“The key to growth is the introduction of higher dimensions of consciousness into our awareness.”

—Lao Tzu
CHAPTER – 1
INTRODUCTION

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CHAPTER – 1
INTRODUCTION

1.1 INTRODUCTION

“Every student can learn, just not on the same day, or the same way.” (Brucher, J.S. 1969), “Education is the most powerful weapon which you can use to change the world” (Sharma G.R. 1970) The founder of idealism, Plato said that “Do not train children to learning by force and harshness, but direct them to it by what amuses their minds, so that you may be better able to discover with accuracy the peculiar bent of the genius of each.”

Ancient Indian thinkers describe as ‘education man self-reliant and others’ in Rig-Veda, ‘The end product of Education is to get salvation’ in Upanishads. Kautilya, as a philosopher and a statesman of outstanding class mentioned that ‘education means training for the country and love for the nation’.

The first non-European Nobel Prize winner Viswakavi Ravindranath Tagore, the founder of ‘Shantiniketan’ describe as education enables the mind to find out the ultimate truth, which gives us the wealth of inner light and love and gives significance to life. Education means positive behavioural change in person. Education develops the personality, it enhance the level of knowledge, uplift standard of life. It is right of every man to get necessary education. Education is necessary to all including disabled person.

Disability:

‘Disability’ or ‘Handicapped’ often used interchangeably. Disability may be defined as any restriction or lack of ability resulting from impairment to perform an activity in the manner or within the range considered normal for a human being as defined by the World Health Organisation (WHO). Disability can be broadly characterised as (a) locomotor (b) visual (c) hearing (d) mental disability. To address the needs of the disabled person we have been guided by the constitution of the India and UN instruments such as the Universal Declaration of Human Rights 1948 and the Declaration of the

The paradigm shift from the welfare and charity approach to the rights based one towards the issues concerning persons with disabilities encapsulated most effectively through the landmark enchantment of the Persons with Disabilities Equal Opportunities, Protection of Rights and Full Participation Act, 1995. (Mohapatra, C.S.2004).

Access to education is a basic human right, but one not enjoyed by over 75 million children across the world. Many factors hamper children’s school attendance in the developing world, but for children with disabilities the barriers are much higher. Ninety per cent of blind or severely visually impaired children in India do not attend school as per The Guardian 2008. The present study focused on the disabled person with Visual Impairment (VI) from childhood.

Visual impairment (VI) defined as a broad term that describes a wide continuum of loss in visual function. There are many aspects of visual function, including visual acuity the ability to resolve detail, accommodation (the ability to focus, field of vision mean the area that can be seen, colour vision, and adaptability to light. The definition used by the World Health Organisation to e assessment of the individual’s ability to resolve fine detail (i.e. visual acuity, using standardised methods such as the Snellen chart (fig.1.1).

Low vision described as: a visual acuity of between <6/18 and 3/60 after correction in both eyes. Whereas Blind person described as: a visual acuity is <3/60, although people with better acuity can also be described as having a visual impairment if they show an appreciable loss of visual field.
A visual acuity of 6/18 means that the person can discriminate fine detail at 6 metres that someone with normal vision could discriminate at 18 metres. Similarly, a lower visual acuity of 3/60 means that the person can discriminate fine detail at 3 metres, compared with 60 metres for a person with normal vision.

Some will have been diagnosed as suffering from conditions such as congenital blindness, cataracts, albinism and retinitis pigmentosa. Most require the use of low-vision aids and are availing of the services of a Visiting Teacher. This category is not intended to include those person whose visual difficulties are satisfactorily corrected by the wearing of spectacles and/or contact lenses.

At the interface between health and educational services, the use of both clinical and functional definitions is particularly important. (Desai, A.2010).

Depending on various causes visually impairment’ or ‘blindness’ define as a condition where a person suffers from any of the following conditions,

a. total absence of sight; or

b. visual acuity not exceeding 6/60 or 20/200 Snellen chart to measure visual activity in the better eye with correcting lenses; or

c. Limitation of the field of vision subtending an angle of 20 degree or worse.

Due to widespread general beliefs and negative attitude of the people and polity, people with disabilities suffer crass neglect and violation of basic human rights. This negativism is visible in each and every sphere of human life: be it the right to education, public service, and work, be it the right to quality living, be it the right to property, or be it the right to equality in law, people with disabilities suffer in comparison to those who are not disabled (Arona,S.2003).

Not only does the disability causes different physical problems it also causes social integration issues. They often find themselves social isolated because they have trouble making ties to others. (Muruganandum, S. 1990),
Nature of Visual Impairment

Susan Carney had defined the term visual impairment in detail in the book ‘Teaching Students with Visual Impairments: A guide for the support team’.

- **Visual impairment** refers to a significant loss of vision, even though the person may wear corrective lenses. The nature and degree of visual impairment may vary significantly, so each student may require individual adaptations to instructional practices and materials in order to learn effectively.

- **Visual impairment includes two main categories:** blindness and low vision.

- **Legal Blindness** – ranges from a visual acuity of 20/200 in the better eye after correction, to having no usable vision or a field of vision reduced to an angle of 20 degrees. Visual acuity of 20/200 means that the individual sees at 20 feet what is normally seen at 200 feet. A reduced field of vision means that the individual has tunnel vision with limited peripheral vision.

- **Blindness** – ranges from being totally without sight to unreliable vision and primary reliance on other senses. A person with blindness usually uses Braille as a reading and writing medium.

- **Low Vision** – is reduced central acuity of 20/70 or less in the better eye after correction. Most students with visual impairments have low vision. These students should be encouraged to use their residual that is remaining vision, when appropriate, using the necessary optical aids and adaptations. Students who are described as blind may have some usable vision. Visual impairments are further classified as congenital or adventitious.
Fig 1.1  Typical Snellen chart to estimate visual acuity

Snellen charts are named after the Dutch ophthalmologist Herman Snellen who developed the chart in 1862. Vision scientists now use a variation of this chart, designed by Ian Bailey and Jan Lovie.
- **Congenital** refers to loss of vision present at birth. Some of the more common causes of congenital visual impairment are:
  
  (i) Prematurity;
  
  (ii) Genetic diseases;
  
  (iii) Prenatal and perinatal infections; and
  
  (iv) Maternal substance abuse.

- **Adventitious** refers to loss of vision acquired after birth as a result of illness or accident. The age and level of development of the student before the onset of the visual impairment influences the student’s ability to acquire skills and concepts. Students with congenital blindness may have difficulty acquiring concepts, while students with adventitious blindness may retain sufficient visual memory to benefit from visual descriptions.

  Although two students may be medically assessed as having the same diagnosis and visual acuity, they may each learn and function in different ways. A student’s vision may fluctuate or may be temporarily influenced by such factors as:
  
  (i) The nature of the visual impairment;
  
  (ii) Fatigue;
  
  (iii) Glare;
  
  (iv) Inappropriate lighting;
  
  (v) Medication; and
  
  (vi) General health.

**Common Eye Conditions** (Mate, J.V.1984).

Following are the most common eye conditions teachers may encounter. **Albinism:** Albinism is a genetic condition in which there is a lack of normal pigment in the eyes and often in the skin and hair. Students with albinism usually have reduced visual acuity, sensitivity to light and nystagmus see below definition. Researcher has this type of eye condition as he himself has Albinism.
**Amblyopia:** Amblyopia is referred to as a lazy eye. There is reduced visual functioning in one eye that causes the student to use only one eye instead of both.

**Cataract:** A cataract is an opacity or cloudiness of the lens of the eyes, sometimes present at birth. Students with cataracts have reduced visual acuity and hazy vision that makes near and distant visual activities difficult, particularly in bright light. They may have poor colour discrimination.

**Cortical visual impairment:** Cortical visual impairment is caused by damage to the visual cortex in the brain or the nerve pathways. Most students with cortical visual impairment also have other disabilities. The visual response from students with cortical visual impairment is inconsistent. Providing visual stimulation may improve the student’s ability to process visual input.

**Retinal detachment:** A retinal detachment occurs when parts of the retina pull away from the supporting structure of the eye and atrophy occurs. The retina may be reattached if little time has transpired.

**Glaucoma:** Glaucoma is a disease in which there is damage to the optic nerve, through increased pressure from the fluid within the eye, resulting in reduced visual acuity and loss of peripheral vision. The fluid pressure is monitored regularly by an ophthalmologist. Students with glaucoma generally have difficulty with mobility and focusing their gaze between near and distant objects.

**Hyperopia:** Hyperopia, farsightedness is a condition in which the rays of light entering the eye focus behind the retina instead of on the retina. Students with hyperopia can see more clearly at a distance.

**Macular degeneration:** Macular degeneration is an eye disease which results in gradual loss of central vision. Students with macular degeneration have difficulty reading print on the blackboard or page.

**Myopia:** Myopia (near sightedness) is a condition in which the rays of light entering the eye focus in front of the retina instead of on the retina. Students with myopia can see more clearly up close.

**Nystagmus:** Nystagmus is involuntary movement of the eyes that can cause fatigue when carrying out visual tasks. Nystagmus is associated with many
Optic atrophy: Optic atrophy is the degeneration of the optic nerve fibers so that they are no longer able to transmit accurate visual images from the retina to the brain. An ophthalmologist will sometimes describe a student as having pale or grey optic disks in one or both eyes, which is an indication of optic atrophy. It is important to determine just how well the student can interpret what is seen both up close and at a distance.

Retinitis pigmentosa: Retinitis pigmentosa is a hereditary condition in which the retinal cells degenerate, particularly the rods which are responsible for peripheral and night vision. This results in a progressive narrowing of the field of vision, night blindness and often extreme sensitivity to light. Students with retinitis pigmentosa have difficulty with mobility, scanning the environment and reading print on the blackboard or page.

Retinopathy of prematurity: Retinopathy of prematurity is a disease of the retina in which the retinal blood vessels do not develop normally and scar tissue forms. Most students with retinopathy of prematurity benefited from the use of high illumination and magnifying aids.

Strabismus: Strabismus is a muscle imbalance that prevents the eyes from focusing together on a single point to achieve binocular vision. Students with strabismus may have significantly decreased vision in one eye and have difficulty with depth perception.

As stated above researcher is a VI person of as he has Albinism. He had faced many difficulties while studying accountancy subject. And he is sure that blind students can learn with interest if they will get some special aid to understand the subject so that they will succeed with optimum standard. Our intention is to teach the commerce subject in such a way that blind students will understand it and interest will be developed automatically. As a result they will succeed in that faculty and consequently they will get the job in commerce sector. Moreover it will improve their personality and make their future bright.
1.2 BACKGROUND OF THE STUDY

The number of people with Visual Impairment worldwide in 2002 was in excess of 161 million, of whom about 37 million were blind. The burden of visual impairment is not distributed uniformly throughout the world: the least developed regions carry the largest share. Visual impairment is also unequally distributed across age groups, being largely confined to adults 50 years of age and older. A distribution imbalance is also found with regard to gender throughout the world: females have a significantly higher risk of having visual impairment than males.

