

CHAPTER IV

ORIENTATION AND MOBILITY AND ITS IMPORTANCE

1 Definitions

1.1 Mobility

Mobility is defined as physical “movement” and the negotiation of any obstacles and hazards. It is the aim of obtaining freedom of movement without coming to any harm, safety in travelling as well as minimizing the level of stress placed upon a visually impaired person. While Braille gives intellectual independence, a well-developed sense of mobility facilitates independent movement. It enables the person to detect hazards associated with travelling and to take evasive action.

Mobility refers to total physical movement which involves a change in spatial location accomplished in an upright position under one’s own power. It describes all situations ranging from moving around within a single room, in a house to travelling from one town to another or even between countries.

It is the action of travelling, of going from one place to another. To be mobile, a person should be able to gather and use sufficient information from the environment to avoid hazards and to reach his destination safely. Thus it is the ability to move in the environment in relation to oneself from one place to another. In order to do this, a visually impaired person may use a long cane, a guide cane or just a bamboo stick. A locomotor handicapped person may use crutches, elbow crutches, calipers, tricycle, wheelchair, rollators or ground mobility device etc. Both these groups may take the help of a human guide or an escort.

1.2 Orientation

Orientation is the ability to locate oneself in one's environment. It is a skill that is related to the use of the remaining senses of a person to establish one's position in, and in relation to significant objects in the environment.

Orientation involves having an awareness of space and an understanding of the situation of the body within it (Stone, 1995). The process of using the available environmental information to select and follow the correct path is called orientation. It has been established that when vision of a person is completely or partially impaired, he has to depend upon his remaining senses to be able to move around freely. The senses of hearing, touch, smell, kinesthetic and taste can all be used to help him to recognize his position in relation to the obstacles and landmarks around, in the environment.

The training that teaches the visually impaired persons to move around the environment freely and independently is popularly known as "Orientation and Mobility" (O & M).

2. Milestones in the Development of O&M Services in India

1629: Richadsons engravings made by Dutch artist Vanden Enden showing blind people with breast height staffs, now retained in the Library of the Perkins School for the Blind.

17th & 18th Century : John Metaclyfe of Kanes Borough, a blind traveller travelled through the North England with the aid of a staff.

1748 : Hanks Levy introduced systematic cane travel

1930 : The Lions Club of Pretoria, Illinois, USA lobbied for White Cane Law.

1931 : The Lions Club of Pretoria adopted a National White Cane programme and distributed 1,000 white canes.

1935 : In Queensland, Australia, the use of the White Cane was stressed as a mark of identification for the blind.

The Senator Schall, a blind person, of the USA died in a car accident when crossing a road. After that a bulletin was issued in the USA for strictly following the White Cane Laws and the White Cane was accepted as a symbol for the blind.

1945 : Dr. Richard E. Hoover, an Ophtalmologist and Incharge of Valley Forge Army General Hospital, Pannsylvania, USA designed a longer and light weight canes and a set of techniques for using the same.

1946: The long cane system was evolved in the U.S.A. in 1946 and introduced by a visiting USA team to Britain in 1966.

1947: Formal and specific training in mobility techniques began in the USA soon after the Second World War. There were many adventitiously blinded soldiers coming forward for rehabilitation. Through their work with these soldiers, a team of professionals devised a programme of training which included the techniques which are in use today - search techniques, the most appropriate way to use a sighted guide, and the use of long cane to facilitate independent travel. Subsequently the Royal National Institute for the Blind formalized the mobility instructor's course. As a result, Mobility Research Unit was established at Nottingham University. Similarly the National Mobility Training Centre was established at Birmingham.

A Mobility Training Manual was published in the USA.

1952 : The Veteran Administration, USA produced a training film "The Long Cane" of 30 minutes duration.

1953 : The blind soldiers from Korean War introduced a new mobility cane.

1957: Lt. Col. Nardekar of the National Association for the Blind, Mumbai (NAB) received training in the use of long cane at the Industrial Home for the Blind, Brooklyn, USA.

1958: National Association for the Blind, Mumbai (NAB) introduced the concept of O & M for the first time in India.

The Lions Club of Bombay initiated the White Cane Movement, distributed white canes and the leaflets.

The NSD Industrial Home for the Blind, Mumbai included mobility services in the course curricula of its Rehabilitation Unit.

1959: Mr. S. H. Kazmi, Senior Teacher of Dehradun underwent training in the use of long cane at Perkins, USA.

1960 : First Graduate Programme in O&M was introduced at Boston, USA for 8 students. Second Graduate Programme in O&M was introduced at Michigaon, USA for 12 students.

Darkell of Britain introduced a cane which was light, thin, strong and longer than the ordinary 36" cane.

1964: The NAB Delegation attended the World Council on O&M in the USA and requested the concerned authorities to start O & M programmes in India. The delegation also collected US\$ 10,000 for this purpose.

1965: The NAB appointed an O&M-cum-Physical Training Instructor at NAB Worli Workshop for the Blind.

Blind Welfare, a publication of the NAB, published the first article on O&M written by U.S. expert, Mr. Robert Lessnein.

Dr. E. J. Venn and Dr. D. Devote conducted RNIB survey into comparative virtues of long cane and short cane techniques. St. Dunstan carried out another assessment in this regard. At the end of this assessment, the RNIB considered that long cane technique enhanced the mobility of all the trainees, improved their confidence, safety and appearance.

1966: Major D. R. Bridges, Director, American Foundation for the Overseas Blind (now known as Helen Keller International) and Mr. Robert C. Jaekle conducted an international programme on Application of Skill Development Test in Malaysia under the auspices of the American Foundation for the Blind. Late Mr. Jagdish K. Patel and Mr. Oliver from the Blind People's Association (BPA) participated in this programme.

The NAB P & N M Rehabilitation Centre, Mount Abu introduced use of O & M and appointed a full time O&M Instructor.

1967: Major D. R. Bridges visited Mount Abu and interviewed Mr. Y. J. Choksi for imparting him training as O & M Instructor at Kuala Lumpur.

1968: 3 people from India including late Mr. Manhar Patel from BPA, Ahmedabad and Mr. Y. J. Choksi from the PNM NAB P & N M Centre at Mount Abu participated in the O & M training conducted under the auspices of the American Foundation for the Blind at Kuala Lumpur.

1969: Two more specialists from Delhi, one from Dr. Rajendra Prasad Ophthalmic Institute, All India Institute of Medical Sciences and the other from the Blind Relief Association received training in O&M.

Delegates from Japan, Philippines, Hong Kong, Malaysia and India attended the First International Workshop for Asia on O&M held at India International Centre, New Delhi. It was sponsored by the American Foundation for the Overseas Blind, Far Eastern Regional Office, Kuala Lumpur and conducted by AFOB Mobility Consultant, Mr. Robert C. Jaekle.

1970: The Lions Club of Abu introduced the use of long cane and installed public awareness hoardings at public places.

