

# PROCEEDINGS

OF THE  
NATIONAL CONFERENCE  
ON  
PAST AND PRESENT STATUS  
OF BRAILLE IN INDIA  
NEW DELHI, DECEMBER 17-18, 2001



*Mr. Bach' Singh Rawat (extreme left), Union Minister of State for Science & Technology, releasing special cover, to mark the Golden Jubilee of karati Braille.*



Organised By :

**All. India Confederation of the Blind**

Braille Bhawan, Institutional Area,  
Sector-V, Rohini, Delhi-110085 (INDIA)

Pho 7054082 Fax : 7050915, 2941093 E-mail : aicb@lycos.com blind@de13.vsnl.net.in

in collaboration with

**Amway Opportunity Foundation**



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# **PROCEEDINGS OF THE NATIONAL CONFERENCE**

**ON**

## **PAST AND PRESENT STATUS OF BRAILLE IN INDIA**

**NEW DELHI, DECEMBER 17-18, 2001**

### **I. INTRODUCTION:**

- 1.1 The year 2001 had a special and historic significance in the field of work for the blind in India. It was the Golden Jubilee' year of the acceptance by the Government of India, in consultation with UNESCO, of a common Braille Code for Indian languages, known as 13harati Braille'. Adopted in April 1951, the Code facilitated easy communication among blind persons throughout the country in different languages with the help of a standardized and uniformly accepted symbols. The year also marked the completion of 50 years of the establishment of the first Braille Press in India, which proved to be the precursor of the advent of a large number of Conventional and computerized Braille printing Centres and Units. This first Press, thus, set in motion the process of indigenous production of reading material in Braille in the country.
- 1.2 It was in the background of these two momentous events coinciding in the same year that All India Confederation of the Blind decided to commemorate the occasion in a fitting manner. Thus, a decision was taken by the Confederation to call a Conference at the national level to which may be invited about 50 representatives of Braille users and experts.
- 1.3 Appreciating the keen interest Amway Opportunity Foundation, the social arm of the reputed Amway India Enterprises has been evincing continually in promoting Braille literacy among the blind in the country and the invaluable support it had been providing to the production of text books in Braille, the Confederation brought the idea of the national conference to the notice of AOF authorities. It is gratifying to note that AOF immediately responded favourably to the idea and advised the Confederation to forward to it a detailed proposal which was made available to them forthwith. The AOF, we are honoured to report, promptly agreed to support the Conference under the banner of the Confederation in collaboration with them.
- 1.4 The dates for the Conference were fixed as December 17- 18, 2001 and the venue was the India International Centre, New Delhi.
- 1.5 Invitations for the Conference were sent out to leading schools for the blind and prominent national and state organizations of and for the blind. A distinguished group of experienced persons were approached to contribute professional papers on different topics chosen for the Conference. Each of the delegates to the Conference was provided return rail fare (AC three- tier) and board and lodging free of charge in a well- maintained Government Hotel. Facilities were also provided to resource persons invited to present papers. A total of 56 delegates and resource persons representing 14 States participated in the Conference. They included Braille users, Braille specialists, teachers and persons engaged in the production of reading material in Braille at various Braille printing centres and administrators. A list of participants is given as Annexure A to the Report.

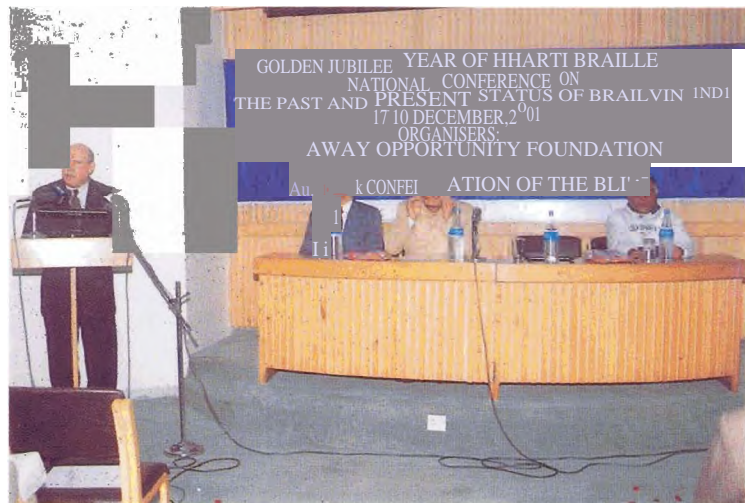
## II. CONFERENCE SESSIONS:

### 2.1 OPENING SESSION :

2.1.1 Thus, the two-day Conference commenced with an inaugural function at India International Centre, New Delhi, on Monday, December 17, 2001 at 10 a.m. Small children of the Confederation's School for the Blind set the tone for the Conference by presenting a melodious and highly synchronized **Action Welcome Song**. The President of the Confederation, Mr. K. Thiagrajan, welcomed the guests and delegates. Mr. William S. Pinckney, Chairman, Amway Opportunity Foundation highlighted the importance of Braille and outlined in brief the various measures being taken by AOF to provide text books to blind children in almost all parts of the country as also to make available work-opportunities to blind individuals. Mr. Bachi Singh Rawat, Union Minister of State for Science and Technology, inaugurated the Conference. He also released a special Commemorative Cover to mark the completion of fifty years of the acceptance of Bharati Braille in India. The Cover was specially brought out for the occasion by the Postal Department at the instance of All India Confederation of the Blind and one such Cover was formally handed over to the Minister by Mr. A. Kharkwal, Director, Postal Services, Govt. of India. In his Address, the Minister spoke of the special section prepared for the blind at the National Botanical Garden, Lucknow, U.P. where information about the flora and fauna available in the Garden is presented in Braille and tactile format for the benefit of blind visitors. He stated that he would have steps taken to facilitate similar special arrangements for the blind in some other public places and Parks under his Ministry. The Minister lauded the work being done by the Confederation and the Amway



*The Confederation's children presenting welcome song.*



*Mr. William S. Pinckney addressing the gathering.*



*The Minister inaugurating the Conference.*

Opportunity Foundation for helping the blind and assured of his full cooperation in matters concerning the welfare of the blind relating to his Ministry. In conclusion, the Minister hoped that Braille printing Presses in the country would be able to provide reading material to all blind children in the country and that there would be greater coordination among them. He specially commended AOF for supporting the Conference and the cause of the blind in the country.

2.1.2 The inauguration was followed by a Key-Note Session. Mr. Lal Advani, a renowned expert and Life—Member, World Blind Union, presented the Key-Note Address. Mrs. Rajwant Sandhu, Joint Secretary to the Government of India, Ministry of Social Justice and Empowerment, presided. In his Address, Mr. Advani traced the evolution of Braille Code for Indian languages from 1902 to 1951. He highlighted the critical significance of Braille, which still continues to be a staple medium of reading and writing for the blind, despite the advent of speech synthesis and other IT-based devices. He spoke of the importance of Braille as an additional and essential communication medium for persons with low vision as well. Mr. Advani also laid great stress on undertaking and promoting research for improving teaching of Braille and developing techniques of rapid Braille reading for our country. He wanted the Conference to take heed of some recent trends emerging in several schools for the blind pertaining to situations



*Mrs. Rajwant Sandhu, Jt. Secretary, Union Ministry of Social Justice & Empowerment addressing the delegates in the Key-note session*

similar to a kind of tactile dyslexia and the number of associated disorders with visual impairment arising from fast-changing profile of vision—impairing diseases. He hoped that the Conference would prove a landmark in ensuring closer attention from the side of the State and voluntary organizations on Braille development. The text of Mr. Advani's Key- Note Address is reproduced along with other Conference papers at the end of this report. In her concluding remarks, the Chairperson, Mrs. Rajwant Sandhu expressed the hope that the Conference would be able to place in perspective various issues relating to the use of Braille and

production of books in Braille in the country. She wished the conference a great success.