India is now home to the world's largest number of blind people. Of the 37 million people across the globe who are blind, over 15 million are from India (Sinha, 2007) Results are reported from the National Longitudinal Transition Study of Special Education Students. Dropout rates were high: 30% of students with disabilities dropped out of high school, and another 8% dropped out before entering high school.

The average dropout with disabilities was 18 years old at the time of leaving but had earned less than half the credits needed to graduate. Employment successes were strongly related to taking a concentration four courses in vocational education. Youths with learning disabilities or speech impairments were most likely to approach the rate of employment found in the general population.

Postsecondary education was low: 37% of high school graduates with disabilities had attended a postsecondary school, compared with 78% of high school graduates generally. Students with hearing or visual impairments were most likely to attend college. Students with disabilities were significantly more likely to be poor than were youths in the general population, and poverty tended to exacerbate the impact of having a disability.

Impoverished students with disabilities were less likely than wealthier students with disabilities to be enrolled in those postsecondary education and training programs that could enable them to break out of poverty. When employed, the poorer students with disabilities earned significantly less per year than did those from wealthier families.
Placement in regular education (rather than special education) was associated both with better and worse post school outcomes. Students with sensory or motor disabilities appeared to benefit from regular education placement. However, for many students, more time in regular education was associated with a higher likelihood of course failure, which was a strong predictor of dropping out of school (Wagner, M. M. and Jose B., 2006).

Vision impaired (VI) adults continue to face problems in gaining employment. In the US the 2006 Disability Status Report (www.disabilitystatistics.org) reported an employment rate of only 47.5% for people with any sensory disability.

The 2002 Household Economic Studies reported a 55.3% employment rate for persons with communications disabilities, including vision impairment. (Steinmetz, E. 2006). A further study on vision impaired youth employment levels reported a 28% employment rate for out-of-school youth. (Dryden, G. and Wagner, M.M. 2005). Reports 25% of vision impaired in the UK are in employment and “younger people tend to be better qualified and there is a high correlation between qualification level and employment”. Unemployment rate for vision impaired people in European countries in 2000 remained around 75%. (Osoian, C. Zaharie, M & Stegerean, R., 2008). In each of these studies the employment figures for those with a vision disability were consistently lower than those for sighted individuals. Major contributors to this situation are suggested to be inability to access further education and the digital divide created by the emergence of computers (Hollier, S. 2007). This raises the question ‘Can vision impaired adult learners gain equivalent grades to sighted learners if specialist education was accessible’? If so, such training would increase their employability, giving opportunities for financial independence and a more ‘normal’ lifestyle. (http://www.iariajournals.org/life_sciences).

According to the National Federation of the Blind, there are a few learning problems that visually impaired children may experience in any learning setting, and particularly in a traditional classroom. If educators use a board to draw out graphs, charts, or other examples, visually impaired
children can't always see it or benefit from it. The same concept applies to physical exercises and group activities, which are very visual. Educators can help teach visually impaired children by including specific verbal explanations and tangible objects that children can touch and feel. The field of visual disabilities faces the future with unanswered questions about the efficacy of its practices. The vast majority of children have been educated in the public schools for over 40 years, yet today there are students unable to read and graduates who cannot obtain employment (Jean, G. (2002) ). The high rate of un- and under-employment has remained fairly steady across the decades, in spite of the advances brought about by the Individuals with Disabilities Education Act and the increasing use of technology.

Increasingly, blind and visually impaired people are making use of adaptive technology. They may make use of devices such as talking calculators, computer programs with speech-output such as JAWS or Kurzweil, and adapted electronic writing tablets with speech-output which make taking notes easier. Some students may also use a scribe in class, usually a fellow student who takes particularly detailed notes or types their notes on a lap-top. In some cases, a reader may retype or scan handwritten notes so the student can utilize screen reading software and listen to the notes through a computer.

Blind and visually impaired students use a variety of software to assist them in the completion of their assignments. JAWS are very common software for blind students - it literally reads the content of the computer screen aloud by using optical character recognition (OCR) and synthesized speech output. JAWS are increasingly compatible with more programs and websites, especially as more web-designers take a more accessible approach to building their web-based content. JAWS can also be configured to work with a refreshable Braille display, which is essentially a Braille keyboard that can display the information on screen for the student to read in Braille format.

It is a common experience in education that when the spotlight falls on one group, technology or educational approach, it often illuminates those beyond the immediate target. The adoption of computers in education,
for example, has led to undertake a wholesale re-examination of other educational approaches, such as experiential learning, or distance and open learning. Similarly, the current interest in the educational needs of students with various impairments can — and should — lead to a re-evaluation of how all students are handled during their years in higher education. (www.newschool.edu)

McKendrick & Mooney 2001 argues that education providers need to be sensitive to the specific needs of various client groups. In their paper, they focus on the needs of non-geography students studying geography at Glasgow Caledonian University, while Maguire 1998, and have written about the needs of women in relation to fieldwork. By attending to the needs of minorities, it can be suggested that we not only broaden access for particular groups, but also pave the way for a more flexible and sensitive approach to meeting the educational needs of all students. (Deshprabhu, S. 2010),

One of the principles of good practice advocated in this guide can be summed up as: listen to the visually impaired learner. But should we only listen attentively to the visually impaired learner? And how far do we restrict our collaborative approach to planning field courses to students with special visual needs? Could there be generic principles of good practice embedded in our approach to this particular student minority? As the authors of one of the companion guides point out: "Many of the measures needed to assist students with hidden disabilities are, however, no more than the delivery of general good practice." (Haider, I., S. 1999), Audio material of CMP in proposed study is based on JAWS. BPA: Blind People's Association is a professional organization which believes in providing equal opportunities to all categories of people with disabilities. Consistent with the philosophy, it works for providing education, employment opportunities, equal rights and quality life for them. BPA understands that gainful employment plays an essential part in the life of a person because it gives him status and binds him to the society. Acceptance of disabled persons at work can be viewed as society's acceptance of these Persons without discrimination. However, many people with disabilities are still unable to obtain gainful occupation and are dependent on
others. Their Employment and Placement services is a step towards providing employment as well as self-employment opportunities for people with disability, so that they can be financially independent and self sufficient.

Since 1984, BPA has continuously strived to provide employment Opportunities to people with disability. (Henry J. W. 1913) During the last five years, it has been successful in providing employment to as many as 1500 people with Usability who is presently employed in public as well as private sectors and are capable of handling important assignments in banks, railways, hospitals, restaurants, etc. They are also excellent in their work as telephone operators, computer programmers, mobile repairers, liftman, etc.

They also understand the importance of self-employment and provide Micro Credit for individuals who want to be self-employed. So far as many as 900 individuals are earning a regular livelihood from their self employment programmers. They have their own telephone booths, food stalls, beauty parlours, mobile repairing shops, etc. Under the "Swayamsiddha Pariyojana" project they work especially for the empowerment of blind women by providing them Micro Credit, so that they can be independent individuals. B.P.A. also gives priority to projects advocating human rights for people with disabilities. (http://archimedes.stanford.edu).

Disability News India (DNI), is a disability News service dedicated to providing a quality up-to-date information to the Indian Disability. DNI's news section is updated two times a week, though we also add breaking stories as and when they occur.

The members of this cooperative venture have also set a good example through their successful stint in private jobs. "The blind person can work better where there is need of concentration. They are also humble and hardworking," Usha Iyer, who herself is a blind and working at Bank of India's Malad Branch in Mumbai,
1.3 HISTORICAL BACKGROUND OF EDUCATION FOR BLIND PERSON

“Education must aim at giving the blind child knowledge of the realities around him, the confidence to cope with these realities, and the feeling that he is recognized and accepted as an individual in his own right.” - Berthold Lowenfeld. Education for disabled person known as Special Education and it includes (a) residential, (b) integrated as well as (c) inclusive mode of education.

Special Education: UNESCO ,1983 has provided the most comprehensive and appropriate definition of special education. “Special education is a form of education provided for those who are not achieving, or are not likely to achieve through ordinary educational provisions, the level of educational, social and other attainments appropriate to their age, and which has the aim of furthering their progress towards these levels”.

(a) Residential School
According to Frampton & Kerney 1953, residential school for the visually impaired may be defined as:
“A boarding school offering education and care to blind children from ages three to twenty-one, or from pre-school through the high school. Educationally speaking, these schools attempt to provide complete education and care for the blind children. These services include medical, academic, musical, social, vocational courses, placement, and follow-up.”

(b) Integrated Education
It refers to the measures taken to provide educational resources, within the ordinary educational system, for those children who need them, the aim of integration is to avoid or reduce restrictions on any aspects of a child’s development which might result from segregated education.
According to Namgayel in 1985 integrated education refers to meaningful involvement of such youngsters into ongoing regular educational programme
to whatever extent it is feasible and beneficial, in a given instance, with the ultimate goal being optimal academic and social as well as personal learning of each child.

(c) Inclusive Education:
The fundamental principle of the inclusive school is that all children should learn together, wherever possible, regardless of any difficulties or differences that they may have. Inclusive school must recognize and respond to the diverse needs of their students, accommodating both different styles and rates of learning and ensuring quality education to all through appropriate curricula, organizational arrangements, teaching strategies, resource use and partnership with committees.

Johnson 1994 provides most comprehensive definition of inclusive education: “It is a flexible and individualized support system for children and young people with special educational needs because of a disability or for other reasons. It forms an integral component of the overall education system, and is provided in regular schools committed to an appropriate education for all.”

All modes of education - residential, integrated and inclusive have the same goal of formal education of the disadvantaged groups. They, however, differ in the means of achieving the same. The residential education focuses at attainment of education through special schools, whereas integrated education aims at providing education to disadvantaged children within the ordinary educational system.

**International History of Education of the Blind**

The Ancient Egyptians were the first civilizations to display an interest in the causes and cures for disabilities and during some periods blind people are recorded as representing a substantial portion of the poets and musicians in society. Blind education develops in further steps:

- **1260**: St. Louis, King of France, established at Paris the Hospice des Quinze-Vingts, where he housed and instructed three hundred blind persons.
1305: A hospice for the blind is established Bruges, in Flanders, by Robert de Béthune.

1350: A similar institution was established and endowed at Chartres by King John the Good.

1370: A similar foundation was made at Ghent by Peter Van der Leyen.

1501-1576: Girolamo Cardano, an Italian mathematician, had pointed out a way of teaching the blind to read and write by the sense of touch. They were to trace with a steel bodkin or stylus the outline of each of the letters of the alphabet, engraved on metal, until they could distinguish the letters by the sense of touch and reproduce them on paper. Cardano, however, failed to suggest how to write on a straight line with uniformity of space between the lines.