Two more Instructors from India, one each from Calcutta and Ahmedabad received training in O&M at Kuala Lumpur.

Dr. Richard Hoover of the USA, inventor of long cane techniques visited Mumbai and Delhi.

The National Association of the Instructors of the Blind appointed Mobility Specialists in Mumbai for giving domiciliary services.

1971: The Govt. of India invited Mr. Robert C. Jaekle, expert from the Helen Keller International to establish National Programme to train O & M Instructors at the National Centre for the Blind (now known as National Institute for the Visually Handicapped), Dehradun. Subsequently such programmes were started by the National Association for the Blind in Mumbai and Bangalore.

1972: Mr. Jaekle addressed the social and professional workers for the visually impaired in a talk arranged by the National Association of the Instructors of the Blind in Mumbai and removed misconceptions about the Long Cane and its use.

The Lions Club of Abu organized a National Workshop on O&M at Mount Abu. The participating O&M Instructors gave live demonstration with the use of tactile maps on the streets of Abu.

1973: National Training Programme for the O&M Instructors was shifted from Dehradun to the Blind Relief Association, Delhi and Mr. Y. J. Choksi appointed as Incharge.

A resolution was passed at the 4th Asian Conference held in Mumbai to include O&M training in the school curriculum.

1974: First O&M Instructors for Karnataka trained from Divine Light School for the Blind, Whitefield. Father Cutinha, Director of the School, arranged a lecture for the members of the Lions Clubs.

Late Mrs. Ratna Atmaram Rao, President of the NAB Karnataka Branch arranged a talk of Mr. Keith Hodswort, Director, National

Guide Dog and Mobility Training Centre, Kew Metoure, Australia for the social workers and an interview with the Deccan Herald about O&M.

1975: Mr. Y. J. Choksi presented a paper on “*Importance of Mobility Services in the Schools for the Blind*” at the National Convention of Instructions of the Blind at Ahmedabad. A resolution was passed in this convention to include O&M in the school curriculum and to create posts in all the schools for the visually impaired.

1976: The Christoffel Blindenmission, South Asia Regional Office started a Training Programme for the O&M Instructors at Tiruchirapalli.

1977: The National Association for the Blind organized a national level programme for the training of school teachers, instructors and other workers of the visually impaired in O&M on the occasion of celebrations of its Silver Jubilee. This programme was conducted by Australian team of O&M Specialist and Indian Instructors. Dr. B. K. Panchal from BPA also attended the course. The focus of this programme was to sensitize and motivate teachers of the blind regarding the need for imparting training in O&M to blind students.

1978: The YMCA College of Physical Education, Chennai initiated the Project “*Physical Education for the Blind*” in partnership with the Christoffel Blindenmission.

The NAB, Department of Rehabilitation, Worli, Mumbai appointed two Mobility Officers.

The WCWB Committee on Asian Affairs convened a conference in Hong Kong in which Mr. Don Westaway and Mr. V. Devdas presented papers on O&M. The conference resolved to promote O&M services in Asia.

1979: All India Occupational Therapists Association conducted a workshop in Mumbai on “*Role of O&M in the Rehabilitation*”

of the Blind” with the assistance of Australian and Indian experts.

A similar workshop was conducted by the Department of Rehabilitation under the Leadership of Mr. Hans Peter, specialist from Australia for medical and para medical staff at the all India Institute for Physical Medicine and Rehabilitation, Mumbai.

1980: Mr. Don Westaway, Blind Rehabilitation Consultant and Jane Archibald, O&M Specialist conducted workshops and did some research work with blind clients in collaboration with Vijaya Hospital.

The WCWB Committee on Asian Affairs constituted a O&M Sub-group for Asian region with Mr. Y. J. Choksi and Mrs. Leena Chaudhary of the NAB as Members for promoting O&M services.

The first Refresher Course on O&M for practicing instructors, sponsored by UNICEF, was conducted at the National Institute for Visually Handicapped, Dehradun.

1981: The NAB Department of Rehabilitation and the WCWB Asian Affairs Committee on O&M conducted a course for O&M Instructors and blind persons of Nepal. A video film on O&M was prepared by Mr. Y. J. Choksi in Nepal.

1982: The NAB Karnataka Branch established the Mobility Training Centre for blind persons as well as for O&M Instructors with the financial assistance from NAB and with technical support of Mr. Don Westaway.

The YMCA College of Physical Education, Chennai introduced a Diploma Course in O&M.

1983: A post of Mobility Training Instructor was created at the NIVH. The institute included O&M component in the course curriculum of different training programmes. It imparted short term training in O&M to the voluntary as well as professional workers.

1984: The participants of the National Workshop on O&M, sponsored by the NIVH and conducted by the NAB in Mumbai made the following recommendations:

- Nine months Diploma Course for O&M Specialists.
- All India Reference Course in O&M in all parts of India.
- Quarterly Newsletter on O&M.
- Evaluation committee for canes.
- Preparation of documentaries, video films, slides and pamphlets - Mobility Teachers in school and Mobility Officers for adults.
- Six weeks training programme for blind persons.
- National Workshop to Standardize Syllabus for O&M Course.
- Evaluation of canes by the institution.
- Hand Book on O&M.
- All India Association for O&M Specialists.

1985: The NIVH organized a Refresher Course on O&M for Vocational Rehabilitation Centres Officers Trained in O&M, Professors and Lectures from different Universities.

1986: The Rehabilitation Council of India approved the O&M Instructors Training syllabus proposed by the NIVH.

1987: The YMCA College of Physical Education organized a National Workshop on O&M at Chennai. Two pioneers of O&M in India, Mr. Kulundai Raj as the first O&M Instructor and Mr. Y. J. Choksi as the First Indian Master Trainer were honoured in the Workshop.

Dr. Bhushan Punani and Mrs. Nandini Rawal prepared a Manual on “*Guidelines for Social and Economic Rehabilitation of the Rural Blind*” published by the NAB. The Manual listed a variety of services in O&M to be provided to visually impaired persons in rural areas. The Manual was revised and updated during 1997.

1988: First course of six weeks duration, approved by the Rehabilitation Council of India, was started on 16 May at the NIVH, Dehradun.

The YMCA College of Physical Education, Chennai upgraded its Diploma Programme to the Degree of Bachelor of Mobility for the Disabled.

1992: The Blind People's Association and the NIVH organized a Refresher Workshop for the Inservice Mobility Instructors and the Supervisors of the CBR projects at Mount Abu from 20 to 31 July at the NAB-PNM Rehabilitation Centre for the Blind, Mount Abu, Rajasthan.

2-5 August, 1992: 9th Quinquennial Conference of the International Council for Education of the Visually Handicapped included 5 papers on O & M.

1993: Mr. Robert C. Jaekle, truly the Father of O&M, authored a book "*Mobility Skills for Blind People - A guide for use in rural areas*", published by the Christoffel Blindenmission and the Sight Savers International.

1994: Dr. Bhushan Punani and Mrs. Nandini Rawal published a book "Handbook: Visual Handicap" in which a chapter was devoted to O&M.

