CHAPTER ONE
INTRODUCTION

1.1 Background of the study

According to United Nation Convention on the Rights of Persons with Disabilities (UNCRPD) disability refers to a condition of difficulty in performing day to day activities normally and in participating fully in social life due to problems in the parts of the body and the physical system as well as obstacles created by physical, social and cultural environment and by communication. According to the Government of Nepal (2006) disability is the condition of difficulty in carrying out daily activities normally and in taking part in social life due to problems in parts of the body and the physical system as well as obstacles created by physical, social, cultural environment and communication (Paul, 2010).

Accessibility can be define as the "ability to access" the functionality and possible benefit of some system or entity and is used to describe the degree to which a product such as a device, service, and environment is accessible by as many people as possible.

According to the UN-enable accessibility is about giving equal access to everyone. Without being able to access the facilities and services found in the community, persons with disabilities will never be fully included. In most societies, however, there are innumerable obstacles and barriers that hinder persons with disabilities. These include such things as stairs, lack of information in accessible formats such as Braille and sign language, and community services provided in a form which persons with disabilities are not able to understand. Although some of the more costly accessibility provisions in the Convention can

be implemented progressively, there are a number of low-cost, low-tech accessibility solutions that would have immediate benefits (Paul, 2010).

This system of writing and reading used by many blind people was invented almost 200 years ago. While several types of written communication systems were tried during a ten-year period beginning in 1825, the one invented by a blind teenager was adopted. Some modifications have been made to it over the years but the Braille code in use today is virtually the same as it was in 1834. Louis Braille was born January 4, 1809, in a small village near Paris. His father, a leather worker, often used sharp tools in his work. While playing in his father's shop when he was three, Louis injured his eye on an owl. In spite of good care, infection set in and soon left him completely blind (UN, 2012).

When Louis grew to school age, he was allowed to sit in the classroom to learn by listening. Louis was very bright and creative, and when he was ten, he was sent to the Royal Institution for Blind Youth in Paris. There too, most instruction was oral, but there were a few books in a kind of raised print developed by the school's founder. Although frustrated by the large, bulky books and slow reading of the tactile characters, he did well at his studies and dreamed of a better way. At that time, the raised letters were made by pressing shaped copper wire onto paper but there was no way for blind people to write for themselves.

While a student, he began to use his creativity to invent an easy and quick way for blind people to read and write. Louis heard of a system of raised dots developed by a French army captain, Charles Barbier de la Serre. Barbier originally created a code of raised dots and dashes as a way to allow soldiers to write and read messages at night without using a light that might give away their positions. He later adapted the system and presented it to the Institution for Blind Youth, hoping that it would be officially adopted there. It was based on phonetics and consisted of groups of twelve dots arranged in two columns of six dots each.

Louis worked with Barbier's basic ideas to develop his own simplified system that we know today as Braille. He based the code on the normal alphabet and reduced the number of dots by half (UN, 2012).

Louis Braille published the first Braille book in 1829. In 1837, he added symbols for math and music. Although Louis Braille went on to become a beloved and respected teacher, was encouraged in his research, and continued to believe in the value of his work, his system of reading and writing with raised dots was nevertheless not very widely accepted in his own time. Louis Braille died of tuberculosis on January 6, 1852. Today, in virtually every language around the world, the code named after Louis Braille is the standard form of writing and reading used by blind people. Hence, it is the writing system used by the blind and the visually impaired (Louis, 1829).

1.1.1. Current legal mandates:

1.1.2 constitution of Nepal-2072 ensures equally access for all citizens of nation.

1.1.3 National Policy and Plan of Action on Disability (NPPAD)-2006:

1.1.4. Policy

A policy will be adopted to make disability friendly physical infrastructures that provide access to people with disability during design (mapping) and approval for construction of physical places of public importance (tall and large building, cinema buildings, banks, schools, hospitals, offices, streets, sidewalks etc.), it is unknown the script(Braille) of the blind people (Kandel, 2013).

Management of public transportation (streets, sidewalks, traffic signs, bus, rail, airplanes etc.) will be prepared in a way that is favorable to disability.

United Nations Convention on the Rights of Person with Disabilities (UNCRPD)-2006:

Accessibility appears both as a general principle as well as a stand-alone article (article 9)

- Accessibility is essential to enable persons with disabilities to live independently and participate fully in life – it is therefore an end in itself as well as a means to enjoy other rights.
- **Accessibility is relevant to a wide range of issues:**
  - **Physical accessibility:** buildings, transport, etc. a ramp might make the world of difference access to schools, access to courts, access to hospitals, access to the workplace are essential to the enjoyment of human rights
  - **Information and communication accessibility:** e-accessibility is very important given the importance of the internet to access information, but also accessibility to documentation (Braille) or to aural information (sign language).

Special Education Policies 2053:

Make special schools with special physical facilities for the mobility of persons with disabilities (Helderman, 2012).

1.2 Statement of the Problem

With the joint intervention of Government of Nepal (especially Ministry of Women, Children and Social Welfare-MOWCSW), Disabled People Organizations (DPOs) and Human Rights Organizations accessible physical structure and communication service guideline for People with Disabilities-2069 (Accessibility guideline-2069) is introduced. There is no any things about the person's with disability specially blind people who have not access easily read and write. But there is a few materials are available in the form Braille. It is necessary and each and every library. There are no accessible every materials from schools to college level. Similarly information, communications and other facilities, including electronic services and emergency services are also inaccessible for people with Disabilities. Minimum parameters have not been determined. Neither have guidelines been drafted and issued. Attention has not been paid to the

evaluation, development and production of accessible information and communication technologies after the guideline commenced by government.

Most of policy maker think that accessibility means just a physical accessibility. Communication access is another important for accessible environment. There is low awareness level among policy makers as well as there is no uniform standard in practices. Neither the Interim Constitution of Nepal, 2063 nor the Disabled Protection and Welfare Act (DPWA), 2039 has a provision for the right of people with disabilities to accessibility their script specially Braille. Even there is no provision for development and constructing disability-friendly library and study materials in the form of Braille. Hence, there is searching for solving the problem of Braille materials. Why the problem for development the script (Braille). What type of problem faced by the blind people for reading and writing. And find out the ways of problem.

Research questions:

1. Why not accessibility for the Braille?
2. What are the impacts of Braille script?
3. What is the contribution of Braille for developing the socialization process of the blind people ?
4. What are the best policy for developing the Braille script?

1.3 Objectives of the Study

The general objective of this study is to examine and analyze the role and effective of the Braille script.

The specific objectives of the study are as follows:

1) To find out the needs and effectiveness of the Braille script for the blind people.
2) To find out the socialization process for the blind people by using the Braille script.

1.4 Rational of the Study

Every study has its own importance. This study is know about the inherent and real situation of it. since the history of human civilization within the different society.

This study will be gainful to the researcher who wants to research on this particular field. Besides, academicians, scholars, development workers, GOs / NGOs, female activists and student etc. will be benefited from this study. On the other hand, there has not been extensive study about these topics specially, the person's with disability for developing their rights and duties. So the importance of the study cannot be minimized.

1.5 Limitation of the Study

For this study two schools are taken which are blind studying. They are one Laboratory Ma. Bi, Kirtipur and another is Namuna Machndra Ma. Bi. Lagankhel. It is only limited blind students which are using Braille scripts for their studying. Accessibility guideline means Accessible Physical Structure and Communication Services Guideline for Person with Disability-2068 which is enacted by cabinet in 2069 Falgun 6. Definition of disability are based on definition of United Nations Convention on the Rights of Person with Disabilities (UNCRPD). Only a year before and after the time will be included in the study from the date of guideline enacted. Study area is Kathmandu district. Only national level Disabled People Organizations (DPOs) are involved in this study.

1.6 organization of the Study

This study is divided into five chapters:

Chapter I - Introduction with background of the study, statement of the problem, objective of the study, Rational of the study, limitation of the study and organization of the study.

Chapter II- Review of literature which includes Historical Development of Braille, Writing Braille style, Braille typewriter, Braille letters, Development of Braille Literacy, U.S. Braille literacy statistics and so on.

Chapter III- Research Methodology. Which includes Research design, Data Collection tools and Techniques, Sample of the Study Primary data collection, Questionnaire, Interview, Focus Group Discussion and Data analysis

Chapter IV-Data presentation and Analysis. Which includes disability movement of Nepal, caste of sample population, age and sex composition of sample, knowledge about braille scripts, role of braille scripts, accessibility of braille scripts, need and effectiveness of the Braille scripts, taking the facilities by using braille scripts, accessibility materials, development the socialization process of the blind person and so on. And finally

Chapter V- Summary and Conclusion .

CHAPTER TWO
REVIEW OF THE RELATED LITERATURE

2.1 Historical Development of Braille

This system of writing and reading used by many blind people was invented almost 200 years ago. While several types of written communication systems were tried during a ten-year period beginning in 1825, the one invented by a blind teenager was adopted. Some modifications have been made to it over the years but the Braille code in use today is virtually the same as it was in 1834. Louis Braille was born January 4, 1809, in a small village near Paris. His father, a leather worker, often used sharp tools in his work. While playing in his father's shop when he was three, Louis injured his eye on an awl. In spite of good care, infection set in and soon left him completely blind. When Louis grew to school age, he was allowed to sit in the classroom to learn by listening. Louis was very bright and creative, and when he was ten, he was sent to the Royal Institution for Blind Youth in Paris. There too, most instruction was oral, but there were a few books in a kind of raised print developed by the school's founder. Although frustrated by the large, bulky books and slow reading of the tactile characters, he did well at his studies and dreamed of a better way. At that time, the raised letters were made by pressing shaped copper wire onto paper but there was no way for blind people to write for themselves (Kandel, 2013).