1575: Rampazetto produced at Rome prints in intaglio from letters carved in wood.

1580: Francesco Lucas, at Madrid, engraved letters in wood for the instruction of the blind; but the letters being sunk in the wood, the outlines could not as readily be followed with the finger-tips.

1640: A notary at Paris, Pierre Moreau, had movable letters cast for the use of the blind, but for lack of means was unable to follow up his undertaking.

1651: George Harsdörffer, in his work "Deliciæ mathematicæ et physicæ", published at Nuremherg, describes how the blind can recognize, and be taught to name and imitate, letters engraved in wax.

1652-1675: An Italian Jesuit, Padre Francesco Lana-Terzi suggested, as an improvement on Cardano's invention for the blind, a guide consisting of a series of wires and strings arranged in parallel lines at equal distances from one another, to secure straight writing and uniformity of space between the lines. The blind may be taught to correspond with each other by a secret code. Instead of compelling a blind person to learn how to form all the letters of the alphabet, the three methods pointed out by Lana-Terzi demand only a tactual knowledge of the letters, familiarity with their positions in their respective sections, and a little skill; (1) to insert one, two, or three dots within a square or parts of a square or right angles turned in four different directions; or (2) to
prefix to either a comma, colon, semicolon, period, or interrogation mark any one of the first four numerals; or (3) merely to form these numerals. The letters of the alphabet with the lines enclosing them, Lana-Terzi suggests, should be in relief rather than in intaglio, raised letters being far more distinguishable to the sense of touch than letters sunk in a plane surface.

He developed different 3 methods to make out the communication by applying the various thread lengths over the distances indicated by the knots, and thus discover each letter of the message.

- **1676:** At Geneva Jacques Bernouilli taught Elizabeth Waldkirch to read by a method like of Cardano. The lady made such progress that after four years she was able to correspond with her friends in German, French, and Latin, all of which she spoke fluently at the age of fifteen.

- **1711:** Nicholas Saunderson was attempted first to construct a tactile ciphering-tablet or apparatus by which all the operations of arithmetic might he performed and recorded. He was appointed as Professor of Mathematics in the University of Cambridge, Lucasian.

- **1745-91:** The Abbé Claude-François Deschamps sketched the outlines of the art of teaching the blind to read and write.

- **1749:** Diderot in his "Lettre sur les aveugles" mentions his interview with Lenôtre, known as "The Blind Man of Puisaux". In that one remarkable thing was he taught his son, to read by means of raised letters though he was not blind.

- **1784:** The modern era in the history of education of the blind opened - nearly three centuries after the desultory and apparently ineffectual attempts of Cardano and others - when Valentin Haüy (1745-1822) set himself to do for the blind what the Abbé del'Epée had done for deaf mutes.

- **1784:** In June, Haüy took a young mendicant named Lesueur, to be the subject of his first practical essays in teaching the blind.

- **1786:** Haüy exhibited the attainments of twenty-four of his best pupils at Versailles, Louis XVI and his court were in raptures at the wonderful novelty of children without sight reading, writing, ciphering, doing handicraft work, and playing orchestral music.
1791: The movement originated by Haüy has resulted in the establishment in all civilized countries of institutions of learning and industrial training schools for the blind. Before the close of the eighteenth century one institution, in Liverpool had sprung up in Great Britain.

1793: Other two institutes opened in Edinburgh and in Bristol.

1799: A similar institute opened in London.

During the nineteenth century following are the leading countries of Europe and America who have done faster movements for their blind. (a) France, (b) England, (c) Scotland, (d) Austria-Hungary, (e) Germany, (f) European Russia, (g) Sweden, (h) Switzerland, (f) Ireland.

Status of Education of the Visually Impaired in India:

The basic structure of the Constitution of India as reflected in the Preamble ensures social, economic and political justice as well as equality of status and of opportunity to all citizens of India. It is thus constitutional obligation of the State to ensure equal justice and equality to all citizens including persons with disabilities and other marginalized groups of people.

1986: For the first time National Policy on Education considered “Education for all” as one of the cherished goals of national development. One of the special groups, which has received inadequate attention so far, is that of children with disabilities.

1986: The Plan of Action stresses only those children whose needs can not be met in common schools be enrolled in special schools. Once they acquire communication skills and study skills, they will be integrated in common schools.

1987: The National Council for Educational Research and Training implemented the Project Integrated Education for the Disabled (PIED) with the financial support from UNICEF in order to strengthen implementation of IEDC within the framework and goals of the National Policy on Education.

1988: The Bahrul Islam Committee on Legislation for Persons with Disabilities included education in the Draft Legislation. It mentioned that the State shall endeavour to provide free and universal elementary education to
children with physical and mental disabilities. It also emphasized promotion of integrated education and continuation of residential education.

- **1990:** The NCERT evaluated the IEDC in 14 States. The study established that IEDC is not being implemented properly due to lack of trained manpower and lack of coordination regarding the scheme.

- **1992:** Central Scheme of Integrated Education for the Disabled Children purports to provide educational opportunities for children with disabilities in common schools. They have established Administrative Cells for monitoring the Scheme.

- **1999:** Gujarat has taken a quantum jump in the implementation of IEDC. The coverage of children with disabilities was enhanced to 15,800.

**Residential Education in India**

- **1887:** Miss Annie Sharp, a missionary, founded the first school for the visually impaired in India at Amritsar and Mr. Bihari Shah started Calcutta School for the Blind.

- **1889:** An institution for the visually impaired run by the Canadian Presbyterian Mission established at Indore.

- **1890:** Ms. A. K. Askwith established the Palayamkottai School for the Blind.

- **1893:** Ms. O’Connor founded a class for the visually impaired at Ranchi.

- **1896:** The Canadian Presbyterian Mission started a class for the visually impaired at Ujjain.

- **1900:** Mukti Mission established a Home for the Blind at Kodgaon, Poona. Ms. Millard founded the American Mission School for the Blind which was subsequently renamed as the Dadar School for the Blind.

- **1901:** Mr. M.M. Srinivas established the School for the Deaf and the Blind at Mysore.

- **1902:** The Victoria Memorial School for the Blind established in Mumbai.

- **1915:** The Baroda State founded the Mehsana School for the Blind.

- **1917:** N.S.D. Industrial Home for the Blind established in Mumbai.

- **1919:** The Blind Relief Association founded in Mumbai which established centres at Chalisgaon, Valsad and Surat.

- **1922:** Mr. B. N. Mitter founded Patna School for the Blind.
1925: Happy Home for the Blind founded in Mumbai. Mr. Sahabzada Aftab Ahmed Khan founded Ahmadi School for the Blind at Aligarh.
1929: Madras Association for the Blind founded. Dr. Kugelberg founded Tirpattur School for the Blind.
1934: Mr. V. H. Telang founded Poona School and Industrial Home for the Blind.
1939: Govt. School for the Deaf and the Blind established at Hydrabad.
1940: Dr. Mary Scott started Kalimpong School for the Blind.
1941: Mr. Subhodh Chandra Ray founded All India Lighthouse for the Blind at Calcutta.
1943: St. Dunstan of London established the St. Dunstan’s Hostel for Indian War Blinded at Dehradun. The venue now accommodates the National Institute for the Visually Handicapped.
1945: The Navrangpura School for the Blind established at Ahmedabad.
1949: Model School for the Blind established at Dehradun.
1950: Jagdish Patel established Blind People’s Association at Ahmedabad.
1951: The National Association for the Blind established in Mumbai.
1957: Blind Boys Academy established at Narendrapur, West Bengal.
1958: Divine Light School for the Blind established at Whitefield, Bangalore.
1960: A School for the Blind established at Bhubneshwar.
1962: Andhra Blind Mission School established at Nasrapur.
1963: Bharat Blind School established at Shahadara, Delhi.
1969: Shree Ramna Maharishi Academy for the Blind established at Bangalore.
1981: A large number of schools for the visually impaired established across the country as a part of observation of the International Year of Disabled Persons.
1998: The Scheme of Assistance for the Promotion of Voluntary Education supports establishment of special schools for visually impaired children with multiple disabilities.

2000: There are 300 schools for the visually impaired across the country covering 20,000 visually impaired children. This coverage is merely 3 percent of the population of the school age visually impaired children in the country.

1.4 DEFINITION OF VISUALLY IMPAIRED AND POPULATION OF VI PERSON IN INDIA

Visually impairment’’ or ‘’blindness’’ define as a condition where a person suffers from any of the following conditions, namely:-

A. Total absence of sight; or

B. Visual acuity not exceeding 6/60 or 20/200 Snellen chart to measure visual activity in the better eye with correcting lenses; or

C. Limitation of the field of vision subtending an angle of 20 degree or worse.

Further chart will clarify different terms and related definitions regarding blind persons. (Sangeeta. S.1996)
Table 1.1 Definition of Blindness

<table>
<thead>
<tr>
<th>Definition</th>
<th>Term</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disadvantages that prevents or limits fulfilments of the role that the individual would consider normal</td>
<td>Handicap</td>
<td>Inability to work, Restricted social interaction, Giving up hobbies</td>
</tr>
<tr>
<td>Restriction or inability to perform a manner considered normal</td>
<td>Disability</td>
<td>Inability to read, Inability to recognize faces, Inability to drive a car</td>
</tr>
<tr>
<td>Loss or abnormality of function whether physiological or psychological</td>
<td>Impairment</td>
<td>Visual acuity loss, Reduced contrast sensitivity, constricted visual field.</td>
</tr>
<tr>
<td>Anatomical definition from normal, whether congenital or acquired</td>
<td>Disorder</td>
<td>Cataract, age related, macular degeneration, Glaucoma</td>
</tr>
</tbody>
</table>


Census
Disability-wise number of persons with disabilities in the country as per the Census-2001
### Table 1.2 Disable People as per Census 2001