1996: Dr. Bhushan Punani and Mrs. Nandini Rawal prepared a Manual on "*Community Based Rehabilitation (Visually Impaired)*" published by the NAB. The Manual listed a variety of services in O&M to be provided to visually impaired persons in the rural areas.

1999: The Rehabilitation Council of India is planning to review the existing O&M Instructors Training Course. It may upgrade it to a duration of one year from its existing duration of six weeks.

3. Importance of Orientation and Mobility

The ability to move in and around the environment is critical and many a times inability to do so affects the individual psychologically, socially, emotionally, economically and physically. (Stone, 1995). One of the main effects or impacts of blindness is in the ability to move around.

3.1 Personal Development

A restricted movement of individuals may influence their development, understanding of concepts and quality of life considerably. It would also restrict their exposure to the environment and the knowledge of the world around them would be limited. Training in O&M would enable them to avail a variety of real experiences and enhance their understanding of the concepts, give them more confidence and all these would result into personal development.

3.2 Independence in Movement

The loss of power to move about freely and safely is arguably the greatest deprivation inflicted by blindness (Koestler, 1976). As being able to travel freely is very important for the sense of independence, O&M training is an important pre-requisite for the integration of visually impaired persons into the community and working life. It enables them to become more independent in indoor as well as outdoor mobility. It allows them more freedom and makes them less dependent on family and friends.

It sharpens remaining senses through sensory training, develops coordination of movement and improves posture. That results into better acceptance of the individual in the community and by the peer group.

3.3 Social Integration

Mobility enables an individual to perform daily activities like going to a grocery shop, temple, common place, venues of social activities, houses of relatives, neighbours and friends etc. Through such movement, individual is able to interact with others and to develop inter-personal relations. It would enhance the quality and quantity of social contacts and integration in community. The extent of social interaction would be enhanced further if the individual is able to use the public transport and go to far off places and other towns.

3.4 Self Confidence

When an individual is not able to travel around freely, it has devastating effect on his/her self concept (Stone, 1995), self confidence and desire to compete and progress. Most people with visual impairment remain confined to their homes, live a solitary life and accept visual impairment as *fate accompli*. Such individuals have to depend upon others even while moving in a familiar environment. They have to depend upon the convenience of others for their movement, daily activities and participating in social activities. While independence in movement would develop self confidence and enable them to perform these activities at their own convenience and pleasure. It would enhance their movement outside home and encourage community participation.

3.5 Safety of the Individual

It enhances the safety of the individual and his fellow beings. It is essential for correcting gait and postural defects. It is not just an overcoming of practical difficulties, but it is also a step towards developing and maintaining one's own self-image. Mobility education will also be one way to get young people fit and the improved fitness will lead to an ability to undertake more intensive training (Stone, 1995)

3.6 Comprehensive Rehabilitation

To be able to move independently within environment is one of the pre-requisites for employment (Hill,1986), gainful occupation, economic rehabilitation or income generation. It

is a step toward comprehensive rehabilitation, self confidence and liberation from the solitary home confinement of a person. The success of the vocational training as well as community based rehabilitation programmes also further proves the importance and necessity of independent travel. It also helps in changing public attitudes towards visual impairment.

3.7 Mobility and Sports

There is close inter-action between mobility and sports. Training in O&M is a pre-requisite for promoting sports among the visually impaired. At the same time, participation in sports enhances understanding of the environment, enables a person to overcome fear of movement in the unknown space and improves concentration which in turn results into better mobility.

4. Mobility Techniques

To travel safely in relation to the environment, a visually impaired person can use one of the following techniques or a combination thereof:

4.1 Sighted Guide

- 4.1.1 While Approaching Narrow Spaces
- 4.1.2 Ascending and Descending Stairs
- 4.1.3 Being Helped to a Chair
- 4.1.4 Passing Through Doorways

4.2 Walking Alone

- 4.2.1 Trailing
- 4.2.2 Protective Techniques
 - 4.2.2.1 Upper Arm and Forearm Techniques
 - 4.2.2.2 Lower Hand and Forearm Technique
- 4.2.3 Locating Dropped Articles
- 4.2.4 Using Landmarks Indoor
- 4.2.5 Direction Taking

4.3 Cane Techniques

- 4.3.1 Pre-cane Devices
- 4.3.2 Use of a Long Cane
- 4.3.3 Right Type of Cane
- 4.3.4 Qualities of Cane
- 4.3.5 Holding the Cane
- 4.3.6 Using the Cane
- 4.3.7 Squaring off
- 4.3.8 Adaptation of the Cane Technique
- 4.3.9 Shorelining

4.4 Guide Dogs

4.1 Sighted Guide

While the principal objective of O&M training is attaining freedom in movement, help of another person is essential under certain circumstances. A visually impaired may require assistance of a sighted guide while crossing a busy road, moving in a less familiar environment, searching a visual sign or moving in a crowded place.

Salient Features

- a. It is the skill of travelling with a sighted companion.
- b. Training has to be imparted to the visually impaired as well as the sighted person.
- c. The sighted person should know how to guide a companion in various circumstances.
- d. All the members of the family of the visually impaired should know how to use the sighted-guide techniques correctly.
- e. A type of non-verbal communication exists between the visually impaired person and the guide and the latter does not have to tell the former every time regarding the change in direction and other walking situations.

Basic Technique

- a. The guide should stand next to the visually impaired person and face in the same direction.
- b. To let him know where the guide is standing, the latter should touch the back of the former's hand.



Guide touching the back of visually impaired person's hand



Holding the elbow

- c. He should be trained to move his hand up to find the elbow of the guide.
- d. He should hold the guide slightly above the elbow with a firm, but relaxed grip in such a position so that his thumb is on the outside of the elbow.
- e. He should hold his elbow close to his body and should always be half a step behind the guide with his shoulders directly in line and behind.
- f. He can be either on the left or right side of the guide depending on which side he feels more comfortable.

4.1.1 While approaching narrow spaces, the guide should:

- *move his guiding elbow towards the mid line of his back;*



- extend his arm and move side-ways so that the visually impaired person is directly behind the guide.

After the narrow space is over, both should return to the normal sighted-guide technique.

4.1.2 *When both approach the stairs, the guide should:*



- announce the change is about to occur;
- stop right in front of the stairs so that visually impaired person is one-half step behind;
- climb the steps in the normal way with visually impaired person following a step behind;
- both should shift their weight forward by leaning forward;
- If there is a railing or banister, visually impaired person can be made to follow it.



Similarly *while descending*, the same procedure should be followed. However, both should shift their weight backward by leaning back a bit.

4.1.3 To guide a visually impaired person to sit in a chair, the guide should:

- bring visually impaired person to the chair;
- place his hand of the guiding arm on the back of the chair - and tell him which way the chair is facing;



The visually impaired person should:

- move his freehand to follow the back of the chair down to the seat, if the chair is empty;
- move unaided around to the front while holding the back of the chair;
- turn around so that his legs are touching the front of the chair and then sit down.