While a student, he began to use his creativity to invent an easy and quick way for blind people to read and write. Louis heard of a system of raised dots developed by a French army captain, Charles Barbier de la Serre. Barbier originally created a code of raised dots and dashes as a way to allow soldiers to write and read messages at night without using a light that might give away their positions. He

later adapted the system and presented it to the Institution for Blind Youth, hoping that it would be officially adopted there. It was based on phonetics and consisted of groups of twelve dots arranged in two columns of six dots each. Louis worked with Barbier's basic ideas to develop his own simplified system that we know today as Braille. He based the code on the normal alphabet and reduced the number of dots by half (Kandel, 2013).

Louis Braille published the first Braille book in 1829. In 1837, he added symbols for math and music. Although Louis Braille went on to become a beloved and respected teacher, was encouraged in his research, and continued to believe in the value of his work, his system of reading and writing with raised dots was nevertheless not very widely accepted in his own time. Louis Braille died of tuberculosis on January 6, 1852. Today, in virtually every language around the world, the code named after Louis Braille is the standard form of writing and reading used by blind people. *This article is about the writing system used by the blind and the visually impaired. For other uses, see Braille (disambiguation).*

Braille is a tactile writing system used by the blind and the visually impaired. It is traditionally written with embossed paper. Braille-users can read computer screens and other electronic supports thanks to refreshable Braille displays. They can write Braille with the original slate and stylus or type it on a Braille writer, such as a portable Braille note-taker, or on a computer that prints with a Braille embosser. Braille is named after its creator, Frenchman Louis Braille, who lost his eyesight due to a childhood accident. In 1824, at the age of 15, Braille developed his code for the French alphabet as an improvement on night writing. He published his system, which subsequently included musical notation, in 1829. The second revision, published in 1837, was the first digital (binary) form of writing.

Braille characters are small rectangular blocks called *cells* that contain tiny palpable bumps called *raised dots*. The number and arrangement of these dots distinguish one character from another. Since the various Braille alphabets

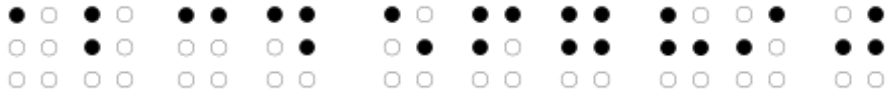
originated as transcription codes of printed writing systems, the mappings (sets of character designations) vary from language to language. Furthermore, in English Braille there are three levels of encoding: Grade 1, a letter-by-letter transcription used for basic literacy; Grade 2, an addition of abbreviations and contractions; and Grade 3, various non-standardized personal short hands. Braille cells are not the only thing to appear in embossed text. There may be embossed illustrations and graphs, with the lines either solid or made of series of dots, arrows, bullets that are larger than Braille dots, etc. In the face of screen-reader software, Braille usage has declined. However, Braille education remains important for developing reading skills among blind and visually impaired children, and Braille literacy correlates with higher employment rates (Sapkota, 2012).

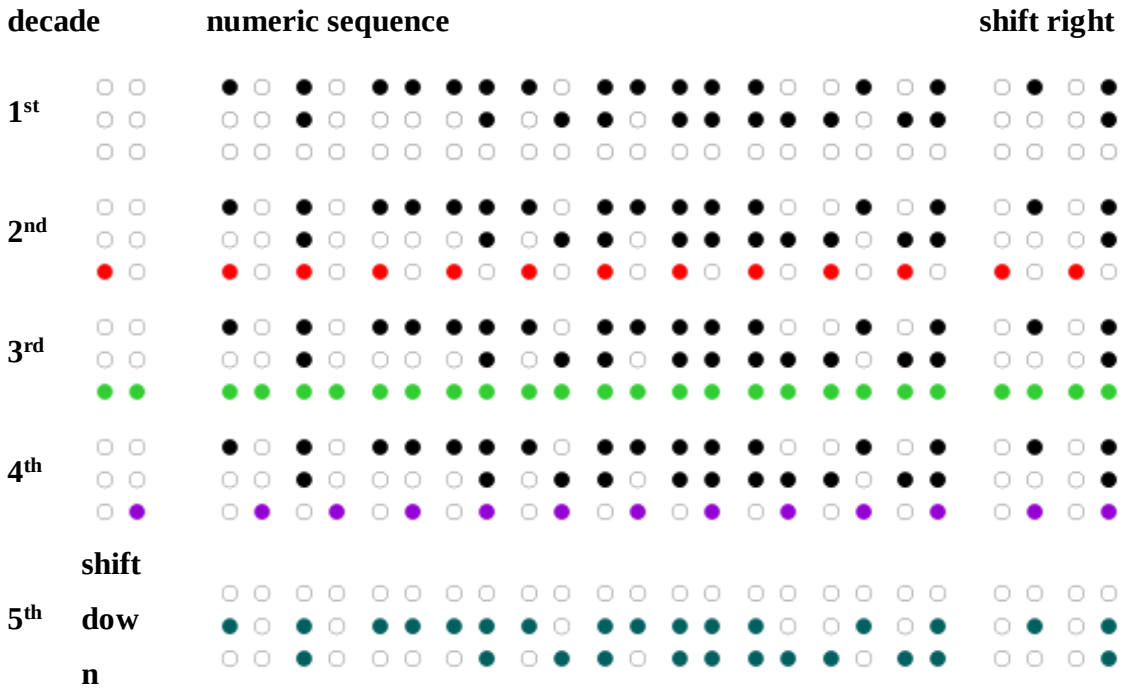
Braille code where the word (*premier*, French for "first") can be read. Braille was based on a tactile military code called night writing, developed by Charles Barbier in response to Napoleon's demand for a means for soldiers to communicate silently at night and without light. In Barbier's system, sets of 12 embossed dots encoded 36 different sounds. It proved to be too difficult for soldiers to recognize by touch, and was rejected by the military. In 1821 Barbier visited the Royal Institute for the Blind in Paris, where he met Louis Braille. Braille identified two major defects of the code: first, by representing only sounds, the code was unable to render the orthography of the words; second, the human finger could not encompass the whole 12-dot symbol without moving, and so could not move rapidly from one symbol to another. Braille's solution was to use 6-dot cells and to assign a specific pattern to each letter of the alphabet. At first, Braille was a one-to-one transliteration of French orthography, but soon various abbreviations, contractions, and even logograms were developed, creating a system much more like shorthand. The expanded English system, called Grade-2 Braille, was complete by 1905. For the blind today, Braille is an independent writing system rather than a code of printed orthography (Paul, 2010).

Braille is derived from the Latin alphabet, albeit indirectly. In Braille's original system, the dot patterns were assigned to letters according to their position within the alphabetic order of the French alphabet, with accented letters and *w* sorted at the end. The first ten letters of the alphabet, *a–j*, use the upper four dot positions: (black dots in the table below). These stand for the ten digits *1–9* and *0* in a system parallel to Hebrew gematria and Greek isopsephy. (Though the dots are assigned in no obvious order, the cells with the fewest dots are assigned to the first three letters (and lowest digits), *abc = 123* and to the three vowels in this part of the alphabet, , whereas the even digits, *4, 6, 8, 0*), are corners/right angles.)

The next ten letters, *k–t,* are identical to *a–j*, respectively, apart from the addition of a dot at position 3 (red dots in the table):

Derivation of the 26 letters of the alphabet from the 10 numeric digits (black)





Originally there had been nine decades. The fifth through ninth used dashes as well as dots, but proved to be impractical and were soon abandoned. These could be replaced with what we now know as the number sign, though that only caught on for the digits. The dash occupying the top two dots of the original sixth decade was simply dropped, producing the modern fifth decade. Historically, there have been three principles in assigning the values of a linear script (print) to lues; reassigning the Braille letters according to the sort order of the print alphabet being transcribed; and reassigning the letters to improve the efficiency of writing in Braille. Under international consensus, most Braille alphabets follow the French sorting order for the 26 letters of the basic Latin alphabet, and there have been attempts at unifying the letters beyond these 26 (see international Braille), though differences remain, for example in German Braille and the contractions of English Braille. This unification avoids the chaos of each nation reordering the Braille code to match the sorting order of its print alphabet, as happened in Algerian Braille, where Braille codes were numerically reassigned to match the order of the Arabic alphabet and bear little relation to the values used in other countries (compare modern Arabic Braille, which uses the French sorting order), and as happened in an early American version of English Braille, where the letters *w*, *x*, *y*, *z* were reassigned to match English alphabetical order. A convention sometimes seen for letters beyond the basic 26 is to exploit the physical symmetry of Braille patterns ironically, for example, by assigning a reversed *n* to *ñ* or an inverted *s* to *sh*. (See Hungarian Braille and Bharati Braille, which do this to some extent.) A third principle was to assign Braille codes according to frequency, with the simplest patterns (quickest ones to write) assigned to the most frequent letters of the alphabet. Such frequency-based alphabets were used in Germany and the United States in the 19th century (see American Braille), but none are attested in modern use. Finally, there are Braille scripts which don't order the codes numerically at all, such as Japanese Braille and Korean Braille, which are based on more abstract principles of syllable composition (UN, 2012).

