

Building a cost-effective Braille book production System in Vietnam

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1. Current status of Braille book production for the visually impaired in Vietnam

Following the statistical document of Ministry of Education and Training of Vietnam, there are around 1.2 million disabled children in school going age but only 87,000 of them are enrolling to school (7.25%). According to the National education strategy, 70% of disabled children will go to school in the year 2010 through integrated and inclusive education.

In the field of visual impairment, there are 216,000 visually impaired children and most of them are going to special school or integrated school. Following are the stage of education for the visual impairment in Vietnam:

| Status of education of the Visually impaired children | Percent |
|--|----------------|
| Visually impaired children attending nursery school | 10.72% |
| Visually impaired children attending kindergarten school | 24.5% |
| Visually impaired children attending primary school | 93.53% |
| Visually impaired children attending secondary school | 85.98% |

The Braille system was introduced in Vietnam in 1898. Initially, Braille was understood and developed by the organizations and educational centers for the visually impaired children. The Braille codes were developed and absorbed in unique ways. This resulted in many variations in using the Braille codes from organizations to educational centers. Therefore, visually impaired people in Vietnam faced many difficulties in learning Braille. Until 2001, Conferences on unifying Vietnamese Braille codes organized by ICEVI, the

Braille codes have been brought together. The unifying processes facilitated the reading and learning of the visually impaired children as well as Braille book producer.

For a person with visual impairment, who can't use print to read or write, Braille books have become an issue of great concern. Braille books help them to gain and acquire knowledge like the sighted counterparts. With the Braille books, the visually impaired students can learn all the subjects in school along with their sighted peers. They can have the same knowledge, the same experiences and the same opportunities in classroom. The Braille books also help blind adults to get vocational training, to absorb information and to get long life self-study such as the sighted adults. It is evident that the Braille book is the palladium for the visual impairment; it is the prerequisite to implement equal opportunity for the visually impaired people.

Owing to historical, social, and economic conditions, the Government has not supported the Braille books and other devices for all the visually impaired students yet. The Braille textbook is still an unaffordable commodity for the visual impairment students in Vietnam. The organizations, educational centers and special schools for the visually impaired children prepare Braille books for their own students by manual methods. Only few special schools have mini Braille presses to emboss the Braille text. And they have not provided enough Braille books for their own students. Following the statistical record of the MOET, more than 50 percent of visually impaired students still do not have the basic books to study. They are going to class without Braille books or sharing the Braille books with their visually impaired friends in the special school or studying with the help of their sighted peers in integrated schools.

According to the educational strategy of the Government, by implementing integrated and inclusive education, 70% of the disabled children can go to school by the year 2010. This means that a huge number of Braille books are needed for visually impaired students so that they can study and follow their peers in the regular class. Furthermore, as inclusive education is fast growing, when the ideal of inclusive education is implemented, demand for Braille books for children with visual impairment in general classroom are increasing. And there is a real need to make cost effective Braille book production centers in Vietnam so that all children and adults with visual impairment can afford to Braille books.

2. The Braille book production system at IHRDC

I had a chance to study M.Ed in Special Education at International Human Resource Development Center for the Disable (IHRDC) campus supported by ON_NET and ICEVI. I studied special education for nearly two years and had opportunity to observe and to do research regarding to the Computerized Braille Production at IHRDC campus, Sri Ramakrishna Mission Vidyalaya, Coimbatore, India.

The Computerized Braille Production Unit at IHRDC campus was established in 1988. Then, there are more than 10% of visually impaired children was enrolled in special schools and integrated school, but greater part of these children did not have Braille books. The existing conventional system was not adequately equipped to meet the demand for Braille books for the visually impaired children. The effort attempted by Sri Ramakrishna Mission Vidyalaya is providing excellent results. A microprocessor to run the computerized Braille system has been manufactured in Coimbatore itself, and the cost is five times lower than that of the same in Europe. Similarly a Braille production software known as “Handybraille” was prepared in India and is almost one fourth of the cost of the same in Europe and in the United States of America. The system is successfully functioning for the past seventeen years and the centre is supplying Braille textbooks and supplementary books to nearly 2500 visually impaired children.

The success of the Braille book unit at the International Human Resource Development Center for the Disabled in conducting, producing and delivering the Braille books has supported the need of the person with visual impairment in the Southern India is a great lesson. The production of textbooks and reference books has solved the shortage of Braille materials currently being faced by visually impaired students, postgraduates and blind individuals.

Producing the Braille books is a civilized and scientific process. It requires basic equipment for a fully operational Braille press. The operational Braille is a conjunction of many steps from data entry to the packing and delivery. That is a process of many conjunctive works from data entry, proof reading, printing, cutting, and tactile diagrams, binding, packing and delivery to visual impairment student and resource teachers. The Braille books have brought immense benefits for the children with visual impairment in going to school, acquiring knowledge and leading a better life.