4.1.4 When approaching a doorway, the guide should:



- tell the visually impaired person which way the door opens;
(As the correct side for the visually impaired person is the same side as the hinges of the door, he should be on the opposite side of the side on which the door opens)
- open the door with his freehand and transfer the handle to the hand of the guiding arm;
- transfer the handle to visually impaired person who in turn pulls it open to enable the guide to proceed;
- take hold of the handle on the opposite side of the door to enable visually impaired person to pass through;
- pull it to close behind him.

Cautions

- a. The sighted person must always remember that visually impaired person is following him.
- b. Visually impaired person must never be pushed from the back or just pulled by the arms.
- c. Curbs or steps should be approached straight on. If approached from the side, visually impaired person may receive the wrong cues.
- d. Whenever there are pits, dug-holes or any other obstructions which necessitate taking a short jump, the guide must announce it and also indicate the rough width or depth.
- e. The guide should leave him only at safe places and should inform him while leaving. Preferably, he should be left near an object that he can touch, like a pole, table, wall, chair, cot etc.
- f. Visually impaired person should always be behind the guide.
- g. He must not walk directly behind the guide with both his hands on the guide's shoulders as it will be more difficult for him to feel the movement when the guide turns left or right or around.
- h. While going up or down the stairs, he should be on the railing side.
- i. He should tell an inexperienced sighted person what steps to follow as a guide.

- j. If an inexperienced guide allows him to bump into objects, he should protect himself by pushing the guide out in front of him.
- k. The sighted guide must remember that visually impaired person is not hearing impaired, so he should use his normal tone of speech.

4.2 Walking Alone

Importance: For visually impaired persons, walking alone:

- is very useful in a familiar environment;
- protects them from hitting objects and hurting himself;
- enables them to walk alone, independently and unaided;
- is particularly useful for performing their activities of daily living and personal grooming;
- increases their spatial perception;
- allows them to remain a master of their own will and prevents dependence on others; and
- can be used in conjunction with other techniques;

Basic Technique

4.2.1 Trailing : It is essential to impart training to visually impaired persons as it:

- helps them to walk straight and provides them with tactual information; and
- enables them to detect landmarks or find doorways.

Procedure



Trailing

- a. Back of the hand should be used to follow a wall, edge of a table, or other similar objects.
- b. Stand next to the object he wants to follow.
- c. Extend the arm that is closer to the object and back of his fingers should touch the object.
- d. Walk by trailing fingers along the surface towards his destination.

Cautions

- a. Only the back of the fingers should touch the object to be trailed because the inside of the fingers are too delicate and may be hurt while trailing a rough object.
- b. While trailing, the arm and hand should not drop too close to the body as the person may not find time to stop when there is an obstruction.
- c. He should protect his head using his other arm.

4.2.2 Protective Techniques

4.2.2.1 *Upper Arm and Forearm Technique* : This technique generally:



- protects the upper body around the chest and head;
- can be used for protection from low tree branches, open doors, sharp wall curves, corners of walls, cupboards or other such obstacles which may be vertically placed in the path.

Basic Technique

- a. The first step in the technique is that a person should raise either the left or right arm to shoulder height.
- b. Then the person should bend elbow to form an angle of 120 degrees and fore-arm is held across in front of the face.
- c. Hand is turned so that the palm faces away from the person and the fingers are slightly bent back towards the body.

- d. Person moves in this position in the direction desired.

4.2.2.2 Lower Hand and Forearm Technique : This technique:

- protects the lower part of the body near the waist level; and
- can be used to protect against or locate chairs, tables, cots, wash basins, kitchen platform, dressing table or other such low obstructions.

Basic Technique

- a. The first step in this technique is that a person should fully extend either the left or right arm and move the same to the middle of the body.
- b. The persons should bend the fingers slightly with the palm facing the body.
- c. The arm should be held about 10-20 centimeters in front of the body
- d. While bending over, the hand with fingers outstretched, should be held at 20-25 centimeters in front of the face and should precede the face as it moves forward.

4.2.3 Locating Dropped Articles :This technique:

- protects head when bending down to locate a dropped object;
- enables to locate dropped articles in unfamiliar surroundings;
- enables to make a systematic search of articles; and
- saves time.



Circular Movement



Perpendicular Movement

Locating Dropped Articles

Basic Technique

- a First stop whatsoever the person is doing.
- b Listen to the dropped object until it stops moving.
- c Face in that direction.
- d Approach close to the area and kneel down using upper-hand and forearm technique or keep head and body straight and place palm down.
- e Begin a systematic search in the following pattern:
 - i. Circular : move hand in ever increasing circles or
 - ii. Perpendicular : follow a square pattern making a series of horizontal movements each separated by one hand's width
- f If object is not found in front, check the left or the right side before moving forward

In the beginning, this procedure can be tried using articles on a table, then on an unobstructed floor area, and then in a room with other articles, furniture etc., and finally in a public place or pavement etc. The visually impaired person should develop a sense of direction as well as distance through sensory training and systematic practice.

4.2.4 Using Landmarks Indoors : This technique:

- enhances indoor safety;
- improves understanding of the relative environment;
- enables independent indoor mobility; and
- is essential for activities of daily living.

Basic Technique

- a The shoulders, back, lower legs, heels, elbow, lower arm and hands should be used to “square off” against furniture articles, wall, door or any like straight object.
- b After squaring off, a straight line should be maintained towards the destination.
- c Straight surfaces and objects whose projections into space act as direction indicators can be used as landmarks.

4.2.5 Squaring Off : It is the technique whereby both the shoulders or other body parts are in alignment to the edge of the road or shoreline. If person does not square off, he may not walk in a straight direction.

4.2.6 Direction Taking : The technique is useful for locating an object which is directly in front of or behind or in line with another object

Basic Technique

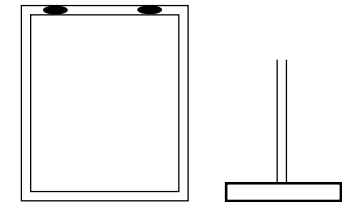
- a Stand in front of the object to be used to get the line of direction
- b Touch the object to be used directly with the back part of her legs
- c Should walk straight ahead till he reaches the object to be located.

4.3 Cane Techniques

4.3.1 Pre-cane Devices : These devices originally developed by Dr. Evereft Hill at Vanderbilt University are useful for pre-school children. These resemble the mobility devices used by seeing toddlers when they start walking with the help of a support. These devices are suitable for visually impaired children to use as soon as they start walking with confidence.

Material: These devices may be made from:

- Bamboo
- Wood
- PVC pipe
- Plastic moulded pipe
- Aluminium rod
- Tree twigs



Design

The size of device will depend upon age and height of the child. Beginning may be made with a simple rectangle shape pipe structure with a provision for a hand grip. As the child gains confidence, device may modified to the shape of an “inverted T”. Subsequently, castor wheels may also be added to enable the child to roll it on the ground.