Academic texts are sometimes written in a script of eight dots per cell rather than six, enabling them encode a greater number of symbols. (See Gardner–Salinas Braille codes.) Luxembourgish Braille has adopted eight-dot cells for general use; for example, it adds a dot below each letter to derive its capital variant. Silver wedding bands with names *Henri(que)* and *Tita* written in Braille
Braille was the first writing system with binary encoding.[6] The system as devised by Braille consists of two parts:

1. Character encoding that mapped characters of the French alphabet to tuples of six bits (the dots),
2. The physical representation of those six-bit characters with raised dots in a Braille cell.

Within an individual cell, the dot positions are arranged as two columns of three positions. A raised dot can appear in any of the six positions, producing sixty-four (2^6) possible patterns, including one in which there are no raised dots. For reference purposes, a pattern is commonly described by listing the positions where dots are raised, the positions being universally numbered, from top to bottom, as 1 to 3 on the left and 4 to 6 on the right. For example, dot pattern 1-3-4 describe a cell with three dots raised, at the top and bottom in the left column and at the top of the right column: that is, the letter ⠍ *m*. The lines of horizontal Braille text are separated by a space, much like visible printed text, so that the dots of one line can be differentiated from the Braille text above and below. Different assignments of Braille codes (or code pages) are used to map the character sets of different printed scripts to the six-bit cells. Braille assignments have also been created for mathematical and musical notation. However, because the six-dot Braille cell allows only 64 (2^6) patterns, including the space, the characters of a Braille script commonly have multiple values, depending on their context. That is, character mapping between print and Braille is not one-to-one. For example, the character ⠙ corresponds in print to both the letter *d* and the digit *4*. In addition to simple

encoding, many Braille alphabets uses contractions to reduce the size of Braille texts and to increase reading speed. (See Contracted Braille) (Louis, 1829).

2.2 Writing Braille style

2.2.1 Braille typewriter

Braille may be produced by hand using a slate and stylus in which each dot is created from the back of the page, writing in mirror image, or it may be produced on a Braille typewriter or Perkins Brailler. Because Braille letters cannot be effectively erased and written over if an error is made, an error is overwritten with all six dots (⠿). *Interpoint* refers to Braille printing that is offset, so that the paper can be embossed on both sides, with the dots on one side appearing between the divots that form the dots on the other (see the photo in the box at the top of this article for an example). Using a computer or other electronic device, Braille may be produced with a Braille embosser (printer) or a refreshable Braille display (screen) (Louis, 1829).

Braille has been extended to an 8-dot code, particularly for use with Braille embossers and refreshable Braille displays. In 8-dot Braille the additional dots are added at the bottom of the cell, giving a matrix 6 dots high by 2 dots wide. The additional dots are given the numbers 7 (for the lower-left dot) and 8 (for the lower-right dot). Eight-dot Braille has the advantages that the case of an individual letter is directly coded in the cell containing the letter and that all the printable ASCII characters can be represented in a single cell. All 256 (2^8) possible combinations of 8 dots are encoded by the Unicode standard. Braille with six dots is frequently stored as Braille ASCII.

2.2.2 Braille Letters

The first 25 Braille letters, up through the first half of the 3rd decade, transcribe *a*–*z* (skipping *w*). In English Braille, the rest of that decade is rounded out with the ligatures *and, for, of, the,* and *with*. Omitting dot 3 from these forms the 4th

decade, the ligatures *ch, gh, sh, th, wh, ed, er, ou, ow* and the letter *w*.

- **Formatting**

Various formatting marks affect the values of the letters that follow them. They have no direct equivalent in print. The most important in English Braille are:

Capital Number
follows follows

That is, is read as capital 'A', and as the digit '1'.

- **Punctuation**

Basic punctuation marks in English Braille include:

Comma Semicolon Apostrophe Colon Hyphen Decimal point

Full stop Exclamation Open quote, Close Bracket Slash
(Period) point question mark quote (Parentheses) (Fraction)

Both the question mark and the opening quotation mark. Its reading depends on whether it occurs before a word or after is used for both opening and closing parentheses. Its placement relative to spaces and other characters determines its interpretation. Punctuation varies from language to language. For example, French Braille uses for its question mark and swaps the quotation marks and parentheses (to and; it uses the period for the decimal point, as in print, and the decimal point to mark capitalization.

- **Contractions**

For a full list of abbreviations and contractions in English, see English Braille Contractions. Braille contractions are words and affixes that are shortened so that they take up fewer cells. In English Braille, for example, the word *afternoon* is written with just three letters, much like steno script. There are also several abbreviation marks that create what are effectively logograms. The most common of these is dot 5, which combines with the first letter of words. With the letter *m*, the resulting word is *mother*. There are also ligatures ("contracted" letters), which are single letters in Braille but correspond to more than one letter in print. The letter *and*, for example, is used to write words with the sequence *a-n-d* in them, such as *hand*. Most Braille embossers support between 34 and 37 cells per line, and between 25 and 28 lines per page. A manually operated Perkins Braille typewriter supports a maximum of 42 cells per line (its margins are adjustable), and typical paper allows 25 lines per page. A large interlining Stainsby has 36 cells per line and 18 lines per page. An A4-sized Marburg Braille frame, which allows interpoint Braille (dots on both sides of the page, offset so they do not interfere with each other) has 30 cells per line and 27 lines per page (Louis, 1829).

2.3 Development of Braille Literacy

Main article: Braille literacy

A sighted child who is reading at a basic level should be able to understand common words and answer simple questions about the information presented. The child should also have enough fluency to get through the material in a timely manner. Over the course of a child's education, these foundations are built upon in order to teach higher levels of math, science, and comprehension skills. Children who are blind not only have the educational disadvantage of not being able to see, but they also miss out on the very fundamental parts of early and advanced education if not provided with the necessary tools (Paul, 2010).

2.3.1 U.S. Braille literacy statistics

In 1960, 50% of legally blind, school-age children were able to read Braille in the U.S. According to the 2011 *Annual Report* from the American Printing House for the Blind, there are approximately 58,939 legally blind children in the U.S aged 0–21. Of these, about 9% prefer Braille as their primary reading medium; 27% are visual readers, 8% are auditory readers, 21% are pre-readers, and 34% are non-readers. There are numerous causes for the decline in Braille usage, including school budget constraints, technology advancement, and different philosophical views over how blind children should be educated (Paul, 2010).

A key turning point for Braille literacy was the passage of the Rehabilitation Act of 1973, an act of Congress that moved thousands of children from specialized schools for the blind into mainstream public schools. Because only a small percentage of public schools could afford to train and hire Braille-qualified teachers, Braille literacy has declined since the law took effect. Braille literacy rates have improved slightly since the bill was passed, in part because of pressure from consumers and advocacy groups that has led 27 states to pass legislation mandating that children who are legally blind be given the opportunity to learn Braille.

In 1998–99, there were approximately 55,200 legally blind children in the United States, but only 5,500 of them used Braille as their primary reading medium. Early Braille education is crucial to literacy for a visually impaired child. A study conducted in the state of Washington found that people who learned Braille at an early age did just as well, if not better, than their sighted peers in several areas, including vocabulary and comprehension. In the preliminary adult study, while evaluating the correlation between adult literacy skills and employment, it was found that 44% of the participants who had learned to read in Braille were unemployed, compared to the 77% unemployment rate of those who had learned to read using print. Currently, among the estimated 85,000 blind adults in the United States, 90% of those who are Braille-literate are employed.

Among adults who do not know Braille, only 33% are employed. Statistically, history has proven that Braille reading proficiency provides an essential skill set that allows visually impaired children not only to compete with their sighted peers in a school environment, but also later in life as they enter the workforce.

Though Braille is thought to be the main way blind people read and write, in Britain (for example) out of the reported 2 million visually impaired population, it is estimated that only around 15–20 thousand people use Braille. Younger people are turning to electronic text on computers with screen reader software instead, a more portable communication method that they can also use with their friends. A debate has started on how to make Braille more attractive and for more teachers to be available to teach it (Paul, 2010).

2.3.2 Braille transcription

Braille on a box of tablets. The raised Braille reads 'P L A V I X'. Braille book and the same book in standard ink print. Although it is possible to transcribe print by simply substituting the equivalent Braille character for its printed equivalent, in English such a character-by-character transcription (known as *uncontracted Braille*) is only used by beginners.

Braille characters are much larger than their printed equivalents, and the standard 11" by 11.5" (28 cm × 30 cm) page has room for only 25 lines of 43 characters. To reduce space and increase reading speed, most Braille alphabets and orthographies use ligatures, abbreviations, and contractions. Virtually all English Braille books are transcribed in this *contracted Braille*, which adds an additional layer of complexity to English orthography: The Library of Congress's *Instruction Manual for Braille Transcribing* runs to over 300 pages and Braille transcribers must pass certification tests (Raut, 2011).