<table>
<thead>
<tr>
<th>No</th>
<th>State/UT</th>
<th>Visual disability</th>
<th>Speech disability</th>
<th>Hearing disability</th>
<th>Locomotor disability</th>
<th>Mental disability</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Jammu &amp; Kashmir</td>
<td>208,713</td>
<td>16956</td>
<td>14,157</td>
<td>37,965</td>
<td>24,879</td>
<td>302,670</td>
</tr>
<tr>
<td>2</td>
<td>Himachal Pradesh</td>
<td>64,122</td>
<td>12,762</td>
<td>15,239</td>
<td>46,512</td>
<td>17,315</td>
<td>155,950</td>
</tr>
<tr>
<td>3</td>
<td>Punjab</td>
<td>170,853</td>
<td>22,756</td>
<td>17,348</td>
<td>149,758</td>
<td>63,808</td>
<td>424,523</td>
</tr>
<tr>
<td>4</td>
<td>Chandigarh</td>
<td>8,422</td>
<td>882</td>
<td>607</td>
<td>3,828</td>
<td>1,799</td>
<td>15,538</td>
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<tr>
<td>5</td>
<td>Uttaranchal</td>
<td>85,668</td>
<td>16,749</td>
<td>15,990</td>
<td>56,474</td>
<td>19,888</td>
<td>194,769</td>
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<tr>
<td>6</td>
<td>Haryana</td>
<td>201,358</td>
<td>24,920</td>
<td>27,682</td>
<td>151,485</td>
<td>49,595</td>
<td>455,040</td>
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<tr>
<td>7</td>
<td>Delhi</td>
<td>120,712</td>
<td>15,505</td>
<td>8,741</td>
<td>64,885</td>
<td>26,043</td>
<td>235,886</td>
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<tr>
<td>8</td>
<td>Rajasthan</td>
<td>753,962</td>
<td>73,147</td>
<td>75,235</td>
<td>400,577</td>
<td>109,058</td>
<td>1,411,979</td>
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<td>9</td>
<td>Uttar Pradesh</td>
<td>1,852,071</td>
<td>255,951</td>
<td>128,303</td>
<td>930,580</td>
<td>286,464</td>
<td>3,453,369</td>
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<tr>
<td>10</td>
<td>Bihar</td>
<td>1,005,605</td>
<td>130,471</td>
<td>73,970</td>
<td>512,246</td>
<td>165,319</td>
<td>1,887,611</td>
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<tr>
<td>11</td>
<td>Sikkim</td>
<td>10,790</td>
<td>3,174</td>
<td>3,432</td>
<td>2,172</td>
<td>799</td>
<td>20,367</td>
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<td>Arunachal Pradesh</td>
<td>23,079</td>
<td>2,429</td>
<td>3,072</td>
<td>3,474</td>
<td>1,261</td>
<td>33,315</td>
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<td>13</td>
<td>Nagaland</td>
<td>9,968</td>
<td>4,398</td>
<td>5,245</td>
<td>4,258</td>
<td>2,630</td>
<td>26,499</td>
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<td></td>
<td>State</td>
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<td>14</td>
<td>Manipur</td>
<td>11,713</td>
<td>2,769</td>
<td>2,994</td>
<td>6,177</td>
<td>4,723</td>
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<td>15</td>
<td>Mizoram</td>
<td>6,257</td>
<td>2,006</td>
<td>2,421</td>
<td>2,476</td>
<td>2,851</td>
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<td>16</td>
<td>Tripura</td>
<td>27,505</td>
<td>5,105</td>
<td>5,699</td>
<td>13,970</td>
<td>6,661</td>
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<tr>
<td>17</td>
<td>Meghalaya</td>
<td>13,381</td>
<td>3,431</td>
<td>3,668</td>
<td>5,127</td>
<td>3,196</td>
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<td>18</td>
<td>Assam</td>
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<td>51,825</td>
<td>91,970</td>
<td>47,475</td>
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<td>19</td>
<td>West Bengal</td>
<td>862,073</td>
<td>170,022</td>
<td>131,579</td>
<td>412,658</td>
<td>270,842</td>
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<tr>
<td>20</td>
<td>Jharkhand</td>
<td>186,216</td>
<td>39,683</td>
<td>28,233</td>
<td>138,323</td>
<td>55,922</td>
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<td>21</td>
<td>Orissa</td>
<td>514,104</td>
<td>68,673</td>
<td>84,115</td>
<td>250,851</td>
<td>103,592</td>
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<tr>
<td>22</td>
<td>Chhattisgarh</td>
<td>160,131</td>
<td>30,438</td>
<td>34,093</td>
<td>151,611</td>
<td>43,614</td>
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<tr>
<td>23</td>
<td>Gujarat</td>
<td>494,624</td>
<td>66,534</td>
<td>70,321</td>
<td>310,765</td>
<td>103,221</td>
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<td>24</td>
<td>Daman &amp; Diu</td>
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<td>189</td>
<td>120</td>
<td>690</td>
<td>274</td>
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<td>25</td>
<td>Dadra &amp; Nagar Haveli</td>
<td>2,346</td>
<td>295</td>
<td>337</td>
<td>795</td>
<td>275</td>
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<td>26</td>
<td>Maharashtra</td>
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<td>92,390</td>
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<td>Madhya Pradesh</td>
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<td>75,825</td>
<td>85,354</td>
<td>495,878</td>
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<td>Andhra Pradesh</td>
<td>581,587</td>
<td>138,974</td>
<td>73,373</td>
<td>415,848</td>
<td>155,199</td>
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<td>29</td>
<td>Karnataka</td>
<td>440,875</td>
<td>90,717</td>
<td>49,861</td>
<td>266,559</td>
<td>92,631</td>
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<tr>
<td></td>
<td>State</td>
<td>Visually Impaired Blind</td>
<td>Visually Impaired Severe</td>
<td>Visually Impaired Moderate</td>
<td>Visually Impaired Mild</td>
<td>Visually Impaired Total</td>
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<tr>
<td>30</td>
<td>Goa</td>
<td>4,393</td>
<td>1,868</td>
<td>1,000</td>
<td>4,910</td>
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<td>31</td>
<td>Lakshadweep</td>
<td>603</td>
<td>207</td>
<td>147</td>
<td>505</td>
<td>1,678</td>
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<tr>
<td>32</td>
<td>Kerala</td>
<td>334,622</td>
<td>67,066</td>
<td>79,713</td>
<td>237,707</td>
<td>860,794</td>
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<tr>
<td>33</td>
<td>Tamil Nadu</td>
<td>964,063</td>
<td>124,479</td>
<td>72,636</td>
<td>353,798</td>
<td>1,642,497</td>
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<tr>
<td>34</td>
<td>Pondicherry</td>
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<td>1,818</td>
<td>2,277</td>
<td>8,830</td>
<td>25,857</td>
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</tr>
<tr>
<td>35</td>
<td>Andaman &amp; Nicobar</td>
<td>3,321</td>
<td>652</td>
<td>545</td>
<td>1,870</td>
<td>7,057</td>
<td></td>
</tr>
</tbody>
</table>

**Policy and Practice** (Resnikoff, S.2002)

The model presenting data by WHO region and mortality stratum, based mostly on recent surveys, is the best available estimate of visual impairment in 2002. The estimates had the added strength of being based on recent data available from countries with large populations. Because of the structure of the model, the percentage of the population in each of the three age groups weighs strongly on the prevalence calculated for all ages. In 2002, the population 50 years and older, with the highest prevalence of visual impairment, represented more than 30% of the population in developed countries and 15% of that in developing countries. In developing countries, excluding China and India, 18.8 million people were blind in 1990 compared to 19.4 million in 2002, an increase of 3%. In China and India the estimated numbers of blind people in 1990 were 6.7 and 8.9 million, respectively; in 2002 there were an estimated 6.9 million blind people in China and 6.7 million in India. These figures indicate an increase of 3% in the number.
1.5 ACT AND LAWS FOR BLIND PERSONS

Regarding disabled person there are following Acts/ Laws, Policies and Facilities

**Indian Acts and Laws:**

1. **The Persons with Disabilities Equal Opportunities, protection Of Rights and Full Participation ACT, 1995**
   
   This Law extends to the whole of India except the State of Jammu and Kashmir. It ensures that every child with a disability has access to free education in an appropriate environment till he attains the age of eighteen years.

2. **Persons with Disabilities Equal Opportunities, protection of Rights and Full Participation Rules 1996.** The Rules indicate about evaluation and assessment of various disabilities and indicate the authorities, which are to give the Disability Certificate. The Rules also provide the procedure for holding Central Coordination Committee and Central Executive Committee meetings, procedure of notification of vacancies to Special Employment Exchanges, procedure to be followed by Chief Commissioner for Persons with Disabilities in handling the complaints of persons with disabilities, salary and allowances of Chief Commissioner for Persons with Disabilities and the manner in which annual report is to be submitted by him.

3. **The Rights of Persons with Disabilities Bill, 2011**
   
   The proposed bill recognizes the equality of persons with disabilities and prohibits direct or indirect discrimination on the basis of disability.

4. **Rehabilitation Council of India Act, 1992**
   
   The Act provides for constitution of the Rehabilitation Council of India for regulating the training of rehabilitation professionals, maintenance of a Central Rehabilitation Register, recognized rehabilitation qualifications, minimum standards of educations etc.

5. **Rehabilitation Council of India Regulations, 1997**
   
   The Regulations provide details about powers and duties of the Chairperson, powers of the Council and
about the meetings of the General Council and Executive Committee, their quorum and proceedings etc.

(6) Rehabilitation Council of India (Standards of Professional Conduct, Etiquette and Code of Ethics for Rehabilitation Professionals) Regulations, 1998

These Regulations lay down the standards of professional conduct, etiquette and code of ethics for rehabilitation professionals.

**National Policy for Persons with Disabilities**

National Policy for Persons with Disabilities has been announced in February, 2006, which states disabled persons are valuable human resource for the country and seeks to create an environment that provide them equal opportunities, protection of their rights and full participation in society. The focus of the policy is on (a) Prevention of Disabilities and (b) Rehabilitation Measures.

**Facilities for disabled person**

Reservation in Government Job: Reservation of 3% is available in Govt. job for physically handicapped persons in Gr. 'C' and Gr. 'D' posts. The state government has decided that % vacancy of each for the Blind, the Deaf and for the Orthopedically Handicapped in Class III and Class IV services of Govt. and comparable posts in the Public Sector Undertakings and local bodies to be filled in by Directorate of Recruitment in any office should be reserved for being filled in by these persons.

**In Educational institutions:**

Seats of 2% are reserved for handicapped for extension programme like short term courses in the following:
a. **Mental Retardation:** Awareness Programme (Pertaining to all disabilities and rehabilitation)

b. **Learning disability:** 1% seat is reserved for handicapped for admission in Technical Institutions.

**Age relaxation:** The upper age limit is relaxed up to 45 years for handicapped persons for applying in Govt. jobs.

**Scholarship/Stipend:** The State Govt. awards Rs.30/- P.M. as scholarship to those handicapped students from Class I to Class VIII whose family income is less than Rs.4,800/-P.M.

**Maintenance Allowance Through Institutions/NGOs:** Disabled persons whose age is 55 years and above get maintenance allowance grant through NGOs @ Rs.125/- P.M.

**Unemployment allowance:** Unemployed graduates are sent to work in Govt. Offices and given Rs.100/- for 15 days. They have to work for 4 hours per day.

**Conveyance allowance:** Govt. employees get 5% of the basic or Rs.100/- P.M. maximum as conveyance allowance for attending office.

**Bus Concession:** State Road Transport is giving 75% concession in bus fares to blind, deaf and Orthopedically Handicapped persons and 50% concession to their attendants.

**Assistance for self-employment:** The maximum assistance admissible under this scheme shall be Rs.500/- per beneficiary. In exceptional types of trades such as armature, winding, book binding, sheet metal work etc. for which the material of equipment required is much expensive. The ceiling of financial assistance may be raised up to a maximum of Rs.1000/- per beneficiary.