Advantages: This device would:

- a Enable the child to gain confidence in movement.
- b Provide safety from the obstructions on the floor.
- c Be a fun to experience independent movement.
- d Lay the foundation for the use of mobility cane when the child grows.

To make it more interesting, small bells or other auditory material may be added. For children with low vision, bright colours may be used. Using soft material at the hand grip would encourage correct hand positioning and proper propelling.

4.3.2 Use of a Long Cane

- a. Traditionally, the white cane:
 - is used primarily as an extension of the fore finger to help in locating obstacles along the route and provide with information about the environment;
 - is accepted as a symbol of the visually impaired;
 - is regarded as the proven mobility aid- is inexpensive, handy and has adjustable length;
 - plays a vital role in the education, social integration and comprehensive rehabilitation of the visually impaired.
- b. The white cane techniques are:
 - simple
 - universal, and
 - can be applied even in a relatively unknown environment.

- c. Using the white cane correctly, person can walk safely and independently.
- d. As the cane techniques can be modified in order to suit prevailing conditions, specific requirements or individual needs, thus persons with varying physical capabilities can be trained.



Crossing the road using a white cane

- e. By providing a means of getting to and from work, it enables them to seek a variety of jobs and expedites their economic rehabilitation.
- f. The collapsible white cane can be folded and put in a hand bag while travelling in public transport or while at work.
- g. The white cane system has given a new lease of life and a new dimension of independence to a large number of visually impaired persons.

4.3.3 The Right Type of White Cane

4.3.3.1 The following types of white canes are available:

- i. Symbol Cane
- ii. Mobility Cane
 - * Long Cane
 - * Folding Cane
 - * Electronic Cane
 - * Lezer Cane

4.3.3.2 The length of the cane is:

- determined by the height of the user;
- generally 90 centimeters;
- should reach the breastbone when held vertically; and
- should touch the ground about one meter in front when a person holds it.

4.3.3.3 The most popular cane is made of aluminum tubing of about 12 mm outer diameter. It has a grip at the top and a nylon tip at the bottom.

4.3.3.4 In rural India, people generally use a stick or staff for keeping off stray animals. The bamboo stick or conventional and indigenous canes which are ordinary sticks made from a tree branch and not specifically designed for mobility are still in vogue. The length, however, should be adjusted as mentioned earlier.

4.3.4 Qualities of a Good Cane

- good conductivity
- durability
- light weight

- low cost
- strength and resilience
- cosmetic and elegant appearance
- easy availability
- easy reparability
- meeting the specific length requirements

4.3.5 Holding the Cane

- a. Person can hold the cane in either hand.
- b. Grip: While holding the cane
 - thumb should be on the front of the top;
 - forefinger should be fully extended;
 - second finger is curled behind to support the cane;



- other fingers should be kept relaxed;
- elbow should be slightly bent near the body.



- c. **Hand Position:** The hand holding the cane should always be in line with the middle of the body and in front of the navel.



4.3.6 Using the Cane

- a. **Wrist Movement:** The cane is moved from side to side by the flexion and extension of the wrist with the tip touching the ground lightly at each movement. The arm should not be moved.



- b. **Arc:** The cane tip should touch the ground a little wider than the width of the person's body.



- c. **Instep:** Simultaneously with the extension of one foot forward, the cane should move in the reverse. For example, as the left foot steps forward, the cane moves to the right and as the right foot comes forward, the cane goes to the left.
- d. **Rhythm:** The cane tip is lifted just clear of the ground as it traverses between two points of contact. The cane should be moved back and forth at a steady speed as the visually impaired person walks.

4.3.7 Adaptation of the Cane Technique

- a. The cane technique can be modified according to:
 - traffic conditions,
 - surface,
 - rural or urban conditions, etc.
- b. The following modifications are advisable:
 - i In an urban area, it is advisable to walk in the middle of the pavement to avoid the hazards found at the pavement boundaries.
 - ii In a busy and congested area, it is advisable to reduce effective length by holding the grip lower down to reduce contact with other persons.
 - iii In rural areas where the pavements are not properly laid, the effective length as well as sweep may be increased to cover a wider area.
 - iv In muddy conditions, the effective length as well as sweep may be reduced.

4.3.8 Shorelining : The technique of following a fence, wall or side of a pavement with a cane is called shorelining. The person should:



- swing the cane to touch the wall;
- swing it back to the other side; and
- as the person walks, the cane should hit the wall lightly on one side of the arc and ground on the other.

4.3.9 General Cautions

- a. If the visually impaired person wants to identify an object that his cane has located, he should use the free hand and not the cane.
- b. Avoid swinging the cane only on one side as it is dangerous.
- c. In case of any obstruction or ditch located by the cane, the area should be carefully explored and checked before proceeding.

- d. The cane should always be held in a correct downward position and one should avoid waving the cane in front.
- e. In case of confusion about the direction or location of the person, assistance of any sighted person in the vicinity should be sought.
- f. The cane must not be used as a support or for scaring away animals.
- g. It is essential to use cane of proper length which depends upon the height of the individual.

4.4 The Guide Dog

Using trained guide dogs for mobility is popular in Europe, South Africa, Australia and America. This technique has not been adopted in the developing countries due to the following reasons:

- Lack of training facilities for training the guide dogs
- Very high cost of maintaining such dogs
- Crowded places and lack of traffic regulations
- Risk from stray dogs and other wild animals
- Religious considerations of not allowing dogs into the kitchen, bed rooms or many a times into the house etc.
- Guide-dog technique, generally, cannot be used to the exclusion of other techniques.

As the guide dog technique is of not of much relevance in India, it has been discussed in brief only.

Basic Technique

- a. Usually, the dog is controlled by the left hand and the right hand is used for the long cane technique.
- b. The dog is trained to follow commands generally given by raising the harness or operating the lead.
- c. The visually impaired person should also understand the cues provided by the dog e.g. stopping at an entrance, deliberately going round an obstacle.
- d. Generally the dog precedes the person. However, while leaving the bus, the dog should follow and while climbing down the stairs, the dog should walk along with the person.
- e. The person must have complete control of the dog since it cannot be expected to perform certain functions such as identifying the type and the speed of approaching vehicle etc.
- f. It must be realized that the Guide Dog is a mere animal and cannot be expected to perform miracles.

5. Using other Senses for Orientation

It is a wrong belief that lack of vision is compensated by the extraordinary development of other senses. In reality, acquired blindness results into shattered confidence. However, through appropriate training and practice, one can develop skills of understanding the environment through the cumulative use of the other senses.

A visually impaired person attains independence in travel if trained in the effective and proper use of the remaining senses. Sensory stimuli termed as 'Clues' generally enable him to determine his position or direction in respect of the environment. Sensory training should generally be provided in the following areas:

5.1 Hearing

Hearing plays a very important part in the orientation process. Auditory clues help to compensate the hardship caused due to lack of visual perception. To gain maximum advantage, the person must use it in a number of ways:

5.1.1 Sound Discrimination: refers to selecting those sounds which are useful for orientation. For example, in a background of a variety of noises in a farm, he may want to separate noise of a bullock cart to get an indication of pavement direction.