Fully contracted Braille is known as *Grade 2 Braille*. There is an intermediate form between Computer Braille—one-for-one identity with print—and Grade 2, which is called Grade 1 Braille. In Grade 1 the capital-sign and

Number sign are used, and most punctuation marks are shown using their Grade 2 values. The system of contractions in English Braille begins with a set of 23 words which are contracted to single characters. Thus the word *but* is contracted to the single letter *b*, *can* to *c*, *do* to *d*, and so on. Even this simple rule creates issues requiring special cases; for example, *d* is, specifically, an abbreviation of the verb *do;* the noun *do* representing the note of the musical scale is a different word, and must be spelled out.

Portions of words may be contracted, and many rules govern this process. For example, the character with dots 2-3-5 (the letter "f" lowered in the Braille cell) stands for "ff" when used in the middle of a word. At the beginning of a word, this same character stands for the word "to"; the character is written in Braille with no space following it. (This contraction was removed in the Unified English Braille Code.) At the end of a word, the same character represents an exclamation point. Some contractions are more similar than their print equivalents. For example, the contraction ⟨lr⟩, meaning 'letter', differs from ⟨ll⟩, meaning 'little', only in adding one dot to the second ⟨l⟩: *little*, *letter*. This causes greater confusion between the Braille spellings of these words and can hinder the learning process of contracted Braille. The contraction rules take into account the linguistic structure of the word; thus, contractions are generally not to be used when their use would alter the usual Braille form of a base word to which a prefix or suffix has been added. Some portions of the transcription rules are not fully codified and rely on the judgment of the transcriber. Thus, when the contraction rules permit the same word in more than one way, preference is given to "the contraction that more nearly approximates correct pronunciation." *Grade 3 Braille* is a variety of non-standardized systems that include many additional shorthand-like contraction. They are not used for publication, but by individuals for their personal convenience (Raut, 2011).

2.3.3 Braille translation software

When people produce Braille, this is called Braille transcription. When computer software produces Braille, this is called Braille translation. Braille translation software exists to handle most of the common languages of the world, and many technical areas, such as math, music, and tactile graphics.

2.4 Braille-reading techniques

Since Braille is one of the few writing systems where tactile perception is used, as opposed to visual perception, a Braille reader must develop new skills. One skill important for Braille readers is the ability to create smooth and even pressures when running one's fingers along the words. There are many different styles and techniques used for the understanding and development of Braille, even though a study by B. F. Holland suggests that there is no specific technique that is superior to any other (Paul, 2010).

Another study by Lowen field & Abel shows that Braille could be read "the fastest and best... by students who read using the index fingers of both hands." Another important reading skill emphasized in this study is to finish reading the end of a line with the right hand and to find the beginning of the next line with the left hand simultaneously. One final conclusion drawn by both Lowen field and Abel is that children have difficulty using both hands independently where the right hand is the dominant hand. But this hand preference does not correlate to other activities.

2.5 International uniformity

Braille plate in *Duftrosengarten* in Rapperswil, Switzerland

When Braille was first adapted to languages other than French, many schemes were adopted, including mapping the native alphabet to the alphabetical order of French – e.g. in English W, which was not in the French alphabet at the time, is mapped to Braille X, X to Y, Y to Z, and Z to the first French accented letter – or completely rearranging the alphabet such that common letters are represented by

the simplest Braille patterns. Needless to say, mutual intelligibility was greatly hindered by this state of affairs. In 1878, the International Congress on Work for the Blind, held in Paris, proposed an international Braille standard, where Braille codes for different languages and scripts would be based, not on the order of a particular alphabet, but on phonetic correspondence and transliteration to Latin.

This unified Braille has been applied to the languages of India and Africa, Arabic, Vietnamese, Hebrew, Russian, and Armenian, as well as nearly all Latin-script languages. Greek, for example, *gamma* is written as Latin *g*, despite the fact that it has the alphabetic position of *c*; Hebrew *bet*, the second letter of the alphabet and cognate with the Latin letter *b*, is sometimes pronounced /b/ and sometimes /v/, and is written *b* or *v* accordingly; Russian i*ts* is written as *c*, which is the usual letter for /ts/ in those Slavic languages that use the Latin alphabet; and Arabic *f* is written as *f*, despite being historically *p*, and occurring in that part of the Arabic alphabet (between historic *o* and *q*).

Other systems for assigning values to Braille patterns are also followed, beside the simple mapping of the alphabetical order onto the original French order. Some Braille alphabets start with unified Braille, and then diverge significantly based on the phonology of the target languages, while others diverge even further.

In the various Chinese systems, traditional Braille values are used for initial consonants and the simple vowels. In both Mandarin and Cantonese Braille, however, characters have different readings depending on whether they are placed in syllable-initial (onset) or syllable-final (rime) position. For instance, the cell for Latin *k*, represents Cantonese *k* (*g* in Yale and other Modern Romanization) when initial, but *aak* when final, while Latin *j*, represents Cantonese initial *j* but final *oei*.

Novel systems of Braille mapping include Korean, which adopts separate syllable-initial and syllable-final forms for its consonants, explicitly grouping Braille cells into syllabic groups in the same way as hangul. Japanese, meanwhile, combines

independent vowel dot patterns and modifier consonant dot patterns into a single Braille cell – an abugida representation of each Japanese more. An embossed map of a German train station, with Braille text The current series of Canadian banknotes has a tactile feature consisting of raised dots that indicate the denomination, allowing bills to be easily identified by visually impaired people. It does not use standard Braille; rather, the feature uses a system developed in consultation with blind and visually impaired Canadians after research indicated that Braille was not sufficiently robust and that not all potential users read Braille. Mexican bank notes, Indian Rupee notes, Israeli New Shekel notes and Russian Ruble notes also have special raised symbols to make them identifiable by the visually impaired (Helderman, 2012).

In India there are instances where the parliament acts have been published in Braille, such as *The Right to Information Act*.

In the United States, the Americans with Disabilities Act of 1990 requires various building signage to be in Braille.

2.5.1 Braille Phone

In May 2014 a Braille phone was introduced by London-based manufacturer Own Fone. Constructed using 3D printing techniques, the device has print raised text on the keypad to help those who cannot read Braille.

In August 2014 an Australian MVNO KISA Phone launched the first Australian-designed Braille mobile phone. The phone was designed with input from organizations such as Vision Australia and Guide Dogs Victoria. The Braille text is large and Braille buttons can accommodate up to seven characters. Other versions of the KISA Phone are available, including high-contrast designs.

2.5.2 Unicode

Main article: Unicode Braille patterns. Braille was added to the Unicode Standard in September, 1999 with the release of version 3.0. Most Braille embossers and refreshable Braille displays do not support Unicode, using instead 6-dot Braille

ASCII. Because of this, they are unable to display this article. Some embossers have proprietary control codes for 8-dot Braille or for full graphics mode, where dots may be placed anywhere on the page without leaving any space between Braille cells, so that continuous lines can be drawn in diagrams, but these are rarely used and are not standard.

The Unicode standard encodes 8-dot Braille glyphs according to their binary appearance, rather than following their assigned numeric order. Dot 1 corresponds to the least significant bit of the low byte of the Unicode scalar value, and dot 8 to the high bit of that byte (Louis, 1829).

The Unicode block for Braille is U+2800 ... U+28FF:

- Accessible publishing
- Braille literacy
- Braille music
- Braille technology
- Braille translator
- Braille Watch
- List of binary codes
- List of international common standards
- Moon type
- Needle punch
- Nemeth Braille (for math)
- Refreshable Braille display
- Tactile alphabets for the blind
- Tactile graphic
- Tangible symbol systems

  "Braille" is not a proper noun and is preferably not capitalized when not part of a proper name.

The characters have been arranged by decade, with decade diacritics listed at left, and supplementary characters included on the right according to their diacritic. See

1829 Braille, where the 12 characters listed in the first line are used for shorthand and are found in this order for the 12 notes of plainsong notation, and French Braille, where the 'final' form of Braille's alphabet is laid out in the same way. However, modern tables often organize the supplementary characters differently: Those with a dot 3 are listed as a 6th group of 6 characters, and those with dots only on the right side are listed as a 7th group of 7, without anything in common with the columns the characters are listed under. The **Convention on the Rights of Persons with Disabilities (CRPD)** is an international human rights treaty of the United Nations intended to protect the rights and dignity of persons with disabilities. Parties to the Convention are required to promote, protect, and ensure the full enjoyment of human rights by persons with disabilities and ensure that they enjoy full equality under the law. The Convention has served as the major catalyst in the global movement from viewing persons with disabilities as objects of charity, medical treatment and social protection towards viewing them as full and equal members of society, with human rights. It is also the only UN human rights instrument with an explicit sustainable development dimension. The Convention was the first human rights treaty of the third millennium.

The text was adopted by the United Nations General Assembly on 13 December 2006, and opened for signature on 30 March 2007. Following ratification by the 20th party, it came into force on 3 May 2008. As of September 2014, it has 159 signatories and 151 parties, including the European Union (which ratified it on 23 December 2010 to the extent responsibilities of the member states were transferred to the European Union). The United States Senate failed to ratify the Convention on December 3, 2012, as ratification received just 61 of the 67 votes (2/3 of the Senate) required for ratification.[4] The Convention is monitored by the Committee on the Rights of Persons with Disabilities.

