



**BRaille WITHOUT BORDERS;  
How Braille can be used in creation of literature in  
indigenous languages**

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**Abstract**

*There are innumerable languages spoken around the world which do not have any script. Many Indigenous communities use these languages only as spoken language. These Indigenous communities have a wealth of knowledge which they have gathered over generations. This knowledge is currently not documented in the form of books or papers. There fore, the world may lose most of this knowledge. Thus, we need a universal script which could be used as the default script for all languages which do not have their own script.*

*Braille is a universal script; persons with blindness use this script to write all languages of the world. Under the Aegis of UNESCO, in 1949 through 1951, a project was undertaken to propose world Braille. This Braille unified Braille codes for most of the languages based on phonetic sounds. The History of Braille demonstrates that this script is readable by both, seeing and blind persons and is easy to learn and use. This script stood the test of time and evolved as the best system among many proposed systems throughout a period of centuries.*

*Braille can pave way for development of the universal script. Rich Navigation structure of DAISY is considered to be the next most significant development for 'access to knowledge for all' after Braille. The Universal script based on Braille can be used in the synchronized digital accessible multimedia content authoring of DAISY to conserve the wealth of human knowledge.*

## ***INTRODUCTION***

Design of every small or large object that we use in our daily life has evolved over generations. Even a small and simple thing like a tooth brush has taken ages to evolve and it is still evolving. Growth of knowledge is a continuous process. Key to this growth and evolution of human beings is that we receive knowledge from our previous generation, we contribute in its growth, and then we pass it on to our next generation.

There are three main ways how we transfer the knowledge to the next generation or to other people in our own generation:

- Oral Tradition
- Written words
- Pictures and maps
- Interactive teaching

Before the advent of books and written language scripts, Oral Tradition and interactive teaching were the only way of knowledge accumulation, dissemination and preservation. Spoken language is a universal way of communication. Every community used this method. Written words are not as universal as spoken language. There are many languages which still do not have a script. In other words, every community has a wealth of knowledge which they have accumulated with experiences of generations. Every community has spoken language by which they communicate this knowledge. However, every language does not have the script to document their wealth of knowledge in form of books.

It is well established that books have a better potential of preserving knowledge. Once published, hundreds and thousands of copies of the same book are produced. Due to this, knowledge can reach any one who understands that language. In the age of the internet, the reach of the written word has increased many folds.

Once published, the knowledge becomes independent of its creator. The knowledge disseminated only through spoken language resides in persons. Existence of such knowledge is dependent on the existence of the owner of such knowledge. Thus the knowledge captured in form of a published book has a better chance of survival.

It is essential to document the wealth of knowledge accumulated by human communities who have their language but do not have a script to write.

Consider an example of a community of fisherman in Thailand called the Morken Community. This community lives right next to the Patong Beach in Phuket, Thailand. There are about 2500 members of this community. Phuket beach was one of the places which was badly affected by the Asian tsunami on 26

December, 2004. More than 1500 persons lost their lives at the Patong beach itself. The Morken (Chao-Le) community in Rawai Village in Phuket was washed away. However, not even a single person of this community lost their life. Every single member of the community including persons with disabilities had reached the safety of higher grounds before the tsunami hit the shores [1]. A group from DAISY Consortium visited the community to know about how this happened. We learnt that the community has a traditional story of seven giant waves which is being told to children from many generations. As a result of such traditional stories and experiences, when the water of the ocean receded about a 100 meters, the community knew that disaster can strike any moment and every one took shelter in the temple situated at a higher ground.

Similar reports emerged from the Andaman and Nicobar Islands of India. [1] The islands lie just a few hundred miles northwest of the epicenter of the December 26, 2004 earthquake that triggered the tsunami. Yet none of an estimated 840 people in the five aboriginal tribes was injured when the waves struck. The report says that an elder of the Jarawa tribe led his people to safety on a hilltop after a boy's sudden dizziness signaled the distant tremors that presaged the tsunami. The old man told that, "when I was a child and these types of things happened, my father told that I should follow this procedure if they happened again".