To find out the effectiveness and quality as well as the opinion of the customers regarding to the Braille books produced at the IHRDC campus, through my research, I had chance to collect, assess and evaluate the opinions of the children with visual impairment and resource teachers who are using the Braille books from IHRDC.

The study reveals that:

- Most of the visually impaired children are comfortable in reading the Braille books. It approves that the available Braille books are appreciable quality.
- The visually impaired students can understand the tactile diagrams in the Braille books easily but it is still challenging.
- There is no difference between reading single sided and double-sided Braille books, the quality between the single side and double side Braille books are

same. This can lead to reduction in the cost of Braille books and save expenses.

- The study also found that 85% of visually impaired students gained knowledge by reading Braille books. Braille books are the major source for them to collect information. Therefore, it is imminent to provide Braille books for the visually impaired students.
- 65% of the visually impaired students felt difficult to read the mathematical Braille books.
- 85% of visually impaired students felt that the sharpness of the tactile diagrams in the Braille books was *very clear* for them to explore the meaning of the pictures, some of them felt difficult to understand some complicated tactile diagrams in science and mathematical Braille books.
- Both resource teachers and students with visual impairment require more Braille books for all the subjects, including religious books, devotional songs, and biography of great people.
- The Braille books could be normalized and mainstreamed for all the subjects and it could be text book, daily calendar, story book, magazines, and autobiographies,
- The Braille books should be developed in questions and answers types. This is very useful to enhance the self-study of the visually impaired students.
- The visually impaired students understood the diagrams in the textbooks by identifying the shape, size while some of them were difficult to understand due to complexity. Therefore the diagrams should be made in as clearly as possible.
- Most of the resource teachers approved open Braille for primary level and contracted Braille for students above 6th standard, beside that, they suggested to use contracted Braille to save time and save page.
- Languages, Social studies, Science and Math are very important subjects for the academic development of the child. So it is essential to provide adequate Braille textbooks in these subjects for the visually impaired children.
- The Braille books could be divided into small volumes because it is heavy for the children to carry.

It is evident that the Computerized Braille Production Unit at IHRDC campus has met the Braille book demands of person with visual impairment in southern India, effectively. Similarly, a cost-effective Braille production system, will certainly address the Braille material demand for education, employment and leisure in Vietnam. A fully-equipped

and operational Braille press will meet the needs of Braille users in the country and ensure that blind people, as far as possible, have access to the same information as their sighted counterparts, when attending to school classes, official functions, religious services or private gatherings. Naturally, it also creates opportunities for blind people to improve their current status in securing jobs.

3. Building a cost-effective Braille book production System in Vietnam

There are more than 50 percent visually impaired students still do not having their own book because there is no Braille production unit in Vietnam. Some concrete steps have been attempted for a unified Vietnamese Braille and Duxbury Systems Inc has developed a Window-based Vietnamese Braille Translation Software which converts Vietnamese text into Vietnamese Braille. An operational Braille press center can solve this problem and may meet needs of Braille readers and the question is how to build a cost-effective Braille production system in Vietnam.

The capital cost required to establish a Braille book production center is rather high because of purchasing all equipments but when the system runs for a long time and prepares the Braille material for school students, college students, and other blind individuals, the cost will be very low.

So, what are the basic requirements for setting a Braille books production center?

Firstly, we have to identify an appropriate place with at least 4 rooms with the necessary furniture such as sufficient electrical power points, enough light, comfortable chairs, tables, cabinets. One room (1st room) will be for the data entry, tactile diagram preparation, the 2nd room for proof-reading, the 3rd room for printing, thermoforming machine for converting tactile diagram and cutting, the 4th room for binding and packing. Coming up with the 1st room, the required equipments for data entry are two basic Personal Computers with Disk Operating System and suitable Word Processor. At least two computer tables, two typist chair, one common table and chair, one cabinet are necessary. The tactile diagrams preparation can be done by the local low cost material such as buttons, strings, sandpapers, small plastic rings... the required staff for this room are three, two of them have good typing skill to handle the data entry. Three of them should be sighted people. The second room needs only one common table and two chairs for proof reading. The best person to do proof reading in Braille text is a blind person. Any errors can be corrected.

This work can be done well by coordinating between one blind person and a sighted one.