Financial assistance up to Rs.1000/- is given to the trained disabled person.

**Officer - Director of Social Welfare, Maharashtra, Pune-1**
A margin money scheme is implemented by State Govt. for starting self-employment by disabled persons. Project up to Rs.25,000/- are considered for financial assistance.

**Awards/Sports/Seminars:**

State Govt. gives awards to disabled for the excellent work done by them to those who fail to get National Awards by Central Govt.

**Exemption in professional tax/road tax:**

Physically handicapped persons are totally exempted from paying professional tax from 1987-88. Physically handicapped persons are also exempted from paying road tax.

**Assistance for purchase of aids & appliances:**

Handicapped persons whose income is up to Rs.1500/- P.M. are entitled to 100% grant on aids and appliances, for those whose income is between Rs.1,501/- to Rs.2,000/- are entitled 50% assistance. The maximum limit of assistance and appliances is Rs.3,000/-. Handicapped persons are also eligible for Rs.150/- as conveyance allowance and Rs.10/- for lodging and boarding per day up to maximum of Rs.100/- for attending rehabilitation camps for aids and appliances.

**Other Concessions:**

- **Relaxation in typing qualification:** Relaxation in typing qualification for appointment to clerical post mandatory for MPSC.
- **Margin money:** Margin money provided to the disabled up to the maximum cost of the project Rs.25,000.
- **Government Quarter:** Disabled get preference in allotment of Govt. Quarter.
- **Extra timing in exam:** Deaf, dumb, blind and physically handicapped students get extra 30 minutes time in the Secondary and Higher Secondary
Examinations. The above categories students are provided a Writer if necessary at the time of examination whose arrangement is done by the board.

- **Exemption from drawing figures/graphs:** Blind, Spastics and Physically Handicapped students get exemption in drawing figures/graphs in examination.

- **Facility extended by Bombay University:** Handicapped students could avail of the correspondence course facility even for science through correspondence. Writers allowed in examinations and an extra time up to 3 hours is given in each paper.

- **Merit award to disabled SSC and HSC students:** Rs.100/- is granted to meritorious handicapped students. 3 students covered every year.

- **10% reservation** is made for handicapped for employment in milk distribution centres.

- **Handicapped persons** get priority in the sanction of controlled shops.

- **Blind students** studying in colleges are given tape recorder and a set of 10 educational cassettes for their use.

On the basis of these Laws and facilities students from commerce faculty can get 3% reservation in govt. employment.

### 1.6 BRAILLE MATERIAL FOR BLIND LEARNERS AND BRIEF HISTORY OF BRAILLE

Historically Braille was a system of raised dots, embossed on paper that is read with the fingers. The system was invented by Louis Braille of France in the early 1800s. On 4th January 1809, Louis Braille was born, at Coupvray, near Paris. An accident deprived his sight at three years of age and in 1819 he was sent to the Paris Blind School. As young Louis Braille desperately wanted to read, he invented Braille printing. For the world's natural languages, the
basis of the various Braille codes is a straightforward assignment of most of the
dot patterns to letters of the alphabet, punctuation marks and other symbols.

Louis Braille invented "Braille", a worldwide system of embossed type
used by blind and partially sighted people for reading and writing. It has been
adapted to almost every known language, from Albanian to Zulu. Albanian is
an Indo European language spoken by approximately 7.4 million people all
over the world. Zulu is the language about 10 million speakers’ Zulu people
who live in South Africa.

Following are stages of development of Braille

- **1809**: Louis Braille born in Coupvray, France. He is blinded at age three.
- **1819**: Braille enters the Royal Institute for Blind Youth (Institut National des
- **1821**: Braille experiments with "night writing," a raised-dot system developed
  for the French military by M. Charles Barbier.
- **1829**: Braille publishes his six-cell code, including a separate code for musical
  notations.
- **1832**: Samuel Gridley Howe, the superintendent of the New England Asylum
  for the Blind develops Boston Line Type based on letter shapes.
- **1835**: The Acts of the Apostles becomes the first book embossed using Boston
  Line Type.
- **1840**: Royal Institute director Pierre Dufau temporarily bans Braille use.
- **1843**: Pierre Foucault builds the needle writer (raphigraph), a machine for
  writing Roman letters using Braille's decapoint system which was awarded a
  platinum medal from the Society for the Encouragement of National Industry,
  is considered the first dot-matrix printer.
- **1852**: Louis Braille dies in Coupvray at 43.
- **1854**: The Missouri School for the Blind adopts Braille after Dr. Simon Pollak
  observes its use in Europe.
- **1858**: The American Printing House for the Blind is established in Louisville,
  Kentucky to produce embossed books.
1868: British and Foreign Blind Association is founded. William Bell Wait publishes his revised raised-dot system, New York Point.

1871: American Association of Instructors of the Blind (AAIB) endorses New York Point and recommends its use in all US schools for the blind.

1879 Congress passes the "Act to Promote the Education of the Blind," providing funds under a federal quota system for the production of free Braille textbooks.

1892: Dissatisfied with New York Point, AAIB-member school superintendents adopt Modified Braille (developed by Joel W. Smith in 1878 and later renamed American Braille).

1892: Frank H. Hall, superintendent of the Illinois School for the Blind, demonstrates his "Braille stereotype maker," the first braillewriter, enabling blind persons to write up to 100 words per minute.

1893: In response to Hall's braillewriter, William Bell Wait develops the Kleidograph, extending New York Point's viability another 20 years.

1909: The New York Board of Education selects American Braille over New York Point for use in public schools following contentious public hearings. New York Point's lack of capitals, hyphens, and apostrophes, which made it seem less literary than Braille, was a major factor.

1916: Research by the Commission on Uniform Type confirms Braille’s greater reach over New York Point in both users and published materials.

1918: The AAIB endorses the work of the Commission on Uniform Type, adopting British Braille for mathematical and chemical notations.

1932: English-speaking nations accept uniform Braille code; Spanish-speaking nations follow in 1951.

1951: David Abraham creates the Perkins Brailler, which offers interposing (two-sided) embossing, making Braille writing easier for students and teachers.


2007: The National Braille Press introduces its Touch of Genius Prize in honour of Louis Braille, to promote innovations in tactile learning technologies.
Development of Braille in India

- 1902: Representatives of the Foreign Bible Society, Mr. J. Knowles and Mr. L. Garthwaite invented the Oriental Braille and published it.
- 1922: At a meeting of the Central Advisory Board of Education in January, the principal of School for the Blind, Karachi, Mr. P. M. Advani, expressed the need for evolving a common Braille code.
- 1923: In Mumbai, a discussion in the Conference of the Workers of the Blind and the Deaf on the possibility of having a common Braille code.
- 1941: In November the Committee met for the first time and debated the issue.
- 1943: The Committee prepared a common Braille Code and circulated the same among various provincial Governments and institutions for the blind.
- 1944: Sir Clutha Mackenzie, Officer on Special Duty (Blindness) submitted the historical “Report of Blindness in India”.
- 1945: Sir Clutha Mackenzie appointed a committee composed primarily of Capt. A. X. Mortimer and Mr. Lal Advani for evolving a Standard Indian Braille Code.
- 1947: In April, following the recommendations of the “Report of Blindness in India,” the Ministry of Education established a Unit to deal with education of the visually impaired for developing a Uniform Braille Code and setting up Braille Printing Presses in the Country.
- 1947: When India gained independence, 11 Braille codes were in use in various parts of the country:
  a. Shirreff Urdu & Hindi Braille
  b. Indian Braille of Dr. Nilkanthrai Chhatrpati
  c. Tamil Braille of Ms. Askwith
  d. Mysore and Kannada Code
  e. Chatterjee Bengali Code
  f. Oriental Knowles & Garthwaite Braille
  g. Shah Braille
h. Advani (Sindhi) Braille
i. Uniform Indian Braille by Expert Braille Committee
j. Standard Indian Braille framed by an informal committee under the chairmanship of Lt. Col. Sir Clutha Mackenzie.

- 1949: On 23rd April, Prof. Humayun Kabir, Joint Secretary, Ministry of Education approached the Director General, UNESCO urging upon development of a uniform World Braille Code.
- 1949: In December UNESCO convened the preliminary meeting of the Advisory Committee on World Braille.
- 1951: UNESCO established the World Braille Council with Mr. Lal Advani as representative from India.
- 1951: In January, the Govt. of India accepted the recommendations of the International Braille Conference and proceeded to frame a Braille Code, named as “Bharti Braille” for Indian languages.
- 1951: In February, Asian Regional Conference on Braille uniformity held in Beirut. A body of world scholars examined the possibility of a phonetically derived system of six dots that could be used for most of the languages of India, Pakistan and Sri Lanka.
- 1951: In April the “Bharti Braille” was finalized and recommended for its nation-wide use. It has become an international system as Nepal and Bangladesh are also using this code.

**Braille Presses in India**

1) AICB Computerized Braille Press, All India Confederation of the Blind, Braille Bhawan, Institutional Area (Near D.T.C. Bus Depot No. 1) Sector V, Rohini, Delhi 110 085

Phone: 011-7054082, Fax: 7050915

E-mail: aicb@mailcity.com
2) Braille Printing Press, Red Cross School for the Blind, Ganjam District Branch, Behrampur (Orissa)

3) Central Braille Press, National Institute for the Visually Handicapped, 116, Rajpur Road, Dehradun - 248 001
   Phone : 0135 744491
   Fax : 748147
   E-mail : nivhddn@nde.vsnl.net.in

4) CFB Braille Press, Christian Foundation for the Blind
   Pallavaram, Chennai 600 043.