5.1.2 Sound Localization: refers to locating the sound in terms of its direction, distance, source quality, variety, angle and whether the sound is moving or not. Once the position of the sound is established, he may decide to move towards or away from it. For example, on locating a sound of engine of a tractor, he may move away from it for the reasons of safety; or move towards it for approaching the pavement.

The sound discrimination and sound localization help the visually impaired in the following ways:

- Identify objects from their sound
- Relate the sounds to their sources
- Discriminate between simultaneous sounds
- Establish direction and source, whether moving or not, of the sound
- Localize sounds for understanding spatial concepts
- Get an understanding of spaces, places, terrains by sound discrimination.

5.1.3 Mapping of Sound : Whenever sound is perceived in the hearing system, mind of an individual tends to create a map in the mind depending upon direction, distance, angle,

quality, variety and pitch of the sound. Individual's mind tends to recognize the source and location of the source depending upon these factors and relating the same to past experience as regard nature of sound. A visually impaired person also experiences the same process. She requires inputs terms of recognition of these sounds and relating the same to the source.

A visually impaired should :

- be encouraged to retrieve maps of sound generator in brain;
- relate quality of sound with the source;
- locate objects using this process.
- experience and remember variety of sounds;

5.1.3 Echo Location: refers to detecting obstacles through the noises which are generated by an individual and reflected back from the obstacles. It has been established that most congenitally visually impaired people are able to detect obstacles through echo location whereas adventitiously visually impaired people can be trained to do so.

Limitations

- echo location ability deteriorates with age; and
- echo location is difficult:
 - * in noisy conditions;
 - * when there is strong wind; and
 - * when the obstacle is very thin.

It is thus essential that every visually impaired person should be imparted adequate and appropriate training in the proper use of the sense of hearing. It is desirable to use an auditory map for orientation of the environment.

5.2 Touch

A visually impaired person can gain a great deal of information by his sense of touch. Touch is essential for concept clarity and determination of the nature of the object. He can use his tactile sense to explore the environment in the following ways:

5.2.1 Hands can be used to:

- understand spatial quality, surface texture, resilience, temperature, pliability and weight;
- establish the position and then identify objects;
- trail along any object for maintaining contact for mobility;
- avail information about the layout of the environment through tactile maps, models, embossed diagrams and relief maps; and
- understand the diversity of various objects.

5.2.2 Feet can be used to:

- understand the position of various landmarks on the pathways;
- understand the relative position of buildings and the direction and lengths of connecting roads;
- feel changes in surface texture, slope etc.; and
- understand terrain and geographical conditions.

Touch may pose a limitation as large objects and the environment in general are invariably beyond tactile exploration.

5.3 Smell

Smell is useful for orientation, both in the house and the outside, in the following ways:

- a. Particular shops, factories or establishments can be identified by odour.
- b. Smell from kitchen, store or dining room can be useful as a cue for direction.
- c. Through smell, one can establish presence of particular animals in the vicinity.
- d. Typical odour from sewers or open drains in the rural areas can be used as landmarks.
- e. Sense of smell is useful for understanding one's relative position in an agricultural or a dairy farm or a garden.
- f. To relate or associate different items from their smell.

Limitations

- a. Sense of smells may change with time and with change in circumstances.
- b. Difficult to differentiate smells in crowded places.
- c. The same smell may be coming from different directions and locations.
- d. Difficult to use this sense in isolation, thus to be used in combination with other senses.

5.4 Temperature

Changes of temperature on the face or body can be used to provide orientation information. For example, it is possible to recognize position of the sun by the part of the face which feels hot. The relative position can be understood by a change from the shade to the sun.

The response of the body to external stimuli, termed as kinesthetic sense enables a person to avail environmental information like heat, cold, rain and breeze etc.

5.5 KinestheticSense

The receptors in the joints, muscles and tendons give information to the brain about the physical position of the individual in the environment. This mode of information is termed as the kinesthetic sense. Through this information, a visually impaired person comes to know the type of ground or surface i.e. grass, road, mud he is walking.

It is possible to remember and repeat particular body movements. Taking meals involves a number of sequential body activities which can be remembered and repeated when required. With practice, particular muscular movements can be produced automatically in a similar situation. It is possible to replicate the extensive body movements involved in walking from one place to another. Getting into a bus, going up the stairs or opening the door generally involves particular muscular movement which can be repeated time and again in a similar manner.

5.6 Taste

It has limited utility for sensory training in orientation and mobility as it does not provide any information about the relative environment. This sense, however, needs to be nurtured for its utility. It helps a visually impaired person to associate names of the particular substances with their particular taste:

- sweet with sugar, candy, sweets
- sour with citrus fruits, juices
- bitter with medicines, herbs, plants
- hot with tea, coffee, milk
- cold with ice-cream, ice, cold water etc.

The sense of taste is particularly useful for identifying the ingredients of food items, drinks, dietary substances and like items.

6. Orientation and Mobility Training in Indian Conditions

6.1 Adaptation of Techniques

More than 83 percent of the visually impaired persons in India reside in the rural areas. Most of these persons are bereft of any rehabilitation services. They face the following problems:

- a. Road conditions in the rural areas are unsafe - approach roads to most of the villages and streets in the villages are not well planned and are unmetalled
- b. Education as well as training opportunities, particularly for those who acquire visual impairment at later age are grossly inadequate.
- c. Appropriate mobility devices are not easily available
- d. Whatever devices are available, these have not been suitably adapted to suit the local conditions.

While adapting the mobility techniques for the rural blind, the following factors should be kept in mind:

- a. Techniques should be easy to perform with the least possible physical strain.
- b. Cost of mobility appliances should be within the reach of everyone.
- c. Ensure maximum safety in local conditions.
- d. Their appearance should be in consonance with the surroundings.
- e. Easy to repair and maintain.
- f. Easily available.
- g. Culturally appropriate.
- h. User friendly.

6.2 Individual Need Based Training

The individual felt needs and a environment of a visually impaired person must be considered while evolving the O&M training strategy. The training should be provided with the active involvement of the family members and community. The age and physical capacity are also of utmost importance while planning the nature of O&M training. While it is advisable to evolve and initiate individualized O&M training, the following guidelines which have been listed according to the age group may be useful.