Coming to the 3rd room, it needs one basic Personal Computer with Disk Operating System, suitable Word Processor and Duxbury translation Software. One double-sided and high-speed embosser with acoustic hood to reduce the noise (suggest to use 4

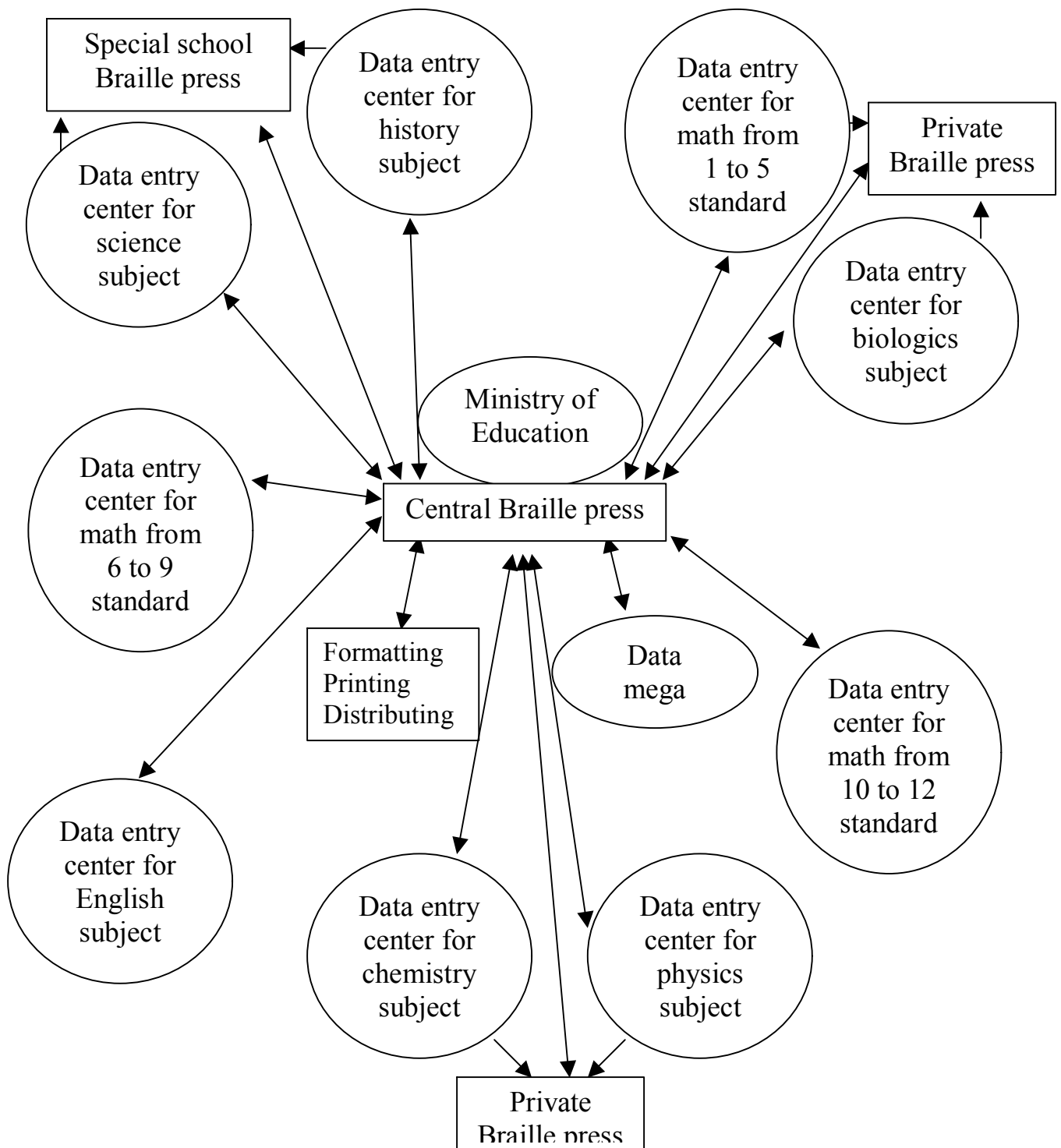
Wake Pro embosser), thermoforming and cutting paper machines are needed. This also needs one computer table and chair. These works can be conducted by two staffs.

The 4th room will deal with the last steps in Braille books production center. The binding and packing works can be handled well by a blind person. This room needs one common table and two chairs. The manpower for these works can be done by one sighted and one visually impaired person.

Beside that, paper and trained staffs are very important for the Braille books production center to run properly. But the most important consideration is the cost, maintenance, suitability and support in getting funding for such equipments.

4. Access model to improve the effectiveness of the Braille books production center

The investigator has discussed about the basic requirements for setting up a Braille books production center, and suggested that the following as the viable model suiting to Vietnamese condition.



From the schema, we can see that, the Ministry of Education will control the activity of the Braille books production center. It means that the ministry of education will manage

the quality and quantity of the Braille book by control formatting, printing and distributing processes.

There are also some Braille presses at some organizations and school for the visually impaired, after Central press is established, these organizations and schools can be used as data entry centers. The completed data entry from these centers will be sent directly to Central press through email for formatting, printing and distribution to the demanded visually impaired students. After that, these data will be stored in data-mega store to reuse in the next time.

By this way, we can mobilize the whole available resources in making the Braille books for the visually impaired students and the cost of production at the Braille books production center will reduce considerably.