1981 to 1992 was the UN "Decade of Disabled Persons". In 1987, a global meeting of experts to review progress recommended that the UN General Assembly should draft an international convention on the elimination of

discrimination against persons with disabilities. Draft convention outlines were proposed by Italy and subsequently Sweden, but no consensus was reached. Many government representatives argued that existing human rights documents were sufficient. Instead, non-compulsory "Standard Rules on the Equalization of Opportunities for Persons with Disabilities" were adopted by the General Assembly in 1993. In 2000, leaders of five international disability NGOs issued a declaration, calling on all governments to support a Convention. In 2001, the General Assembly, following a proposal by Mexico, established an Ad Hoc Committee to consider proposals for a comprehensive and integral convention to promote and protect the rights and dignity of persons with disabilities, based on a holistic approach. Disability rights organizations, including the International Disability Alliance as coordinator of an ad hoc International Disability Caucus, participated actively in the drafting process, in particular seeking a role for disabled people and their organizations in the implementation and monitoring of what became the Convention (Louis, 1829).

Mexico initiated negotiations, with active support from GRULAC (the Latin American regional group). When support for a Convention was foundering in 2002 due to WEOG opposition, New Zealand played a pivotal role in achieving cross-regional momentum. Acting as facilitator from 2002–03, New Zealand eventually assumed the formal role of Chair of Ad Hoc Committee and led negotiations to a consensus agreement in August 2006, working closely with other Bureau members Jordan, Costa Rica, the Czech Republic, and South Africa, as well as Korea and Mexico. The Convention became one of the most quickly supported human rights instruments in history, with strong support from all regional groups. 159 States signed the Convention upon its opening in 2007 and 126 States ratified the Convention within its first five years. In recognition of its role in creating the Convention, as well as the quality of New Zealand’s landmark national Disability Strategy, Governor-General of New Zealand Anand Satyanand received the 2008 World Disability Award on behalf of the nation (UN, 2012).

The Convention follows the civil law tradition, with a preamble, in which the principle that "all human rights are universal, indivisible, interdependent and interrelated " of Vienna Declaration and Programme of Action is cited, followed by 50 articles. Unlike many UN covenants and conventions, it is not formally divided into parts.

Article 1 defines the purpose of the Convention:

to promote, protect and ensure the full and equal enjoyment of all human rights and fundamental freedoms by all persons with disabilities, and to promote respect for their inherent dignity

Articles 2 and 3 provide definitions and general principles including communication, reasonable accommodation and universal design.

Articles 4–32 define the rights of persons with disabilities and the obligations of states parties towards them. Many of these mirror rights affirmed in other UN conventions such as the International Covenant on Civil and Political Rights, International Covenant on Economic, Social and Cultural Rights or the Convention Against Torture, but with specific obligations ensuring that they can be fully realized by persons with disabilities.

Rights specific to this convention include the rights to accessibility including the information technology, the rights to live independently and be included in the community (Article 19), to personal mobility (article 20), habilitation and rehabilitation (Article 26), and to participation in political and public life, and cultural life, recreation and sport (Articles 29 and 30).

In addition, parties to the Convention must raise awareness of the human rights of persons with disabilities (Article 8), and ensure access to roads, buildings, and information (Article 9).

Articles 33–39 govern reporting and monitoring of the convention by national human rights institutions (Article 33) and Committee on the Rights of Persons with Disabilities (Article 34).

Articles 40–50 govern ratification, entry into force, and amendment of the Convention. **Article 49** also requires that the Convention be available in accessible formats (UN, 2012).

2.6 Core Provisions

Guiding principles of the Convention

There are eight guiding principles that underlie the Convention:

1. Respect for inherent dignity, individual autonomy including the freedom to make one's own choices, and independence of persons
2. Non-discrimination
3. Full and effective participation and inclusion in society
4. Respect for difference and acceptance of persons with disabilities as part of human diversity and humanity
5. Equality of opportunity
6. Accessibility
7. Equality between men and women
8. Respect for the evolving capacities of children with disabilities and respect for the right of children with disabilities to preserve their identities

Definition of disability

The Convention adopts a social model of disability, and defines disability as including *those who have long-term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others.*

Principle of "reasonable accommodation"

The Convention defines "reasonable accommodation" to be "necessary and appropriate modification and adjustments not imposing a disproportionate or undue burden, where needed in a particular case, to ensure to persons with disabilities the enjoyment or exercise on an equal basis with others of all human

rights and fundamental freedoms" at the Article 2 and demands this all aspects of life including inclusive education (UN, 2012).

Prevention of discrimination

The Article 8 of Convention stresses the awareness raising to foster respect for the rights and dignity against discrimination:

1. To raise awareness throughout society, including at the family level, regarding persons with disabilities, and to foster respect for the rights and dignity of persons with disabilities.
2. To combat stereotypes, prejudices and harmful practices relating to persons with disabilities, including those based on sex and age, in all areas of life.
3. To promote awareness of the capacities and contributions of persons with disabilities.
4. Initiating and maintaining effective public awareness campaigns designed:
   (i) to nurture receptiveness to the rights of persons with disabilities.
   (ii) to promote positive perceptions and greater social awareness towards persons with disabilities.
   (iii) to promote recognition of the skills, merits and abilities of persons with disabilities, and of their contributions to workplace and the labour market.
5. Encouraging all organs of the mass media to portray persons with disabilities in a manner consistent with the purpose of the present Convention.
6. Promoting awareness-training programmers regarding persons with disabilities and the rights of persons with disabilities.

Accessibility

The Convention stresses that persons with disabilities should be able to live independently and participate fully in all aspects of life. To this end, States Parties should take appropriate measures to ensure that persons with disabilities have access, to the physical environment, to transportation, to information and

communications technology, and to other facilities and services open or provided to the public.

Situations of risk and humanitarian emergency

Article 11 of the Convention affirms that States Parties shall take, in accordance with their obligations under international law, including international humanitarian law and international human rights law, all necessary measures to ensure the protection and safety of persons with disabilities in situations of armed conflict, humanitarian emergencies and the occurrence of natural disaster.

Recognition before the law and legal capacity

Article 12 of the Convention affirms the equal recognition before law and legal capacity of the persons with disabilities.

States Parties should:

1. Reaffirm that persons with disabilities have the right to recognition everywhere as a person before the law.
2. Recognize that persons with disabilities enjoy legal capacity on an equal basis with others in all aspects of life.
3. Take appropriate measures to provide access by persons with disabilities to the support they may require in exercising their legal capacity.
4. Ensure that all measures that relate to the exercise of legal capacity provide for appropriate and effective safeguards to prevent abuse in accordance with international human rights law. Such safeguards shall ensure that measures relating to the exercise of legal capacity respect the rights, will and preferences of the person, are free of conflict of interest and undue influence, are proportional and tailored to the person's circumstance, apply for the shortest time possible and are subject to regular review by a competent, independent and impartial authority or judicial body. The safeguards shall be proportional to the degree to which such measures affect the person's rights and interests.

Access to justices

Article 13 of the Convention affirms the effective access to justice for persons with disabilities, stating that:

1. States parties shall ensure effective access to justice for persons with disabilities on an equal basis with others, including through the provision of procedural and age-appropriate accommodations, in order to facilitate their effective role as a direct and indirect participants, including as witnesses, in all legal proceeding, including at investigative and other preliminary stages.
2. In order to help to ensure effective access to justice for persons with disabilities, states Parties shall promote appropriate training for those working in the field of administration of justice, including police and prison staff. This Article together with the Article 12 are cited by the "Handbook on prisoners with special needs" by United Nations Office on Drugs and Crime.

Right to education

The Convention states that persons with disabilities should be guaranteed the right to inclusive education at all levels, regardless of age, without discrimination and on the basis of equal opportunity.

States Parties should ensure that:

1. children with disabilities are not excluded from free and compulsory primary education, or from secondary education;
2. adults with disabilities have access to general tertiary education, vocational training, adult education and lifelong learning;
3. persons with disabilities receive the necessary support, within the general education system, to facilitate their effective education; and
4. effective individualized support measures are put in place to maximize academic and social development.

States Parties should take appropriate measures, such as:

1. endorsing the learning of Braille, alternative script, augmentative and alternative modes, means and formats of communication and orientation and mobility skills, and facilitating peer support and mentoring;
2. supporting the learning of sign language and promoting the linguistic identity of the deaf community;
3. advocating that education of persons, particularly children, who are blind and/or deaf, is delivered in the most appropriate languages and means of communication for the individual; and
4. employing teachers, including teachers with disabilities, who are qualified in sign language and/or Braille, and to train education professionals and staff about disability awareness, use of augmentative and alternative modes and formats of communication, and educational techniques and materials to support persons with disabilities.

Right to health

Article 25 specifies that "persons with disabilities have the right to the enjoyment of the highest attainable standard of health without discrimination on the basis of disability."

Protecting the integrity of the person

Article 17 of the Convention states that every person with disabilities has a right to respect for his or her physical and mental integrity on an equal basis with others.

Respect for the family

Article 23 of the Convention prohibits compulsory sterilization of disabled persons and guarantees their right to adopt children.