6.2.1 Age Group : 0-16 Years

6.2.1.1 Orientation : Orientation training in respect of the following objects, articles and items should be provided:

- a. Household (by hearing, movement and touch)
 - location of the house, various rooms in the house
 - neighbourhood and houses in the vicinity
 - streets leading to the house and common landmarks around
 - household articles like utensils, beds, cupboards, racks, furniture and other like articles
- b. Clothes (by hearing and touch)
 - clothes of either sex and of different age groups and various local fashions
 - dressing styles and popular costumes
 - folding and stacking away clothes
 - identification of clothes

c. Food Ingredients (by touch, smell and taste)

- grains and pulses
 - fruits and vegetables
 - edible roots, leaves and plants
 - fodders, feeds, oil-cakes, husk and straw
 - spices, vegetable oil and other cooking items
 - sugar, jaggery and salt.
- d. Kitchen Material (by touch and smell): Specially for blind girls
 - fuel, firewood, soft coal, coal, dung cake, cooking gas
 - cooking gas cylinder, cooking stove
 - stove, *angithi* (fire place), gas stove
 - match box, gas lighter etc.
 - method of lighting and putting off fire
 - e. Home Economics (by touch)
 - currency notes, coins
 - envelopes, inland letters, postcards
 - brooms, mops
 - soap, washing powder, scrubber
 - hair-oil, cosmetics, make-up articles
 - comb, hair pins, purse, belt
 - f. School Articles (by touch)
 - books, note-books
 - school bag, water bag
 - pen, pencil, eraser, sharpener
 - toys, kites, marbles
 - strings, crackers

- Braille slate, inter-point Braille frame, stylus
 - Braille paper
 - abacus, geometry box, foot ruler
 - sketching device
 - felt pens
 - large print
- g. Economy (by touch, explanation)
- car, bus, truck, auto-rickshaw, scooter, train
 - bullock cart, camel cart, cycles, rickshaw
 - agriculture operations, rural trades, occupations and crafts prevalent in the area
 - milch animals like buffaloes, cows, goat, sheep
 - festivals, fairs and other celebrations
 - common animals and birds
 - plants, trees and shrubs
- h. Landmarks (by touch, hearing)
- post office, bank, school
 - temple, *panchayat* or municipality office
 - river, pond, water supply point
 - bus stop, rickshaw stand, railway station
 - market place, business centre
- i. Concept Clarity (by touch, hearing)
- different shapes, sizes and measures
 - volume, numerical and weights
 - sounds, colours and textures
 - surfaces
 - auditory maps for understanding the relative environment
 - tactile maps

6.2.1.2 Mobility Training : Mobility training in respect of the following aspects should be provided:

- a. Sighted Guide Technique of
- ascending and descending stairs
 - passing through doorways, narrow passages
 - being helped to a chair, cot or platform
 - getting into a car, bullock cart, bus, train, auto-rickshaw
- b. Protective Technique of
- trailing
 - upper hand and forearm
 - lower hand and forearm
 - locating lost objects
 - direction taking
 - using landmarks indoor
- c. Sensory Training in
- sound location
 - sound localization
 - discrimination
 - alignment
 - echo
 - shadow perception
 - sensory facial perception
- d. Cane Technique
- pre cane techniques
 - holding the long cane
 - using the long cane: grip, hand position, wrist movement, arc, keeping in step, rhythm.

- adaptations of the cane techniques
- crossing the road and the using public transport
- shoreline movement, drag and glide, touch and drag
- understanding parts of cane and benefits of using cane

e. General Mobility

- crossing of roads
- encountering of animals, bullock carts, cycles, auto-rickshaw and other automobiles
- climbing and descending from various vehicles
- training in running, jumping, climbing, crawling, throwing, catching
- moving across the fields using walk-ways

f. General Familiarity with

- neighbourhood
- local administration office
- bus stop, rickshaw stand, railway station
- school, play grounds, children's park
- temple and other public places
- ponds, rivers, wells, water supply works
- dispensary, hospital, healthcare centre
- milk collection centres

g. General Knowledge about

- art of seeking help from sighted guide and strangers
- safety rules and traffic rules
- system of traffic lights and zebra crossings

- different mobility aids and use thereof
- location of disability development centres.
- location of social development offices

6.2.2 Working Age Group 17 - 60 Years : The visually impaired persons of the working age group are in the prime of their life. They are expected to maintain their family or, at least, contribute towards the family income. They need to be economically rehabilitated. Hence, the O&M training must aim at enhancing their economic activity and their integration in the society.

The O&M training which is provided to persons in the age group 0-16 years, as listed earlier, must also be provided to the persons in this age group with the exception of orientation of school articles.

The additional aspects of O&M training for this age group are listed below:

6.2.2.1 Orientation

a. Additional Landmarks: (by touch and hearing)

- co-operative society, training centre, employment exchange,
- youth clubs, tailoring shop, betel shop, grocery shop
- farm machinery service centre, seed and fertilizer agency
- farm produce marketing yard, shopping centres

b. Economy (by touch and hearing)

- own farm, roads leading to farm
- place of work and convenient route
- farm implements, stationary machinery and

- equipment
- special employment aids, measuring devices and adaptations.
- breeds of cattle, buffalo, sheep, goat, camel.
- popular trades, crafts and domicilliary occupations prevalent in the area and their economic viability
- schemes of subsidy, soft loan and financial assistance
- concessions and facilities available to them and the procedure thereof
- understanding of the local administration, election process and role of the local administration
- general developments and progress in the area and the country as a whole.

6.2.2.2 Mobility

- travel independently to the farm, place of work
- travel independently to the co-operative society, farm produce marketing yard, shopping areas or other marketing areas
- use of advanced mobility aids viz. electronic cane, tactile maps, auditory maps etc.
- crossing of roads where there is no street light
- travel to the bank and operate account independently
- travel independently in the public transport

6.2.3 Age Group 60 Years and Above : The persons in this age group are generally referred to as Senior Citizens. As they generally suffer from physical degeneration, geriatric

disorders and diseases and have physical limitations, most of them can not undertake laborious work. Thus it is not desirable to plan for their economic rehabilitation. However, it is expedient to encourage their social integration. It will necessitate active involvement of the family members in the rehabilitation process. But for such involvement, the aged persons may express their unwillingness to avail such training.

The orientation as well as mobility training as listed for age groups 0 - 16 and 17 - 60 years may also be provided to this age group on selective basis and as per individual needs with the exception of school articles and kitchen articles. However, the aged persons may be provided following additional training:

6.2.3.1 Orientation

- items used for prayer like incense sticks, lamp.
- location of place of worship
- nearby places of pilgrimage and religious discourses
- village square or a place where the aged people meet regularly
- nearby dispensary, health centre or the family physician
- location of the pension or social development office
- location of an entertainment centre

6.2.3.2 Mobility

- travel to the place of worship independently or with a sighted guide
- travel to place of pilgrimage using the public transport or any other conventional mode of transport
- mobility to the meeting place and other public places
- in-door mobility for personal care and activities

of daily living

7. Training of O&M Personnel

7.1 Degree of Bachelor of Mobility

The YMCA College of Physical Education, Chennai initiated the Project “*Physical Education for the Blind*” in partnership with CBM during 1978. It developed a programme of physical education for visually impaired which included:

- a variety of physical activities,
- adapted games,
- an appropriate class management, and
- a physical fitness test to evaluate their physical fitness

Seeing the success of the Physical Education Programme, the first Diploma Course in Orientation and Mobility was conducted in 1982. It was subsequently upgraded as Degree of Bachelor of Mobility for the Disabled.