5) Computerized Braille Press, K.K. School for the Blind
   Vidyanagar, Bhavnagar, Phone : 0278 429326
   E-mail : pnr@bhavnagar.com

6) Computerized Braille Production Unit, Shri Ramakrishna Mission Vidyalaya, Coimbatore 641 020
   Phone : 0422 892441, Fax : 895066
   E-mail : srkvcoe@md3.vsnl.net.in

7) Computerized Braille Production Unit, L.K.C. Shri Jagdamba Andh Vidyalaya, Hanumangarh Road, Sri Ganganagar, Rajasthan
   Phone : (0154) 21358/25358/26358, Fax : 20505/23328

8) Kerala Federation of the Blind Braille Press
   Kerala Federation of the Blind, Trivandrum (Kerala)

9) Government Braille Press, Government Blind School
   Tilak Nagar, Sayaji Rao Road, Mysore (Karnataka)
10) Government Braille Press, Panchayat and Social Welfare Department, Directorate, Marwari Lane, Sadar Bazar, Bilaspur (Madhya Pradesh)

11) NAB Braille Press, National Association for the Blind, 11, Khan Abdul Gaffar Khan Road, Worli Seaface, Mumbai 400 025
Phone : 022 4935370, Fax: 4932539
E-mail : nab@giasn01.vsnl.net.in

12) NAB Braille Press, National Association for the Blind
M. P. Branch, Indore (Madhya Pradesh)

13) NAB Braille Press, National Association for the Blind, Gujarat State Branch, Vastrapur, Ahmedabad 380 015
Phone : (079) 6305082, 6305070, Fax : 6300106
E-mail : bpa@vsnl.com

14) NFB Braille Press, National Federation of the Blind, Bahadur Garh (Haryana)

15) Regional Braille Press, Government School for the Blind, Poonamallee, Chennai 600 056

16) Regional Braille Press, Malak Pet, Hyderabad (Andhra Pradesh)

17) Regional Braille Press, Ramakrishna Mission Ashram
P. O. Narendrapur, 24 Parganas (West Bengal)

18) R. K. Computerized Braille Press, Andhjan Kalyan Mandal
P.D. Malaviya College, Gondal Road, Rajkot 360 004
Phone: 0281 223985
1.7 SCOPE OF EMPLOYMENT TO BLIND PERSON THROUGH COMMERCE SECTOR

Blind (B) persons and persons with Low Vision (LV) may get job in government sector or they can opt for self employment.

(I) Posts identified for being held by Persons with Disabilities and nature of work and work condition and remark. (http://www.ccdisabilities.nic.in/)

(A) Administrative Officer-(non secretarial)
(All posts for both LV: low vision and B: Blind)
(1) Technical Secretary to Director IT, (2) Deputy Manager (Admn.)

Nature of work:
Duties assigned by the Director, assisting the director: They serve in various capacities in the Government. They assist in and/or execute various plans, policies of the Govt. May supervise actual execution of different plans, schemes etc. by the various units of the office and co-ordinate their work. May do analysis and prepare annual, quarterly reports on the functioning and efficiency of the Deptt. for the information of public, press and the parliament.

Working condition and remarks:
The work is performed mainly inside. Occasional touring is required. Working condition are usually calm and quiet. The worker plans his work alone. No hazards are involved. Incumbent of B, LV category to be supported by appropriate software.
(B) Purchase & Supply
(First post is only for LV: Low Vision and rest of the posts for both LV and B: Blind)

Nature of work:
Staff training, Organisation development, Seminars/Workshops for quality improvement IT solutions, Maintain records of staff and families, Public relations, receiving Guests making, arrangements, Maintain seniority lists of staff members, Provide information to section, Uses computers, works in office. General Administration, Recruitment, Promotion Transfer, Discipline, Employee welfare, settlement of disputes.

Working condition and remarks:
Use of Aid and appliances as per recruitment of the job.

(C) Administrative Officer- (Secretarial Senior)
(All posts for both LV: low vision and B: Blind)
(1) Secretary, (2) Adm. Officer, (3) Dy. Director Admn.,(4) Assistant Director, (5) Addl. General Manager (Admn), (6)Chief Administrative Officer, (7) Dy. Manager (General), (8) Senior Administrative Officer.

Nature of work:
Administrating the institutions, monitoring, day-to-day functioning of the institutions. They advise the Head of the Dept. on all matters of policy and administration. Scrutinise proposals for expansion of administrative staff, renting or purchasing of buildings, furniture & other office equipment. Decide the disciplinary action to be taken against staff as per Rules and Regulations
laid down by the Dept. of Personnel and make policy decisions in the matter of administration.

Working condition and remarks:
The work is mostly performed inside in well lighted rooms. The worker usually does his work alone; it does not involve any hazard. Appropriate computer software & aids and appliance to be used as per needs.

(D) Administrative Officer (Secretarial - Junior)
(All posts for both LV: low vision and B: Blind)
(1) Administrative officer, (2) Assistant Administrative Officer, (3) Assistant Director (Admn), (4) Assistant Secretary, (5) Faculty Member/Training Manager in Central, Zonal/Regional Training Centres of the Banks.

Nature of work:
They organise and control all clerical work in the office, mark the dak, allot duties of staff, co-ordinate and supervise work of the clerical staff and look after discipline, administrative matters including cases of Earned Leave, in subordination, arrangement of office accommodation, furniture, office equipments etc. Prepare briefs of important administrative matters and Parliament questions, attend departmental meetings.

Working condition and remarks:
The work is performed mostly inside. He usually works alone through interaction with subordinates is actively required. The work place is well lighted It does not evolve any hazards.

(E) Bank Officers
(First 12 post are only for LV: Low Vision and rest of the posts for both LV and B: Blind)
(1) Officer Grade 'A', (2) Officer Grade 'B', (3) Officer Grade 'C', (4) Officer Grade 'D' (5) Officer Grade 'E' (6) Officer Grade 'F', (7) Manager of currency (Foreign exchange), (8) Economic Analyst, (9), Programmer, (10) Publicity Officer, (11) Research Officers, (12) Pricing & Profitability Capital Adequacy, (13) Statistical Analyst, (14) Economic advisor, (15) Economist, (16) Assistant
Manager system, (17) Dy. General Manager, Official Language, (18) Instructor, Management Faculty.

**Nature of work:**
They develop and apply most effective methods for collecting, tabulating & interpreting data in any one of wide variety of fields. Determine character and volume of information necessary for solution of any problem and obtain or devise methods for collecting necessary information. May advice and consult private industrial concerns or government agencies on matters such as operating efficiency marketing methods and fiscal problems.

**Working condition and remarks:**
The work is performed inside; the work place is well lighted and comfortable. The worker usually works alone though some public dealing is required. The Branch In charge has to do field work also and the in the field, which may be work place hot, humid and dusty.

**(F) Lecturer, Reader, Professor: (Commerce faculty)**
(All posts for both LV: low vision and B: Blind)
(1) Accountancy, Commerce

**Nature of work:**
They teach college students one or more subjects such as Accounts, Commerce and Business Studies etc. Deliver lecture, guide and supervise practical work in the field. Set examination papers, conduct examinations and mark paper. Maintain class registers and records may conduct or guide research work.

**Working condition and remarks:**
The work is performed mostly inside. The work place is well lighted. The incumbents need to be considered with aids & appliances as mobility should not be restricted.

**(II) Self-Employment:**
Self employment is certainly an important option for people in general across socio-economic levels, including people with disabilities. The Ministries
responsible for promoting self-employment are Social Justice & Empowerment, Ministry of Housing & Poverty Alleviation and Ministry of Rural Development. There are also Financial Institutions/Banks, like SIDBI, RRB, etc. which promote self-employment. The Disability Act, 1995 mandates 3% reservation for disabled people in all poverty alleviation schemes.

**Government Initiatives**

**National Handicapped Finance and Development Corporation (NHFDC):**
This is the major initiatives of Ministry of Social Justice and Empowerment, which promotes economic development activities, self-employment ventures, higher education and marketing for the benefit of persons with disabilities. It provides further schemes.

**NHFDC SCHEMES**

(1) **Income Generating Activities:**
For setting up small business in Service/Trading sector: Loan up to Rs. 1.0 lakh for sales/trading activity and Rs.3.00 lakh for service sector activity. The small business, project or activity, for which financial assistance has been sought, will have to be operated by the disabled person himself and employing at least 15% disabled persons in his venture.

(2) **Loan for Education/Training to Disabled Persons:**
To meet tuition and other fees/maintenance cost/books and equipment etc.for pursuing professional courses in a recognised educational institution in India and abroad. i) Studies in India - Maximum Rs. 7.50 lakhs ii) Studies Abroad - Maximum Rs. 15 lakhs.

(3) **Financial Assistance for Skill & Entrepreneurial Development:**
Financial assistance is provided in the form of grant through the SCAs.

(4) **Micro Credit Scheme:**
Loan is given to the SCAs for further disbursement to individual beneficiaries, self-help groups of disabled persons through Non Government Organisations. The maximum amount of loan to an NGO will be limited to Rs. 5.0 lakh.
According to this information it is clear that blind and low vision persons can get such variety of opportunities to develop their economic condition and thus uplift their life standard after completing education through commerce sector. So researcher is interested to help blind and low vision students to obtain good marks in accountancy subject which is more difficult according to our survey method to these students. Base line report, 2009.

1.8 ACTIVITY BASED LEARNING THEORY

Concept of Activity-based learning (ABL): It is a range of pedagogical approaches to teaching. This includes the requirement that learning should be based on doing some hands-on experiments and activities. The idea of activity-based learning is rooted in the common notion that children are active learners rather than passive recipients of information. If child is provided the opportunity to explore by their own and provided an optimum learning environment then the learning becomes joyful and long-lasting.(Kakkar S.B.1993)

Traditional classroom practices have been known to have many limitations such as large student-teacher ratio, teacher’s role as giver of information rather than as a facilitator of learning, fear of the teacher’s role, problems due to student and teacher absenteeism, heavy schoolbags, central role of textbooks as the source of information. Further, many rural and urban schools function with just one teacher so all students have to be combined into a single or few numbers of classes resulting in multi-grade classrooms. This inadvertently posed major challenges for the teacher as to which groups of children would she teach and when and how.

The ABL methodology has been able to overcome many of these barriers. Initial studies by Schools cape and SSA 2008 have shown the physical, emotional and social environment of the schools have improved compared to prior to ABL introduction. Improvements were also seen in the
ways students were assessed and given feedback about their academic work periodically. It is also expected to modify the role of the teacher from that of a giver of information to facilitator of learning. It is expected to allow teachers use their time judiciously for students in different learning levels so that all types of learners are equally benefited. This method has been tried out in certain other states such as Gujarat, Karnataka, Kerala, Uttar Pradesh, and Madhya Pradesh. In this method, the textbook is replaced by cards. These cards are prepared from units in the textbooks. There are cards for introducing the topic, learning it, reinforcing it and testing it. These cards include activities, both individual and group. Activity-based learning started sometime in 1944 around World War II when a British man David Horsburgh came to India and finally decided to settle down there. He was an innovative thinker and charismatic leader. He started teaching in Rishi Valley School. He joined the British Council and worked in Chennai and Bangalore for many years. After his voluntary retirement, he located a 7-acre (28,000 m²) site in Kolar District and opened his school, Neel Bagh. Neel Bagh was based on an innovative idea of Horsburgh and known for its creative methods in teaching well-planned learning materials. With his wife Doreen and his son Nicholas, Horsburgh developed a diverse curriculum, which included music, carpentry, sewing, masonry, gardening, as well as the usual school subjects, English, mathematics, Sanskrit, and Telugu.

1.9 HISTORY OF AUDIO MATERIAL AND ITS IMPORTANCE FOR BLIND LEARNERS

Audio material for blind learners is available from 1877. And its brief history is as follows.

