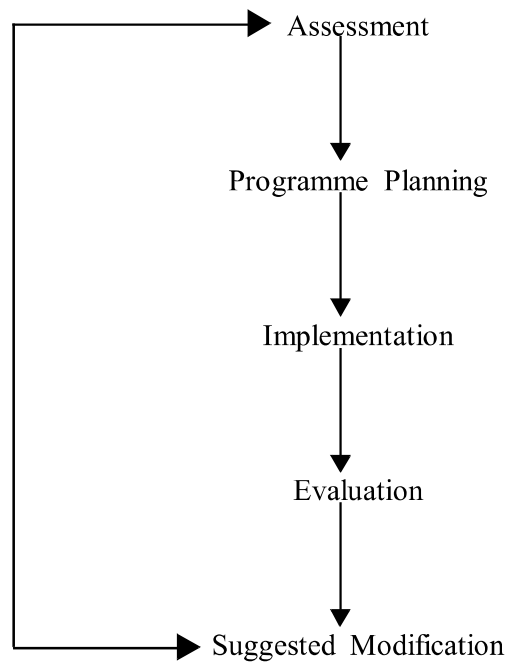
Different tests are constructed for assessment. Constructed tests also vary as per the process of construction. There are two types of tests. These are Norm Referenced Test and Criterion Reference Test. Norm Reference assessment and Criterion reference assessment are named on the basis of the test used in the assessment process. The details of these-assessment processes are given below:

**Norm Referenced Assessment:** Norm referenced assessment is the more traditional approach to assessment. These tests and measurement procedures involve test materials that are standardized on a sample population and are used to identify the test takers ability relative to other. It is also known as formal assessment.

Norm referenced assessment is defined as a procedure for collecting data using a device that has been standardized on a large sample population for a specific purpose. Every standardized assessment instrument will, have certain directions that must be followed. These direction specify the procedure for administering the test and ways to analyse and interpret the results and reporting them.

**Criterion Referenced Assessment:** Criterion referenced assessment is concerned with whether a student is able to perform a skill as per the criteria set, or not. In contrast to norm -referenced assessment, which compares one person's performance to other's, criterion referenced assessment compares the performance of an individual to the pre-established criteria. In criterion referenced test, the skills within a subject are hierarchically arranged so that those that must be learned first are tested first.

**Continuous Assessment:** Assessment is an ongoing process. In the process of special Education to the children with VMID, their abilities are assessed periodically to plan the future training programme. Flow diagram of which is given below:



In the above diagram, evaluation is carried out after implementation of the programme to see the level of achievement compared to set criteria. Evaluation is restricted to the programme planned for the child. Assessment covers the other non-

planned area for training. Assessment after each year or after a particular period of training is inevitable for decision-making about the child.

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## **5.8 Check your Progress**

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1) What do you mean by Screening?

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2) What is Identification?

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3) List out the general characteristics of VIMD

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4) Enumerate the types of VIMD?

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5) What are the roles of caregiver in early intervention programme?

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6) Write different screening stools used to Identify VIMD?

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7) Discuss the causes of VIMD

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8) Explain the purpose of assessment?

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9) Why is continuous assessment necessary?

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10) Enlist the pre-natal causes of VIMD?

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11) Describe the current educational status of Visually Impaired Children with additional disabilities?

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12) Brief the teaching strategies for VIMD.

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13) compare the current Educational status of Visually Impaired Children with Multi Disabled Children?

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14) What are the purposes of assessment you find in your case of assessment for IP?

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15) How do you classify the etiological factors of VIMD.

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## 5.9 Let us Sum up

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The effect of multiple disabilities can be more than the combination of two individual disabilities. Such kind of children face problem with all types of muscle movement as well as seeing and hearing. There may go many things during conception in the womb through gene and chromosome transfer by the parents to the offspring, that may cause such disabilities among the children. With this back drop, it is seen that the status of education of these children is in the least priority. Hence provisions of intervention will do some extent improve their developmental skills, direct abilities and create a firm ground for future learning. The concept of specialized services to children with multiple disabilities is more or less new in India. This service are localised to urban areas only. Nevertheless, as compared to the western countries parts, we are still lagging behind in the field of education of these children. Apart of this one of the most pertinent issue hovering is often parents of such children are not able to identify. Which disability among the multiple disabilities present in the child is dominant? These confusion cause hindrances in path of their educational programmes.

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