7.1.1 Group Method of Teaching: The college introduced the group method of teaching O & M, where one O&M teacher can concentrate on three to five students at a time, thus doing away with the standard 1:1 system of teaching O&M. It has the following advantages (Jaimitra, 1995, P. 198):

- a. The teacher can concentrate on the weaker student while the others are practicing a skill within the field of vision of the teacher.
- b. There will be cooperation and encouragement among the group.
- c. Lead up activities and recreational activities can be introduced to relieve the tedious practice.
- d. Positive competition will be present among the group and so the weak student will try to come

up to the level of the others.

Lesson plans are the basic foundations in any teaching programme and the project has introduced the module lesson plan.

The project has been constructive in designing and introducing the Bachelor of Mobility Science Degree course recognized by the Madras University.

7.1.2 The Mobility Course consists the following curriculum:

Part I: Theory

First Semester

Paper-1: Introduction to Movement Education and Mobility Science and Psychology, Counselling and Guidance.

Paper-2: Organization and Administration of Mobility Science, Methods and Materials for Teaching and Evaluation of Mobility Science.

Paper-3: Techniques and Aids for Mobility Science and Braille

Second Semester

Paper-4: Physical Education, Applied Physical Fitness and Recreation.

Paper-5: Introduction to Physiology, Ophthalmology and Audiology

Paper-6: Health Education and Nutrition and Safety Education, First Aid and Physiotherapy.

Part II: Practice Teaching (First and Second Semesters)

It consists of observation classes and school visits to handle classes in the school situation. Each candidate should maintain a work book which shall contain records of atleast 20 lessons supervised by qualified O & M and physical education personnel. Of these, atleast 15 lessons shall be from O&M and 5 lessons

from physical activities.

The practice teaching at schools shall be conducted for a period of 5 weeks in a year of which 3 shall be continuous.

Part III: Practical Works (First & Second Semesters):

Participation in learning skills under blind-fold teaching methods and techniques of the following activities:

- Pre-cane Skills
- Cane Skills: indoor, outdoor, unknown building
- Travel Skills: road crossing, unknown residential area, shopping centre, transportation skills, city travel and rural travel.
- Conditioning Exercise: (general and specific exercises) - Major games: cricket, volley ball, soft ball, *kabaddi* and table tennis
- Minor Games, Track and Field events, Swimming.
- Gymnastics and Tumbling
- Indigenous Activities: *asnas*, *dhands*, *bhaitaks*, *malkhamb* and *lazium*
- Marching and Clithencies
- Light Apparatus: clubs, dumb bells, pole and hoops
- Physical fitness
- Recreational Activities: (creative recreation, productive recreation) daily living, sensory training, teaching aids.

7.2 Training of CBR Workers

The National Association for the Blind, Rural Activities Committee has evolved a course curricula of 6 weeks duration for imparting

training to CBR Field Workers. The curricula includes 12 hours of theory and 90 hours of practical in O & M.

- a. Definitions
 - Orientation
 - Mobility
- b. Importance of O & M
 - Safety of the individual
 - Financial independence
 - Step to comprehensive rehabilitation
 - Mobility and sports
- c. Techniques, methods and process of O & M
 - Sighted guide techniques
 - While approaching narrow ways
 - * Ascending and descending stairs
 - * Being helped to a chair
 - * Passing through doorways
 - Walking along
 - * Trailing
 - * Protective techniques
 - Upper arm and forearm techniques
 - Lower hand and forearm techniques
 - * Locating dropped articles
 - * Using landmarks indoor
 - * Direction taking

- Pre-cane Skills
 - Long cane
 - * Importance
 - * Right type of cane
 - * Qualities of cane'
 - * Techniques of holding the cane
 - * Grip
 - * Hand position
 - * Wrist movement
 - * Arc
 - * Rhythm
 - * Using the cane
 - * Adaptation of cane techniques for rural areas
 - * Shore-lining
 - * Guide dogs
 - Introduction of basic techniques
 - Limitation in Indian conditions
 - Specific mobility techniques for rural areas
- b. Using other senses for orientation
- Hearing
 - Touch
 - Smell
 - Temperature
 - Kinesthetic Sense
 - Taste
- c. Orientation and mobility training in Indian conditions

- Adaptation of techniques
 - Individual need-based training
- d. Sound localization
- Significance of distance
 - Quality of sound
 - Direction of sound
 - Mapping of sound

7.3 Orientation & Mobility Training Course

The Rehabilitation Council of India has evolved this course for training the O&M instructors. This course is being run at the National Institute for the Visually Handicapped, Dehradun and the Blind Relief Association, New Delhi.

Paper I : Foundations of O & M.

- Foundations
- Basic Techniques
- Sensory training
- Sense of hearing
- Sense of Touch
- Olfactory Sense
- Kinesthetic Sense

Paper II: Anatomy and Physiology of the Eye and Ear

- Ophthalmology
- Audiology
- Audiogram

Paper III: Learning Process

- Learning

- Mental Process
- Motivation
- Learning and Teaching

Paper IV: Rehabilitation of the Visually Impaired

- Rehabilitation and its components
- Rehabilitation Services
- Responsibilities of a Mobility Instructor

Practical I: O & M Techniques

- Sighted guide techniques
- Other useful techniques
- Room familiarization
- Recognition and use of landmarks
- Long cane techniques
- Application of cane techniques in different conditions

Practical II: Braille

- Mastery over English and regional Braille codes
- Orientation to Braille numerals

Practical III: Sensory Training and Daily Living Skills

10 activities should be suggested for developing the abilities of the senses in a visually impaired child. (Sense of touch, hearing, smell, taste and kinesthesia).

The trainee should undergo blindfold experience in practicing daily living skills such as washing, bathing, dressing, shopping, drawing house hold activities and personal grooming etc.

Practical IV: Teaching Practice

- Internal (During the basic course)
- External (100 hours teaching practice in the school)

Practical V: Field visits

Practical VI: Project work for case study

(We are grateful to **Dr. B. K. Panchal**, Occupational Therapist, Adult Training Centre for the Blind, Ahmedabad for his most valuable comments on this chapter.)

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The Persons with Disabilities Act, 1995 makes the following provisions as regard orientation & mobility of the visually impaired persons :

Section 45: The appropriate Governments and local authorities shall, within the limits of their economic capacity and development, provide for :

- (a) installation of auditory signals at red lights in the public roads for the benefit of persons with visual handicap;
- (b) causing curb cuts and slopes to be made in pavements for the easy access of wheel chair user;
- (c) engraving on the surface of the zebra crossing for the blind or for persons with low vision;
- (d) engraving on the edges of railway platforms for the blind or for persons with low vision'
- (e) devising appropriate symbols of disability;
- (f) warning signals at appropriate place.