- **1877**: Thomas Edison first invented the Spoken word recordings with the invention of the phonograph. "Phonographic books" were one of the original applications envisioned by Edison which would "speak to blind people without effort on their part."
1878: a demonstration at the Royal Institution in Britain included "Hey Diddle Diddle, the Cat and the Fiddle" and a line of Tennyson's poetry thus establishing from the very beginning of the technology its association with spoken literature.

Late 1800s: Many short, spoken word recordings were sold on cylinder.

Early 1900s: the round cylinders were limited to about 4 minutes each making books impractical, flat platters increased to 12 minutes but this too was impractical for longer works.

1930: Close-grooved records increased to 20 minutes making possible longer narrative.

1931: The American Foundation for the Blind (AFB) and Library of Congress Books for the Adult Blind Project established the "Talking Books Program", which was intended to provide reading material for veterans injured during WWI and other visually impaired adults.

1932: The first test recordings including a chapter from Helen Keller's Midstream and Edgar Allan Poe's "The Raven.

1934 The first recordings made for the Talking Books Program in included sections of the Bible; the Declaration of Independence and other patriotic documents; plays and sonnets by Shakespeare; and fiction by Gladys Hasty Carroll, E. M. Delafield, Cora Jarrett, Rudyard Kipling, John Masefield, and P. G. Wodehouse.

1935: Congress approved free mailings of audio books to blind citizens, Books for the Adult Blind Project was in full operation.

Late 1960s: The development of portable cassette recorders, audiotapes had become popular and by the libraries became a source of free audio books, primarily on vinyl records and then on cassettes.

1970: Recordings were on tape reels and then later cassettes.

1975: Olympic gold medalist, Duvall Hecht founded Books on Tape, Inc. as a direct to consumer mail order rental service for unabridged audio books.

1986: The Audio Publishers Association was established by six competitive companies who joined together to promote the consumer awareness of spoken word audio.
➢ 1992: National Library Service for the Blind and Physically Challenged (NLS) network circulated millions of recorded books to more than 700,000 physically challenged listeners.

➢ 1996: The Audio Publishers Association established the Audie Awards for audio books, which is equivalent to the Oscar for the talking books industry.

➢ 1955: The evolution and use of audio books in Germany closely parallels that of the US. A special example of its use is the West German Audio Book Library for the Blind.

➢ 2004: The offerings have been recorded in the DAISY Digital Talking Book MP3 standard, which provides additional features for visually impaired users to both listen and navigate written material aurally.

➢ 2010: Audio books gain popularity in the Indian market. India started to take shape a little later as compared to the rest of the world.

Importance:

With such historical background of audio material researcher has developed audio material part of CMP of accountancy subject for 11\textsuperscript{th} std VI commerce student.

1.10 ASSISTIVE TECHNOLOGY FOR BLIND LEARNERS

Now a day blind and visually impaired people are making use of adaptive technology. They may make use of devices such as talking calculators, computer programs with speech-output such as JAWS or Kurzweil, and adapted electronic writing tablets with speech-output which make taking notes easier. (http://www.newschool.edu) Assistive technologies for blind learners are available as follows:

➢ The Archimedes Project: The Archimedes Project is not any specific project but a group of individuals committed to making information technology available to all people, regardless of abilities, needs, preferences, and culture.

http://archimedes.stanford.edu
Computer Graphics Access for Blind people through a haptic virtual environment: The GRAB project has allowed the development of a new Haptic & Audio Virtual Environment to allow blind and visually impaired persons to have access to the three-dimensional graphic computer world through the senses of touch and hearing. (http://www.grab-eu.com)

FP5 project achieves world breakthrough in treating blindness: A project financed under the EU's Fifth Framework Programme (FP5) has successfully developed an electronic implant to allow a blind person to recover some vision. (http://cordis.europa.eu/fetch)

Mobile OCR, Face and Object Recognition for the Blind: The main goal of The vOICe vision technology is to offer an equivalent of "raw" visual input to blind people, via complex visual sounds, thus leaving the recognition tasks to the human brain. However, complementary to that it would be useful to have options for automatic recognition through computer vision technology. (http://www.seeingwithsound.com)

American foundation for Blind (AFB): made the effort to make technology available and accessible to people with vision loss for over 90 years. Technology plays a crucial role in keeping the vision loss community informed and connected. In its first decades AFB pioneered much advancement in assistive technology—including the hugely successful Talking Book program, which provided audio books for millions of people with blindness and low vision. AFB has also designed, manufactured, and sold numerous assistive technology products, such as Braille writers, magnifiers, and audio blood pressure monitors. (http://www.afb.org/section)

The TV commercials make it the iPhone is immediately accessible to the blind and visually impaired with the help of wealth of apps that leverage Apple's built-in accessibility features. (http://assistivetechnology.about.com/od) When not texting or making calls, blind iPhone users can Tweet, check email, listen to books, music, and radio programs, navigate with GPS, scan barcodes, pay
bills, check the weather, time recipes, set an alarm clock, and play games like everyone else. (http://assistivetechnology.about.com/od/ATCAT1)

Above information of assistive material nourished researcher to prepare CMP by product method

1.11 CONCEPT AND BASIC ASSUMPTIONS OF CMP

The course material package provides unobtrusive, task-oriented, and individualized delivery of electronic course information, and handles the tasks of information integration, filtering, and modulation to minimize the information overload that renders existing educational interfaces unusable by blind student. (Mehmet E, 2000)

COURSE MATERIAL PACKAGE (CMP):

Any course material is materials prepared for use in teaching, fixed or unfixed, in any form, including, digital, print, audio, visual, or any combination thereof. In this study Course materials package is specially designed with combination of Braille charts and audio clips of rules and regulations of account subject for 11th std Visually Impaired (VI) students.

ASSUMPTIONS OF CMP

(1) One can learn at once pace and time.
(2) One can receive immediate and personalized feedback.
(3) CMP can be used in all type of teaching –learning program
(4) CMP can be arranged for a number students simultaneously
(5) One can move to one frame to another frame
1.12 SIGNIFICANCE AND NEED OF CMP FOR BLIND LEARNERS

Blind learners have many problems while learning mathematical calculation and its proper arrangements of numbers. The investigation presented in Seventh International Conference on Higher Education and Disability by Imke Durre states that in post-secondary mathematics and science courses, the preponderance of visual displays and mathematical expressions poses a number of significant challenges for students who are visually impaired, particularly those with little or no usable vision. First, lectures in these fields can be difficult for blind students to follow unless sufficient verbal information is provided in conjunction with the illustrations and mathematical expressions presented. (Durre E, 2002)

In accountancy subject these type mathematical calculations are necessary. As per the survey from 11th std. commerce VI students and their teacher for these study students face many difficulties of rules and regulation for preparing Journal and Ledger.

The study presented by Oliv G. Klingenberg states that students who read Braille were able to complete geometric tasks and they can construct mental representations of the shapes of objects. (Oliv G, 2012)

Students with visual impairments may need a variety of specialized materials and equipment in order to function effectively in the school environment. An audio aid has been one of the most popular and successful output media for the blind student over the years and is employed in a wide variety of computer-based device interfaces. Certainly, Jaws for Windows, (Freedom Scientific – 2001) is a necessary tool for any blind computer user. Professor Abraham Nemeth not only defined the U.S. standard for math Braille representation, but also developed a simple spoken structure for reading equations. Nemeth, 1996.

An interesting overview of the problem of reading math, Hayes, 1996, offers an overview of techniques developed to that date. Finally, the MAVIS project
carried out a series of psychological experiments to better understand the process and its inherent problems (Haider I.S.1999)

UNESCO (The United Nations Educational, Scientific and Cultural Organization) issued the ‘Salamanca Statement and Framework for Action’ adopted at the World Conference on Special Needs and Education in 1994. It spells out the implications of statements of rights. It states that every child has fundamental right of education and must be given the opportunity to achieve and maintain an acceptable level of learning. As well as educational systems should be designed and educational programmes implemented to take into account the wide diversity of characteristics and needs those special educational needs must have access to regular school (Pandey V.C., 2008)

Educational philosophy of father of nation mahatma Gandhi “By education I mean an all around drawing out of the best in child and man – body, mind and spirit. Mahatma Gandhiji and Swami Vivekanand proposed activity oriented education. It creates interest in learning. The problem of indiscipline which is prevalent today can also be solved through activity oriented education. Mahatma Gandhi said that education should enable the child to meet the future needs of his life. He said education should be an insurance against unemployment. (Rao, K., 2010).

S.A. Kirk defines as : ‘An exceptional child is he who deviates from the normal child in physical, mental and social characteristics to much an extent that he requires a modification of school practice or special educational services in order to develop to his maximum capacity’. (Ansari M.S., 2012) As VI students are special persons we have developed CMP especially for them to understand the subject better.

**1.13 CHARACTERISTICS OF CMP**

The course material should be suitable, adoptable, compatible, flexible, complete, appropriate, distinct and testable and economic. (Dr. Gangappa
The unique characteristics of CMP are as follows:

1. This CMP is developed by Visually Impaired (VI) person for VI impaired students.
2. It can be used by all 11th std., commerce VI students irrespective of state, region and nation.
3. This CMP is based on activity based learning theory (ABL)
4. It is easy to understand and operate.
5. The complex calculation, charts and rules of account subject can be easily understand by this CMP.
6. This CMP is unique and different from available audio material currently available in the market.
7. This CMP is in form of Braille Booklet and Audio Material.

1.14 TYPES OF CMP

**Figure 1.2 Types of CMP**

![Diagram of Types of CMP]

(1) **Braille Booklet** The Course Material Package has content with 11th standard Accountancy information of Classification of Accounts, Journal and Ledger and their analysis, all these material convert in Braille Booklet.
(2) **Audio Material**  The Course Material Package has content with 11th standard Accountancy information of Classification of Accounts, Journal and Ledger and their analysis, all these material convert in Audio Material.

**1.15 NEED AND SIGNIFICANCE OF THE STUDY**

All children go through different developmental stages that have their own opportunities and obstacles, but visually impaired children face additional challenges while they progress through their childhood years. They may face coordination difficulties, emotional stress, difficulty learning in a traditional setting and organizational challenges—all coupled with additional attention and curiosity from their peers. (By Chelsea Day, eHow Contributor)

**1.15.1 This study is important additionally for further reasons:**

Researcher inspired from his own experience while studying accountancy subject. As he himself is visually impaired person, he faced many difficulties to understand the subject, e.g.

(i) Rules and Regulations from Accountancy
(ii) Preparation of journal with different types entries and
(iii) Various types of postings in ledger.
(iv) Unable to see solution of problem on blackboard.
(v) Difficulties faced to interact with other students and teacher
(vi) Inferiority complex developed due to the difficult situation in classroom

Researcher can help solving these problems and attracting VI students to commerce faculty with the help of CMP. As there are many vacant posts for good job after completing career through commerce sector VI person can occupy those posts and subsequently they can live standard life.