Habilitation and rehabilitation

Article 26 of the Convention affirms that "States Parties shall take effective and appropriate measures, including through peer support, to enable persons with disabilities to attain and maintain maximum independence, full physical, mental, social and vocational ability, and full inclusion and participation in all aspects of

life. To that end, States Parties shall organize, strengthen and extend comprehensive habilitation and rehabilitation services and programmers, particularly in the areas of health, employment, education and social services, in such a way that these services and programmers:

1. Begin at the earliest possible stage, and are based on the multidisciplinary assessment of individual needs and strengths;
2. Support participation and inclusion in the community and all aspects of society, are voluntary, and are available to persons with disabilities as close as possible to their own communities, including in rural areas.
3. States Parties shall promote the development of initial and continuing training for professionals and staff working in habilitation and rehabilitation service.
4. States Parties shall promote the availability, knowledge and use of assistive devices and technologies, designed for persons with disabilities, as they relate to habilitation and rehabilitation.

Participation rights

The Convention on the Right of Persons with Disabilities recognized that "that disability results from the interaction between persons with impairments and attitudinal and environmental barriers that hinders their full and effective participation in society on an equal basis with others" and that "persons with disabilities continue to face barriers in their participation as equal members of society." The Convention makes participation of the disabled one of its principles, stating "The principles of the present Convention shall be:...Full and effective participation and inclusion in society", subsequently enshrining the right of disabled to participate fully and equally in the community, education, all aspect of life (in the context of habilitation and rehabilitation), political and public life, cultural life, leisure and sports.

States Parties should take appropriate measure such as:

1. To enables persons with disabilities to have the opportunity to develop and utilize their creative, artistic and intellectual potential, not only for their own benefit, but also for the enrichment of society.
2. In accordance with international law, to ensure that law protecting intellectual property rights do not constitute an unreasonable or discriminatory barrier to access by persons with disabilities to cultural materials.
3. So that persons with disabilities should be entitled, on an equal basis with others, to recognition and support of their specific cultural and linguistic identity, including sign languages and deaf culture.

2.7 Work and employment

Article 27 requires that States Parties recognize the right of persons with disabilities to work, on an equal basis of others; this includes the right to the opportunity to gain a living by work freely chosen or accepted in a labour market and work environment that is open, inclusive and accessible to persons with disabilities. And that States Parties shall safeguard and promote the realization of the right to work, including for those who acquire a disability during the course of employment, by taking appropriate steps, including through legislation, to inter alia:

1. Prohibit discrimination on the basis of disability with regard to all matters concerning all forms of employment, continuance of employment, career advancement and safe and healthy working conditions;
2. Protect the rights of persons with disabilities, on an equal basis with others, to just and favourable conditions of work, including equal opportunities and equal remuneration for work of equal value, safe and healthy working conditions, including protection from harassment, and the redress of grievances;

3. Ensure that persons with disabilities are able to exercise their labour and trade union rights on an equal basis with others;
4. Enable persons with disabilities to have effective access to general technical and vocational guidance programmes, placement services and vocational and continuing training;
5. Promote employment opportunities and career advancement for persons with disabilities in the labour market, as well as assistance in finding, obtaining, maintaining and returning to employment;
6. Promote opportunities for self-employment, entrepreneurship, the development of cooperative and starting one's own business.
7. Ensure that reasonable accommodation is provided to persons with disabilities in the workplace.
8. Promote the acquisition by persons with disabilities of work experience in the open labour market.
9. Promote vocational and professional rehabilitation, job retention and return-to-work programmers for persons with disabilities.

States Parties shall ensure that persons with disabilities are not held in slavery or in servitude, and are protected, on an equal basis with others, from forces or compulsory labour (Helderman, 2012).

Adequate standard of living and social protection

Article 28 requires that States Parties recognize the right of persons with disabilities to an adequate standard of living for themselves and their families, including adequate food, clothing and housing, and to the continuous improvement of living conditions, and shall take appropriate steps to safeguard and promote the realization of this rights without discrimination on the basis of disability. States Parties recognize the right of persons with disabilities to social protection and to the enjoyment of that rights without discrimination on the basis of disability, and shall take appropriate steps to safeguard and promote the realization of the rights, including measures;

1. To ensure equal access by persons with disabilities to clean water service, and to ensure access to appropriate and affordable service, device and other assistance for disability-related needs.
2. To ensure access by persons with disabilities, in particular women and girls with disabilities and older persons with disabilities, to social protection programmes and poverty reduction programmes.
3. To ensure access by persons with disabilities and their families living in situations of poverty to assistance from the State with disability-related expenses, including adequate training, counselling, financial assistance and respite care.
4. To ensure access by persons with disabilities to public housing programmes.
5. To ensure equal access by persons with disabilities to retirement benefits and programmes (Helderman, 2012).

- **Right to vote**

ISG Top Voter, a machine designed specifically to be used by voters with disabilities. Article 29 requires that all Contracting States protect "the right of persons with disabilities to vote by secret ballot in elections and public referendums". According to this provision, each Contracting State should provide for voting equipment which would enable disabled voters to vote independently and secretly. Some democracies, e.g., the US, Japan, Netherlands, Slovenia, Albania or India allow disabled voters to use electronic voting machines or electronic aides which help disabled voters to fill the paper ballot. In others, among them Azerbaijan, Kosovo, Canada, Ghana, United Kingdom, and most of African and Asian countries, visually impaired voters can use ballots in Braille or paper ballot templates. Many of these and also some other democracies, Chile for example, use adjustable desks so that voters on wheelchairs can approach them. Some democracies only allow another person to cast a ballot for the blind or disabled voter. Such arrangement, however, does not assure secrecy of the ballot.

Article 29 also requires that Contracting States ensure "that voting procedures, facilities and materials are appropriate, accessible and easy to understand and use." In some democracies, i.e. Sweden and the US, all the polling places already are fully accessible for disabled voters. A number of parties have made reservations and interpretative declarations to their application of the Convention. Australia does not consider itself bound to stop forcibly medicating those labeled mentally ill. El Salvador accepts the Convention to the extent that it is compatible with its constitution. Malta interprets the right to health in Article 25 of the Convention as not implying any right to abortion. It also reserves the right to continue to apply its own election laws around accessibility and assistance (Helderman, 2012).

Mauritius does not consider itself bound by the Article 11 obligation to take all necessary measures to protect people with disabilities during natural disasters, armed conflict or humanitarian emergencies, unless permitted by domestic legislation. The Netherlands interprets the right to life in Article 10 within the framework of its domestic laws. It also interprets Article 25(f), which bars the discriminatory denial of health care, as permitting a person to refuse medical treatment, including food or fluids. Poland interprets Articles 23 and 25 as not conferring any right to abortion (Helderman, 2012).

The United Kingdom has reservations relating to the right to education, immigration, service in the armed forces and an aspect of social security law. The Optional Protocol to the Convention on the Rights of Persons with Disabilities is a side-agreement to the Convention which allows its parties to recognise the competence of the Committee on the Rights of Persons with Disabilities to consider complaints from individuals. The text is based heavily on the Optional Protocol to the Convention on the Elimination of All Forms of Discrimination against Women. The Optional Protocol entered into force with the Convention on 3 May 2008. As of September 2012, it has 92 signatories and 78 parties. The Committee on the Rights of Persons with Disabilities is a body of human rights

experts tasked with monitoring the implementation of the Convention. It initially consisted of 12 independent human rights experts, with half elected for a two-year term and half elected for four-years. Thereafter members will be elected for four-year terms, with half the members elected every two years. As the Convention has achieved 80 ratifications, the Committee will be expanded to 18 members (Paul, 2010).

CHAPTER THREE
METHODOLOGY

3.1 Research design

For this study it used descriptive research design, it is also used analytical research tools. Cross sectional analysis is done with qualitative approach. Such research designs helped to fulfill the above mentioned target with other related policy and guidelines for development the people with disable etc.

3.2 Data Collection tools and Techniques

Field visit, interview, Focus Group Discussion (FGD) and Key Informant Interview (KII) be used as a research tools. Respondent are the leaders of DPOs, Members of accessibility guidelines committee, representatives of Ministry, People with Disabilities and other stakeholders.

3.3 Sample of the Study

For the study it has been taken two blind studying schools of Kathmandu valley. Which are taken 13 students from Laboratory School in Kirtipur and 10 students of Namuna Machindra Ma. Bi. Lagankhen. And 2 person are taken which are doing disable people's organization So, the sample size is 25. Which are selected by purposively.

3.4 Primary data collection

For this study it is used questionnaire schedule for primary data collection. And also used interview tools.

3.4.1 Questionnaire

The researcher requested to give their view on the topic by the help of assistance, questionnaire is prepared for the blind person and expertise person who great contribution of the visually impaired field. Structured and semi-structured questionnaire is used for information collection which is available in appendix-1.

3.4.2 Interview

On the basis of Braille scripts interview tools was used because it is the study of visual impaired person. Hence, Interview tools is major tools for this research. It is covered only students of higher secondary level. And it used with different stakeholders (National Federation of the Disabled Nepal (NFDN), national Disable People Organizations (DPOs) leaders, and responsible persons of ministries and with other stake holders) with semi-structured questionnaires.

3.4.3 Focus Group Discussion (FGD)

FGD was done with two persons representatives of National Federation of Disabled Nepal, some selected DPOs and few related people with disabilities.

3.5 Secondary data

It used different related National and international books, journals, UNCRPD report, National plan and policy, Magazines, national daily news papers and related research findings are also used for secondary source are used in this study.

3.6 Data analysis

It has been used qualitative and quantitative data. The systematic analysis has been done by using simple mathematical tools specially it express percentage by table and others.