The Onge tribe of the Andaman Island also knew when the level of the creek running through their village suddenly dropped that it meant the sea was pulling back, preparing to strike like a fist. They, too, fled to the hills, as their ancestors had taught them. [2]

Recently, Assistive Technology Development Organization, a Japanese member organization of the DAISY Consortium, organized an interaction between an Indigenous community from Japan call "Ainu" and the Morken community in Thailand. Ainu people, who do not have their own written scripts, shared their traditional food with us which demonstrated a unique way of food preservation. This community lives in an area which becomes severely cold in winter. Thus it is this preserved food that they eat during such trying conditions.

Our modern civilization is extremely overpowering for these indigenous communities. The old traditional knowledge is diminishing due to the influence of new civilization. Only way in which we have any chance of saving and preserving the traditional knowledge is by proper documentation. Lack of a script for these languages is a major hurdle in this work. Although DAISY Multimedia books are being used to create structured audio books, yet this process would become much easier if a universal accessible script could be adopted for writing all such languages which do not have their own scripts.

## ***HYPOTHESIS***

Persons with blindness were dependent only on audio information before the invention of Braille. Braille is a tactile script which is used for writing all languages. One of the salient features of Braille is that the same symbol of Braille is used to represent symbols of all languages which are used for same phonetic sound. This is not by chance but by design. This was achieved as a result of work done under the aegis of UNESCO from 1949 till 1951 when the World Braille was introduced. The consequences of this are quite interesting and revolutionary. Here is an example: Dipendra Manocha knows how to read Hindi Braille. He was in Egypt in first week of June, 2009 in Bibliotheca Alexandrina, Alexandria as a trainer. He picked up a magazine published in Arabic Braille. Most of the words that he read out were correct pronunciation of Arabic words. He learnt about few differences between Arabic and Hindi Braille in a few minutes. Now he could read Arabic from Braille script which he himself could not understand as he doesn't know Arabic language. However, people from the library could fully understand what he was reading aloud in Arabic language. Therefore, Braille is a script which has no borders.

Braille is read not just by touch but also by eyes. Teachers of persons with blindness read Braille by looking at it. Thus, Braille has the potential to become the universal phonetic script for all languages which do not have their own script.

## ***HISTORY OF TACTILE SCRIPTS***

Desire of the blind to gain access to the written word goes back to the 4th century with Didymus of Alexandria ( 308-395 AD) carving out wooden letters of the alphabets and joining them to make words and sentences. 14th, 15th, & 16th century were witness to the efforts of Zain-Din -Amidi from the present Iraq. Francisco Lucas of Sargosa & Rampansetto of Rome using wooden carvings and engravings to write and read. During this period, experiments with different material like lead, tin, wax coated tablets that could be cut by stylus continued but with no permanent system. In the year 1676, an Italian Jesuit Francesco Terzi devised a kind of Cipher Code based on the system of dots enclosed in squares and other shapes. He also advocated the use of a system of representation of alphabet by differing construction of knots on the string. This method was adopted in Britain and various parts of South America. Use of sticking pins into a cushion was also used late 18<sup>th</sup> century in Vienna. Valentin Haüy is called the Father of the education for the blind as he started the first school for the blind in Europe in the year 1784. He used embossed Italic form of Roman letter in two sizes of type but it turned out to be a cumbersome process. Haüy School was visited by Charles Barbier who invented a dot-based system which consisted of 12 dots. This system is also known as night writing system and was used by soldiers to write and read secret messages at night. This is considered as the base of final form of Braille invented by Louis Braille in

1829. Simultaneously, work on the pattern of communication kept on happening world –wide. Some of the notable efforts out of these are:

- James Gall of Edinburgh's angular modification of Roman Capitals which were produced as embossed text. First book in this type of reading system was published in 1827.
- Dr.Edmund Fry received gold medal from the Edinburgh Society of Arts for his proposed writing system of raised plain Roman alphabets in 1832. His work was chosen from 11 proposed systems of tactile scripts.
- Alston's made minor modification to Fry's system and published Bible in 19 volumes in 1840.