## 2.2 BUSINESS SESSIONS :

2.2.1 The Conference had a total of six Business Sessions during the two days of its deliberations, in addition to the Key-note Session reported at 2.1.2 above. These Sessions had the following issues / themes for consideration:

**SESSION 1 : "BRAILLE IN INDIA, LOOKING BACK"**

**SESSION 2 : "BRAILLE IN INDIA — SOME CRITICAL CONCERNS"**

**SESSION 3 : "PRODUCTION OF READING MATERIAL IN BRAILLE"**

**SESSION 4 : "TEACHING OF BRAILLE"**

**SESSION 5 : "BRAILLE AND VISUALLY IMPAIRED CHILDREN WITH SPECIAL NEEDS"**

**SESSION 6 : "BRAILLE AND EMERGING RESEARCH TRENDS"**

2.2.2 Each of the above Sessions was chaired by a person of eminence. Session wise list of chairpersons is given below:

### SESSION 1

CHAIRPERSONS

**Dr. (Mrs.) Neeraja Shukla,**  
Professor and Head,  
Department of Education of  
Groups with Special Needs,  
NCERT, New Delhi,

and

**Dr. Rajesh Singha,**  
Chief Executive Officer,  
FI Communications, Atlanta,  
Georgia., U.S.A.



*Dr. (Mrs.) Neeraja Shukla (sitting in the middle) presiding over the session.*

### SESSION 2

CHAIRPERSON

**Dr. V.P. Vanua,**  
formerly Professor,  
Department of Philosophy,  
Delhi University, Delhi.

### SESSION 3

CHAIRPERSON

**Dr. S.R.Shukla,**  
Director,  
National Institute for the Visually Handicapped,  
Dehra Dun, Uttaranchal.

## SESSION 4

CHAIRPERSON

**Dr. S.R.Mittal,**  
Reader,  
Department of Special Education,  
Jamia Milia Islamia, New Delhi.

## SESSION 5

CHAIRPERSON

**Dr. J.P.Singh,**  
Member. Secretary,  
Rehabilitation Council of India,  
New Delhi.



*Dr. Rajesh Singha moderating the session.*

## SESSION 6

CHAIRPERSON

**Mr. Suresh C. Ahuja,**  
President,  
Action on Disability Development (India),  
Mumbai.

2.2.3 The first three of the above Sessions were held on the opening day of the Conference and the remaining on the second day.

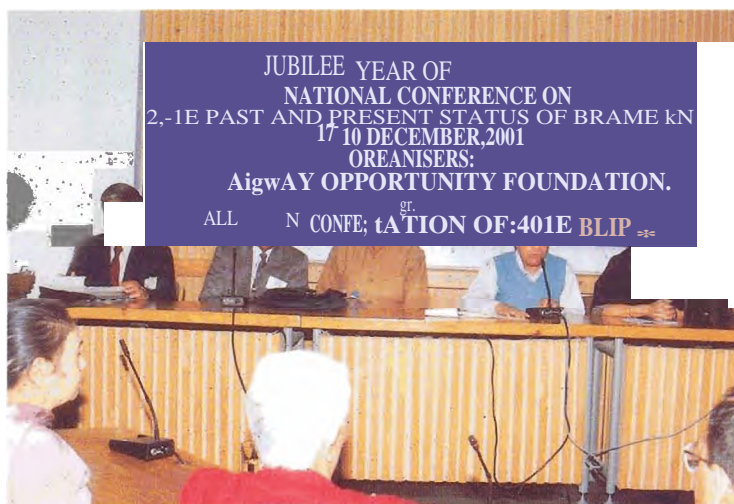
2.2.4 During the above six Sessions, a total of eleven Papers were presented on different topics. Each Session was marked by lively discussions and exchange of views among delegates. The delegates requested Dr. Bhushan Punani, Executive Director, Blind People's Association, Ahmedabad to compile the suggestions and recommendations made in different Sessions, summarize these in the form of a .. Plan of Action .. and present the same at the Valedictory Session. Dr. Punani graciously agreed to do so. A list of papers presented at the Conference along with the concerned resource persons is given below:

a. **GOLDEN YEARS OF BRAILLE DEVELOPMENT —**

Dr. Bhushan Punani,  
Executive Director,  
Blind People's  
Association,  
Ahemadabad, Gujarat.

b. **LITERACY OF THE  
BLIND THROUGH  
CONTRACTED  
UNCONTRACTED  
BRAILLE -**

Mr. Virendra Singh,  
Braille Development  
Officer,  
National Institute for  
the Visually  
Handicapped,  
Dehra Dun, Uttaranchal.



*Dr. V.P. Varma addressing the session.*

RELATIVE MERITS OF BRAILLE AND AUDIO CHANNELS  
FOR THE EDUCATION OF BLIND CHILDREN IN INDIA—

Dr. N.K.Rai,  
formerly, Psychologist,  
NIVH,  
Dehra Dun,  
Uttaranchal.  
and presently  
Joint Director  
(Examination  
Reforms),  
Staff Selection  
Commission (DOPT),  
Government of India,  
New Delhi.



*Dr. S.R. Shukla, addressing the gathering.*

d. ASSESSMENT OF  
REQUIREMENT OF  
READING MATERIAL  
FOR SCHOOL —AGE BLIND CHILDREN IN THE COUNTRY—

Mr. Harshad U. Joshi,  
Course Coordinator,  
SSTTC ( VIC ),  
Blind People's Association, Ahmedabad, Gujarat.

EXISTING BRAILLE PRESSES — THEIR CONTRIBUTION AND FUTURE ROLE—

Mr. Ketan Kothari,  
Manager,  
NAB Sir J. Duggan Braille Press, Mumbai, Maharashtra..

f. INTRODUCING BRAILLE TO YOUNG BLIND CHILDREN:  
READING READINESS, FLASH CARDS,  
TEACHING METHODS AND APPROACHES—

Mrs. Swaran Ahuja,  
a noted expert from  
Mumbai, Maharashtra.

g. BRAILLE ANTI  
CHILDREN WITH  
LOW VISION-

Mr.Subhash A.  
Datrange,  
Management Consultant  
Disability Agencies and  
NGOs, **Mumbai**,  
Maharashtra  
(A summary of this  
Paper was presented by  
Dr. Bhushan Punani,  
since Mr. Datrange had  
to leave earlier on account  
of a sudden bereavement in the family).



*Dr. S.R. Mittal addressing the session.*

1. TEACHING BRAILLE TO SLOW- LEARNING BLIND AND VISUALLY HANDICAPPED CHILDREN— A GROWING NEED AND A SERIOUS CHALLENGE—

Dr. R.S.Chauhan,  
Sr. Lecturer,  
Dept. of Special  
Education,  
NIVH, Dehra Dun,  
Uttaranchal..



*Dr. J.P. Singh speaking to the delegates.*

i. PERCEPTUAL FACTORS IN BRAILLE READING-

Mr. R.C.Nijhawan,  
Honorary Executive  
Secretary,

All India Confederation-  
of the Blind,

Delhi and

Dr. Sushma Sharma,  
Reader, Special education,  
Kunikshetra University, Kurukshetra, Haryana.