CHAPTER FOUR
SOCIALIZATION PROCESS OF THE RESPONDENTS

4.1 Disability movement of Nepal

The disability movement in Nepal has historically been limited. Due, to the strict rules of setting up and running social activities during the rule of the monarchy until 1990. With the dawn of democracy, the social organizations began to come up. There are various initiatives like self help groups and disability rights groups. Most of their activities are concentrated in the urban areas of Nepal. So far as the historical movement of PWIDs is concerned, a non-parent organizations: Association for the Welfare of Blind person. Some are movement training are formed. These organizations had focused their activities particularly in Kathmandu. In this perspective the government to ensure PWID's access to basic necessities such as education, health and education through implementation of UN-CRPD provisions ensure to improve the day to day living standard of PWIDs and ensure their bright future. Disable people's organization pressurizes the state to make the policy and rules for the social security and dignified future of PWDIDs. On the other hand, it brings the programs to make the guardians, stakeholders, institutions and other agencies aware about the necessities agencies aware about the necessities of PWDIDs. It collaborates with government and other stakeholders. Eventually, it will try to secure the respectable participation of PWIDs in the society. Which has planned to develop the self advocating capacity of PWIDs. It's expected that their advocacy will be more effective to gain rights, respect, and equality to be socially included.

4.1.1 Equality, non-discrimination and social acceptance

There is still disparity between normal children and disabled ones. The parents provide standard facilities such as in health, education and living standard for normal children whereas PWIDs are deprived even from their basic needs. Some of the parents do not like their ID children to expose in the society among their relatives. Some of the ID children are kept within the closed door rooms. Normal schools do not want to admit ID children. The ID children cannot learn anything from normal schools. Even if parents send them in the normal school other children hate and make fun with ID children. They also become the victim of teacher's rough treatment because most of the teachers are unfamiliar about intellectual disability. They consider such children to be normal at their physical structure as they are unfamiliar with their learning disabilities. Which has realized these issues very deeply. It wants to transform this prevailing exclusion into social inclusion. The whole organizational set up is marching ahead to convert the old conventional society into progressive one. According to the guidelines mentioned in the strategic plan, which has been conducting the campaigns for the implementation of UN-CRPD that has already been ratified by Nepal. Which is leads to change the present educational system in Nepal. The new education system will provides special class rooms, trained teachers and ID friendly curriculum. We are also working to change the traditional mindset of family, society, government and other concerned stakeholders. It will be achieved through different advocacy tools.

The world is passing through the modernity of the 21st century. Human rights are the most discussed issues today. In this sense, the discourse of PWIDs is also being globalized. The impacts of the international activities are realized even in Nepal. Which has been the leading organization to aware its members as an informant. Getting the membership of inclusion international and participating in the program organized by different organization. Social justice, inclusion, rights and respects for PWIDs are the key areas that must be addressed instantly, which

believes that people with intellectual disabilities are entitled to the respect, dignity, equality and security like other people of the society. PWIDs inherent dignity, worth and honor must be preserved. We work with the society where people with intellectual disabilities are able to fully exercise and advance their rights. Let's be optimistic that with combine efforts of all the inequality, discrimination and social exclusion of PWIDs will be abolished soon (Sapkota, 2012).

4.2 Caste of the Sampled Population

Majority (50%) of members belonged to ethnic groups, that is Tamang while 20% belonged to various Bramin women and 28% were Dalits, the low caste. There are more upper caste member in this study. There were more members belonging to different ethnic groups.

Table 4.1

Caste of the Sample Population

Castes	Number	Percentage
Tamang	7	28
Newar	6	24
Bramin	4	16
Dalits	3	12
Others	5	20
Total	25	100

Source: Field Survey, 2016

In the above table shows that in the study area there is most of the respondents are Tamang which percent is 28 percent, similarly Newar which percent is 24, Bramin 16 percent, Dalit 12 percent and others are 20 percent. Which shows that in the study area maximum respondents are Tamang community.

4.2.1 Age and Sex Composition of Sample

Whether a population is young or old, or getting older or younger depends of the portion of people at different age group. In general, a population considered young is considered old. Independent and active age group of population has a significant role in the overall development of the society. Researcher has identified three groups of population interval among sample. The following table depicts age and sex structure of sampled population.

Table 4.2

Distribution of Sampled Population by Age/Sex

Age	Male		Female		Total
	Number	Percent	Number	Percent	Percent
10-15	7	28	8	32	60
15-20	3	12	5	20	32
20 and above	2	8	0	0	8
Total	12	48	13	52	100

Source: Field Survey, 2016

In the above table shows that maximum number of respondents are below 20 years, whose percent is 60, least number of respondents are above 20 years whose percent is 8. It shows that in this age maximum number of respondents are more energetic.

4.2.3 Knowledge about Braille script

It is necessary to know about the Braille script if they are knowing or not. So it is asked if you have knowledge about Braille script. There are different views are expressed. Which is explain according the following table.

Table 4.3

Knowledge of Braille script

Knowledge about the scripts	Number of respondents	Percentage
It is tactile writing system	16	64
It is reading system	5	20
It is book of blind	3	12
It is literature	1	4
Total	25	100

Source: Field Survey, 2016

In the above table shows that the maximum percentage of respondents are knowledge about the Braille scripts, they say Braille is tactile writing system, some views are it is reading system of blind person and some are says others. So, we say that there is knowledge about the script.

4.2.4 Role of Braille script

They are different views about the role of Braille script for development the blind capacity. So, it is asked what is the role Braille script for the people of visually impaired. They are express different their views, which are explain the following tables.

Table 4.4

Role of Braille script

Role of Braille scripts	Number of respondents	Percentage
For empowerment	2	8
For Socialization process	5	20
Easy to get education	10	40
Easy to get opportunity	8	32
Total	25	100

Source: Field Survey, 2016

In the above table shows that maximum number of percent of respondents are it is great role to get education which is 40 percent, another is, it is easy to get job which is 32 percent, similarly it is role for socialization process which percent is 20 and for empowerment which least percentage is 8. So, we conclude that the Braille scripts are great role to get education for Blind people.

4.2.5 Accessibility of Braille script for the Blind students

If there is easy access or not for braille scripts. So, there are express different views on the question. Which are explain following tables.

Table 4.5

Accessibility of the Braille script

Accessibility	Number of respondents	Percentage
It is difficult to learn	2	8
It is not important for others	5	20
It is expensive to learn	2	8
It is easy	16	64
Total	25	100

Source: Field Survey, 2016

In the above table shows that maximum number of respondents are said it is easy to learn whose percentage is 64. Similarly, it is not important for others is 20 percent, it is difficult to learn is 8 percent another views is it is expensive to lean whose percentage is 8. So, we conclude that it is accessible to learn easily.

4.3. Accessibilities Materials on Braille scripts

It is necessary to know there is accessible materials are available or not for blind students in Braille scripts. So, there is express different views which is explain on the following tables.

Table 4.6
Using Materials of Braille scripts

Accessibility Materials	Number of respondents	Percentage
Schools books	20	80
College books	3	12
News papers	0	0
Literature	2	8
Total	25	100

Source: Field Survey, 2016

In the above table shows that there is maximum numbers are express their views

on the option is schools books are available on Braille scripts whose percentage is 80. Similarly, college books are 12 percentage, news papers have not any percentage and literature get only 8 percentage. So, we can say that using materials of Braille scripts in schools books.

4.3.1 Need and effectiveness of the Braille scripts

What are the needs and effectiveness of the Braille scripts. So we ask the respondents. They are express different views. Which are explain on the following tables.

Table 4.7

Effectiveness of Braille scripts

Castes	Number	Percentage
For education	15	60
For job	8	32
For teaching	1	4
For others	1	4
Total	25	100

Source: Field Survey, 2016

On the above table shows that it is effectiveness for teaching and get education whose percentage is 64. Which is highest getting views. Similarly, it is need and effective for getting job whose percentage is 32 and finally, it is need for others which percentage is 4. Hence, we say that Braille scripts are need and effective for getting education and it is useful for teachers.

4.3.2 Taking the facilities by using Braille script

What types of facilities are getting by using Braille scripts. So, it is asked all the respondents whose views are explain on the following tables.

Table 4.8

Taking facilities by using the Scripts

Taking Facilities	Number of respondents	Percentage
Reading schools/college books	16	64
Novels	4	16
Story of the life	3	12
Others	2	8
Total	25	100

Source: Field Survey, 2016

On the above table shows that the maximum number of respondents are agree on it is giving facilities for reading schools and college books. Whose percentage is 64 which is maximum. Similarly, another views are it is giving facilities to read novels whose percentage is 16, it is giving facilities to get story of the life whose percentage is 12 and finally, only 8 percentage is others. Hence, we can say that Braille scripts are giving great facilities which is reading school/college books and other materials.

4.3.3 Accessibility Materials

There is accessibility reading/writing materials for the blind student. What they say. Asking the researcher. So, there are express different views which are explain on the following tables.

Table 4.9

Accessibility Materials

Accessibilities Materials	Number of respondents	Percentage
Yes	15	60
No	7	28
Sometimes	3	12
Total	25	100

Source: Field Survey, 2016

On the above table which shows that there is accessibility Braille materials whose percentage is 60 which is maximum. Similarly, there is no accessible Braille materials which is views is 28 percentage and finally there is sometimes available whose percentage is 12. So, there is maximum numbers of respondents are agree with there is accessible Braille materials.