**1.15.2 As mentioned before in Scope of Employment to VI Person through Commerce sector many opportunities are existed through commerce sector.**
And there is 3% reservation for handicapped persons but mostly these posts remain vacant due to unavailability of candidates.

Researcher wants to attract VI students to commerce faculty and get succeed through commerce so that they can get opportunities of government employment and develop their economical status.

1.15.3 Very few S.S.C. qualified VI students take admission to commerce faculty in 11 th std. Table 1.3 shows S.S.C. qualified VI students admitted in 11 th commerce.

Table 1.3 S.S.C. qualified VI students admitted in 11 th commerce. in the year 2013-14.

<table>
<thead>
<tr>
<th>Sr.No.</th>
<th>Name of the blind School and address</th>
<th>Total VI students of 10 th std.</th>
<th>VI students admitted in 11 th std. commerce faculty</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Smt Kamla Mehta School For The Blind Opposite Hindmata Cinema, Besides Tata Mills, 160 Dadasaheb Phalke Road, Dadar East, Mumbai - 400014</td>
<td>40</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>The Nab Workshop For The Blind, Worli Gr Floor, Dr Annie Besant Road, Opp Old Passport Office, Worli, Mumbai, - 400018</td>
<td>25</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>The Victoria Memorial School for the Blind 73, Tardeo Road, Opp. Film Centre, Tardeo, Mumbai - 400 034.</td>
<td>100</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>The N S D Industrial Home For The Blind, Worli 52, B D D Chawls, Worli, Mumbai, - 400018</td>
<td>40</td>
<td>1</td>
</tr>
<tr>
<td>No.</td>
<td>Organization Name</td>
<td>Address</td>
<td>Capacity</td>
</tr>
<tr>
<td>----</td>
<td>------------------</td>
<td>---------</td>
<td>----------</td>
</tr>
<tr>
<td>5</td>
<td>National Association For The Blind, Cotton Green</td>
<td>2nd Floor 124-127, Rustom Alpaiwala Complex, Nr Reay Road Station, Cotton Green, Mumbai, - 400033</td>
<td>50</td>
</tr>
<tr>
<td>6</td>
<td>The Happy Home &amp; School for the Blind, Dr. Annie Besant Road, Worli, Mumbai 400 018</td>
<td></td>
<td>40</td>
</tr>
<tr>
<td>7</td>
<td>Industrial Home for Blind Women, Lallubhai Park Andheri West, Mumbai - 400058</td>
<td></td>
<td>40</td>
</tr>
<tr>
<td>8</td>
<td>Mancherji Nowrojee Banaji Industrial Home and School for Blind, (MNB), 280, S V Road, Opposite Malcolm Baug, Next to Jogeshwari Bus Depot, Jogeshwari West, Mumbai, - 400102</td>
<td></td>
<td>25</td>
</tr>
<tr>
<td>9</td>
<td>Pragati Andh Vidyalaya, Badlapur, Thane - 421504</td>
<td></td>
<td>25</td>
</tr>
<tr>
<td>10</td>
<td>National association for the blind India, NAB</td>
<td>11, Khan Abdul Gaffar Khan Road, Worli Seaface Mumbai 400 030</td>
<td>40</td>
</tr>
<tr>
<td>11</td>
<td>Snehajyoti Nivasi Blind School, Gharadi, Tal. Mandangadh, Dist. Ratnagiri, Maharastra 415203</td>
<td></td>
<td>40</td>
</tr>
<tr>
<td>12</td>
<td>The Poona School &amp; Home for the Blind Girls Near Gandhi Bhavan, Kothrud Pune – 411038</td>
<td></td>
<td>40</td>
</tr>
</tbody>
</table>
13 Technical training Institute for the Blind, 109, Ramtekdi, Hadapsar Hadapsar Pune, Maharashtra 411028 30 0

14 The Poona School for the Blind Girls, Gandhi Bhavan Rd, Chaitanya Nagar, Kothrud Pune, Maharashtra 411058. 25 1

15 Patashibai Manav Trust Blind School P. Bhosari, Tal Haveli, Dist Pune, Maharashtra 25 1

16 Patashibai Manav Trust Blind School, P. Bhosari, Tal Haveli, Dist Pune 25 1

17 22) National Federation Of the Blind Maharashtra (NFBM).R.K. Samiti, Gandhi Chowk, R.S. Road, Vile Parle (West), Mumbai - 400 056. 30 0

18 Jagriti School for Blind Girls, At Post Alandi Devachi, Taluka Khed, District - Pune - 412105 30 2

Informants found for the present research are given in the Appendix E-2.

1.16 STATEMENT OF THE PROBLEM

To develop Course Material Package to study accountancy subject for visually impaired students from XI th standard Pune and Mumbai city and its effectiveness.

1.17 OBJECTIVES OF THE STUDY

(i) To identify units from XI th standard accountancy subject for development CMP for VI students,
(ii) To develop the CMP as identified units of accountancy subject for XI th standard VI student,

(iii) To find out the effectiveness of developed CMP as teaching accountancy subject for XI th standard VI student.

(iv) To study the effectiveness of CMP between XI th standard Totally and partially blind students

(v) To study effectiveness of CMP between XI th standard congenital and adventitious blind students

(vi) To find out opinion of XI th standard VI students towards developed CMP.

1.18 CONCEPTUAL AND OPERATIONAL DEFINITIONS OF IMPORTANT TERMS AND PHRASES

1) Development of Course Material Package

**Operational Definition:** It is a program with audio tactile and Braille Booklet on identified units related to XI std. commerce Accountancy subject syllabus as solution for visually impaired students’ learning problems.

2) Accountancy subject:

**Conceptual Definition** – Accountancy refers to the entire body of the theory and process of accounting (H.S.C. Board, 2012).

**Operational Definition:** It is one of the subjects from commerce faculty for students, who admitted for further studies after passing S.S.C. examination.

3) XI standard:

As per Indian educational system, students first academic year after passing S.S.C. examination.
4) Commerce

**Conceptual Definition**- Commerce refers to and includes all those activities which are necessary to brings goods and services from the place of their origin to the place of their consumption (Michael R. 2011).

**Operational Definition**

In Indian educational system this is one sector among the three sectors which are available for further studies for students after passing S.S.C. examination.

5) Visually Impaired student:

**Conceptual Definition**

1 Students with visual impairments are identified as those with a corrected visual acuity of 20/70 or less in the better eye or field restriction of less than 20 degrees at its widest point or identified as cortically visually impaired and functioning at the definition of legal blindness. (Haider I. S. 1999)

2 Visual impairment including blindness, means an impairment in vision that, even with correction, adversely affects a child's educational performance. The term includes both partial sight and blindness. This impairment refers to abnormality of the eyes, the optic nerve or the visual center for the brain resulting in decreased visual acuity. ([www.vidyaranya.org/](http://www.vidyaranya.org/))

**Operational Definition**

A student from XI std. commerce who has difficulty related to visibility, e.g., totally blind or having more than 75 % blindness.

6) Pune and Mumbai City

These are two cities from Maharashtra State of India country.

7) Effectiveness:
Conceptual Definition

The degrees to which objectives are achieved and the extent to which targeted problems are solved. In contrast to efficiency, effectiveness is determined without reference to costs and, whereas efficiency means "doing the thing right," effectiveness means "doing the right thing." (http://www.businessdictionary.com)

Operational Definition

Find significant difference between mean score of pre-test and post-test of this experiment.

8) Classification of Account

Conceptual Definition - Classification of accounts means an act of dividing or grouping or arranging different accounts into certain well defined classes for the purpose of writing entries in the books of accounts. (H.S.C. Board, 2012)

9) Journal

Conceptual Definition – A Journal is a book employed to classify or sort out transactions in a form convenient for their subsequent entry in the ledger. (Cropper l, 2012).

10) Journalisation

Conceptual Definition: The process of entering or recording the transactions in a journal is called Journalisation. (H.S.C. Board, 2012).

11) Ledger

Conceptual Definition: Ledger is bound secondary book in which all accounts are maintained, it records from journal and subsidiary books only, it provides summarised records at one place. (H.S.C. Board, 2012)
12) Ledger Posting

**Conceptual Definition:** The process of copying entry from journal to ledger is called ledger posting. (Michael R. 2011).

### 1.19 HYPOTHESIS OF THE STUDY

#### 1.19.1 Research Hypothesis:

1) There is significant difference between mean score of Pre test and Post test on same group of XIth standard VI student taught by CMP.

2) There is significant difference between mean score of Post test of totally blind and partially blind XIth standard student.

3) There is significant difference between mean score of Post test of congenital and adventitious XI\textsuperscript{th} standard blind students.

#### 1.19.2 Null Hypothesis:

1) There is no significant difference between mean score of Pre test and Post test on same group of XIth standard VI student taught by CMP.

2) There is no significant difference between mean score of Post test of totally blind and partially blind XI\textsuperscript{th} standard student.

3) There is no significant difference between mean score of Post test of congenital and adventitious XI\textsuperscript{th} standard blind students

### 1.20 ASSUMPTIONS OF THE STUDY

1) XI standard. Visually Impaired Students has understanding problems in Mathematical subject like account. (Karshmer and Bledsoe ., 2010)

2) XI standard Visually Impaired students have knowledge of Braille language. (Wormsley ., Robertwall, Emerson and Erin ., 2011)

3) XI standard. Visually Impaired students can operate computer properly. (Williams ., Christopher . and Ray. 2011)
1.21 Scope Delimitations Limitations:

1.21.1 Scope of the study

1) A CMP is applicable to Junior College accountancy subject teachers who teach to XI\textsuperscript{th} standard VI students.

2) It is applicable to English medium Junior college of Commerce where learn XI\textsuperscript{th} standard VI students.

3) It is applicable to XI th standard VI students who learn accountancy subject.

1.21.2. Delimitations of the study

1) Accountancy text book prescribed by Maharashtra state HSC board for XI\textsuperscript{th} standard.

2) Commerce Junior college from Pune and Mumbai city

3) XI th standard VI students from commerce English medium junior college.

4) Accountancy subject for identified units (i) Classification of accounts, (ii) Journal, (iii) Ledger

1.21.3. Limitations of the study:

1) The psychological aspects like motivation, interests, attention of the students are beyond the control of the researcher.

2) Physical aspect like orthopedically variables is beyond control of the researcher

3) The impact of the educational aspect like private coaching classes, multimedia and available material in the market is beyond control of the researcher.
Summary and Discussion

In this Chapter Researcher explained about Research Objectives, Assumptions, Scope, Limitations, Delimitations, and Operational Definitions. Researcher also explained brief history of Braille and Audio Material and Need and Significance of the study and ACT, Laws belongs to Visually Impaired Candidates. In this chapter Researcher also explained Scope of Commerce Sector to Visually Impaired Students.
“Books are the carriers of civilization. Without books, history is silent, literature dumb, science crippled, thought and speculation at a standstill.”

— Barbara W. Tuchman