Systems based on shorthand, phonetic principles, line types finally gave way to raised dot based alphabet reading and writing system by Louis Braille. By 1834 Louis Braille had improved and finalized the system by using an arrangement of six dots in quadrangular spaces referred to as Braille Cell.

After facing many hurdles in an all parts of the world, improvised version of Braille has been finally accepted as the universal script for the blind. Thus the period of roughly 100 years, beginning from 1829, when Louis Braille first published his system, to 1931, the year which marked the agreement between the English speaking world on a common script, may be divided into two stages. The first fifty years witness the confrontation between Braille system and the numerous linear types; the next fifty years saw how Braille's original system had to struggle against the various reconstructions of itself. [4]

### ***THE UNIVERSALISATION PROCESS OF BRAILLE AS A PHONETIC SCRIPT***

Using the 6 embossed dots, we can construct only 63 unique characters using one single Braille cell. In many cases, combinations of two Braille cells are used for representing one alphabet. It is this one script which is used by persons with blindness to write all the alphabet of all languages of the world. Due to this unique situation, there always was a feeling that a high degree of uniformity in Braille usage should be adopted throughout the world. The usage of English in Braille was standardised to a great extent by 1931. However, in most of the countries, where the education of the blind had a relatively late start, usage of Braille code for representation of local language alphabet was not standardised. For example, there were many different Braille coding systems for alphabet of Hindi language. India was a case in point which was trying to standardise Braille code for 22 languages using 12 different scripts in the country. Consequently, in April 1949 India requested UNESCO to lend its services to help rationalize Braille usage in many regions of the world. UNESCO responded warmly and it appointed a Braille consultant to survey the Braille codes used for various languages of the world and possibility of unification of Braille code based on

phonetic sounds. After the completion of this survey, UNESCO appointed an advisory committee to consider it. The advisory committee met in Paris in December 1949. The committee found that a World Braille was both desirable and practical. It, however, recommended that the question may be examined by a wider group of stake holders. Accordingly, UNESCO convened an international congress in Paris in March 1950 which was attended by experts from many countries.

The conference recommended a universal script to be called "World Braille" and provided a broad definition to it. In these recommendations, as much as the language permitted, same Braille code was to be used for similar phonetic sounds of all language alphabets. In other words, World Braille was to be a network of inter-related Braille codes. These recommendations were published in 1953 in a publication called the "World Braille usage". This publication has since been revised once and republished in the year 1990 jointly by UNESCO and the Library of Congress, Washington, USA. [5]

## **CONCLUSION**

As a result of a well thought strategy, Braille has become a universally accessible script which is used for representing all alphabets of all languages of the world. This script is also unified in its representation of phonetic sounds of all languages. The Braille can be read by touch and by eyes if it is embossed. It can also be read by eyes only if printed using Braille dot patterns using normal ink. This provides a very strong base for extending this concept further to use this script as a standard script for unified phonetic sounds. Thus we will be able to write any language of the world in this universal script even for those languages which do not have any script of their own. This would be an important step towards preservation of wealth of culture and knowledge which has been developed over the entire period of our history by all human communities with active participation of blind and low vision community.

## **REFERENCES**

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The Braille system was created in 1821 by a Frenchman, Louis Braille. It is a method widely use by blind people to read and write. Each letter or number in Braille is made up of a cell that has six up to raised dots in two rows of three dots each, which means 64 possible combinations. Blind people read Braille by moving their fingers over these cells and feeling the letters and numbers. Louis Braille became blind himself at the age of three.Â The creation of Braille opened the door to blind people all over the world. Today different Braille codes are used to show letters in different languages. Sets of codes are also used for mathematics and music. In Braille, a cell dot pattern gives you the letter to read. The dot height is about 0.5 mm; the space between dots is about 2.5 mm.