4.5 Development the Socialization process of the blind person

If it is helpful for development the socialization process or not. It is asked the respondents what they say. They express different views. Which is explain on the following tables.

Table 4.10

Development Socialization Process

Helpful the socialization process	Number of respondents	Percentage
Yes	10	40
No	7	28
Seldom	3	12
Hardly	5	20
Total	25	100

Source: Field Survey, 2016

In the above table shows that it is helpful to development the socialization process which percentage is 40 which is maximum. Similarly, it is no helpful views whose percentage is 28 and so on. Hence, we say that maximum numbers of respondents are agree it is helpful for socialization of blind person.

4.6 Need and Effectiveness of Socialization process of respondents

In the context of Blind person, there is no any option without Braille script. The person who use and this script, he/she has feel it is great for achieving new knowledge and spend their life with meaningful. So, all the respondents are said that Braille script is great value for us. If we are not use this script we can not read and write in the context of getting education and so on. Hence, Braille script gives great chance for their socialization process like as they are easily taking education, they read and write with the help of the script and they are going for teaching by the help of this scripts. They are not any option except this script. So, it gets great effectiveness to get their life with good socialization dignity and life. Hence, it is the key of socialization of blind person.

4.7 Contribution and socialization process

In this study maximum respondents are express their view on Braille script. They said that if this script is not develop we cannot test of knowledge. Knowledge means getting any kinds education and if we cannot get good education how can spend our life, how involve in every sector, and what is our life in social activities and so on.

in finally, blind respondents are take great this script. They can easily write and read with the help of Braille script. They share their feeling, emotion and future by the help of the script. Specially, they are involve teaching field and other like as receptionist and they are leader of social organization. They feel it gives great value of their life in society.

CHAPTER FIVE
SUMMARY AND CONCLUSION

5.1 Summary

Over one billion people, or approximately 15 percent of the world's population, live with some form of disability. The national census 2011 shows that around 2% of the total population in Nepal lives with some form of disability. The potential to be productive and the competencies of people with disabilities are under-estimated; they are motivated, sincere and hardworking. Government agencies, international NGOs and private sector companies are taking a renewed look at way to benefit of the under-tapped potential of people with disabilities.

The convention on the Rights of people with Disabilities (CRPD) recognizes the right of people with disabilities to work on an equal basis with others. The right includes the opportunities to earn a living by work that is freely chosen or accepted in the market and in a work environment that is open, inclusive and accessible to people with disabilities. CRPD also recognizes accessibilities and inclusion as fundamental rights of persons with disabilities.

There are different kinds of disabilities are defined in Nepales laws. Of them disability related to vision in the condition where there is no knowledge about an object's figure, shape, from and color in an individual due to problem with vision. This is two types; one is blind: A person who cannot see the fingures of hand by both eyes at a distance of 10 feet despite treatment (medicine, surgery and use of glasses), or cannot read the first line of Snellen chart (3/60), then that person is blind. Another is low vision: if any person who cannot distinguish fingers of a hand from a 20 feet distance despite treatment like medicine, surgery and use of glasses, in other words, cannot read and letters of the fourth line of Snellen chart, then that person has low vision. So, all the above two types of

disabilities are visually inpaired person. Which is necessary Bralle scripts. Here is study on the topic of effectiveness of the Braille scripts of socialization for the blind students. We find out some views of 25 respondents. Hence the summary of the study are as follows:

Majority of members belonged to ethnic groups, that is Tamang while 28% belonged to various Bramin 12% , Newar 24%, Dalits are 12% and others is 20%. In the study area. There are maximum number of Tamang's students are come for education. The maximum number of respondents are below 20 years, whose percent is 60, least number of respondents are above 20 years whose percent is 8. It shows that in this age maximum number of respondents are more energetic. The maximum percentage of respondents are knowledge about the Braille scripts, they say Braille is tactile writing system, some views are it is reading system of blind person and some are says others. So, we say that there is knowledge about the script. The maximum number of percent of respondents are it is great role to get education which is 40 percent, another is, it is easy to get job which is 32 percent, similarly it is role for socialization process which percent is 20 and for empowerment which least percentage is 8. So, we conclude that the Braille scripts are great role to get education for Blind people.

The maximum number of respondents are said it is easy to learn whose percentage is 52. Similarly, it is difficult to learn whose percentage is 20, it is not important for others whose percentage is 20 and another views is it is expensive to lean whose percentage is 8. So, we conclude that it is accessible to learn easily. It shows that there is maximum numbers are express their views on the option is schools books are available on Braille scripts whose percentage is 48. Similarly, college books are 32 percentage, news papers have not any percentage and others get only 20 percentage. So, we can say that using materials of Braille scripts in schools books. It is effectiveness for teaching and get education whose percentage is 32. Which is highest getting views. Similarly, it is need and effective for getting

job whose percentage is 28 and finally, it is need for others which percentage is 8. Hence, we say that Braille scripts are need and effective for getting education and it is useful for teachers. That the maximum number of respondents are agree on it is giving facilities for reading schools and college books. Whose percentage is 64 which is maximum. Similarly, another views are it is giving facilities to read novels whose percentage is 16, it is giving facilities to get story of the life whose percentage is 12 and finally, only 8 percentage is others. Hence, we can say that Braille scripts are giving great facilities which is reading school/college books and other materials. which shows that there is accessibility Braille materials whose percentage is 60 which is maximum. Similarly, there is no accessible Braille materials which is views is 28 percentage and finally there is sometimes available whose percentage is 12. So, there is maximum numbers of respondents are agree with there is accessible Braille materials. If it is helpful for development the socialization process or not. It is asked the respondents what they say. They express different views. Which shows that it is helpful to development the socialization process which percentage is 40 which is maximum. Similarly, it is no helpful views whose percentage is 28 and so on. Hence, we say that maximum numbers of respondents are agree it is helpful for socialization of blind person.

5.2 Conclusion

In conclusion, we have to understand that Braille scripts is most important for the blind students. Which is effective for reading and writing. It is not difficult to learn, it supports to go ahead for the blind students and others also. It is strongly support socialization process of the blind person. And it also support to get any opportunity after finishing the school/college study they get easily job if they are capable to read and write Braille scripts. There is no government strong policy to develop the scripts. It is necessary to develop and available to every library materials on the scripts. Braille is the tactic writing system, it is reading and writing system, it is only for blind person. Which is develop by Louis Braille in

France in first then it is develop maximum numbers of countries. Some countries are also develop in either money number system. In study maximum number of respondents are used the scripts.

disability is the condition of difficulty in carrying out daily activities normally and in taking part in social life due to problems in part of the body and the physical system as well as obstacles created by physical, social, cultural environmental, visually and communication. But the society is still taken the disability as the sin committed in the previous birth. Though the country has the strong legal ground, the life of PWDs hasn't been changed due to lack of proper implementation. So far as, the public attitude should be changed. After then, everybody could speak for the barrier free environment for PWDs where it is physical, social, cultural and psychological barrier, we can hope that the rights of PWDs could be fulfilled and they would spend the dignified life as other citizens in forth coming days.

Finally , it conclude that by the help of Braille script all the respondents are feel their life good social and they spend their life with dignity and happy. Above sixty percent respondents are use this script and spend normal life in society. Hence, Braille scripts greats contribution of the socialization process of the blind person.

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Appendix-1: Contribution of the Braille script for Socialization of the Blind student

A. personal identification of the respondents

Name:…….. Age:…… Gender:……..

Education Status :…… Occupation:……..

Religions : …….

1) Have you know about Braille Script?

1. Yes b) No

2) Who are use Braille script specially ?

a) Visually impaired b) Hearing impaired

c) Physical challenged d) Not any

3) How many dots are used in Braille script ?

a) 3 b)4 c) 5 d) 6

4) Have you used Braille script ?

a) Yes b) No

5) What types of visual impaired ?

a) B1 b) B2 c) B3

6) It is difficult to learn the script ?

a) No b) Yes

7) What is the role of brail script for blind person?

a) It is support to empowerment

b) It is support to socialization process

c) Easy to access to get education d) to get opportunity

8) From where the Braille script start ?

a) America b) India

c) Frame d) England

9) Who invented the script?

a) Charles babbage b) John Deway

c) Luise Louis d) Nil Armstrong

10) Why not accessibility for the brail ?

a) It is difficult to learn b) It is expensive to learn

c) It is not important for others d) Other

11) Do you think to make policy about the script ?

a) Yes b) No c) Others

12) Do you think it is important for developing the socialization process of the blind person?

a) Yes b) No

13) Why it is need and importance the script for blind person ?

a) It is make to develop education.

b) By this script, it is support to get job.

c) It helps for teaching

d) It is helps for day to day life.

14) What is Braille ?

a) It is a tactile writing system b) It is reading system

c) It is book of blind d) It is literature

15) What types of facilities are you have

a. Radio b. Television c. Mobile phone d. All of them above

16) Do you have access in Brail Books and Reading Materials?

a) Yes b) No c) Seldom d) Hardly

17) Do you have access in Braille Writing Materials?

a) Yes b) No c) Hardly

18) How do you think Braille is helpful to you (now a days)?

a) Very b) Little c) Not helpful

19) For what purpose basically you use Braille (daily)?

a) For study b) Writing

c) Information collection d) Others

Thanks for Co-operation !