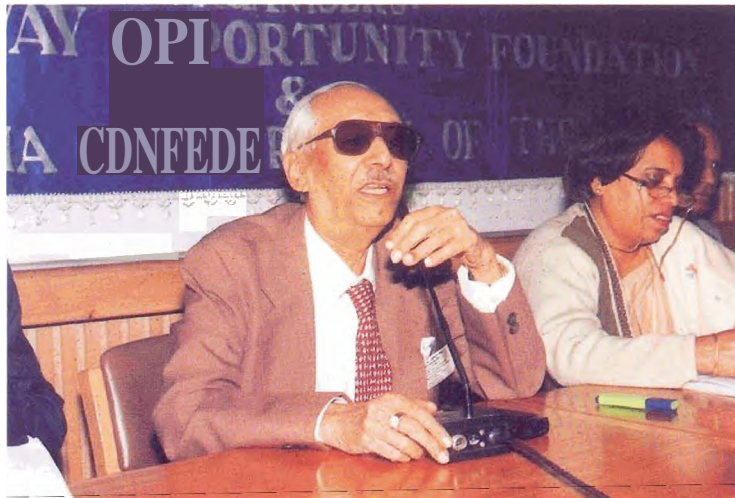
j. TECHNOLOGY AND DEVELOPMENT OF BRAILLE AIDS AND DEVICES—

Mr. A.K.Mittal,  
Regional Director,  
NIVH Regional Centre,  
Chennai, Tamil Nadu.

u.

DEVELOPMENT OF  
LOW COST  
TEACHING-  
LEARNING  
MATERIAL FOR  
BRAILLE—

Dr. (Mrs. ) S. Sanyal,  
Lecturer, TCTVH,  
Blind Relief  
Association  
New Delhi.



*Mr. Suresh C. Ahuja addressing the delegates.*

2.2.5 Copies of all Conference Documents including its Programme and all of the Professional Papers were made available in Braille and in print to all delegates as per their requirement at the time of Registration before the commencement of the Conference.

2.2.6 The delegates with the help of a panel of experts, also discussed at length during Business Sessions 1 and 4 on the first and the second day of the Conference, various aspects relating to the topic "IMPROVEMENTS AND ENRICHMENTS REQUIRED IN THE EXISTING BHARATI BRAILLE CODE, FIFTY YEARS AFTER ITS ACCEPTANCE". Details are presented below:

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- A. The panel consisted of the following:
- I. Dr. Rajesh Singha,
  - H. Prof. V.RVarma,
  - III. Mr. A.K. Mittal,
  - IV. Mr. R.C.Nijhawan,
  - V. Dr. S.R.Mittal,
  - VI. Prof. B.Y.Mehta,
  - VII. Dr. R.S.Chauhan,
  - VIII. Dr. (Mrs.) Prem Singh.
- B. One of the panelists pointed to a few limitations/discrepancies in the existing Bharati Braille Code (Hindi) and called for necessary modifications. Others, however, felt that great caution needs to be exercised in the matter, since precipitate action could create considerable confusion. There should be no change just for the sake of it.
- C. Panelists agreed that teaching of Bharati Braille at schools should form an integral part of language teaching and that stress be laid on proper articulation of sounds.
- D. It was suggested that AICB may constitute a panel of Braille and linguistics experts representing different language zones of the country to consider objectively the whole question of modifications, if any, in the existing Code.
- E. Teaching of Bharati Braille should be based on the approaches of word and sentence method and that the problems of teaching Bharati Braille and accompanying contractions, wherever applicable, may also be suitably addressed in the case of blind children having to drop out of schools.
- F. As regards contractions and abbreviations, while one of the panelists stated that these be introduced only after school - level, others felt that the stage of their introduction be left to the judgment of the teachers and the abilities of the learners. Generally, however, contractions and abbreviations may be taught from class VI onwards. Some common underlying principles may also be evolved for the development of the Code of Contractions in other Indian languages.
- G. Training of teachers of the blind in Braille and, particularly, in Bharati Braille needs to be greatly strengthened and new teaching techniques be evolved.
- H. One panelist suggested that books and poems written by blind authors in Indian languages may also be brought out in Braille.

## **23 VALEDICTORY SESSION:**

- 2.3.1 The closing function of the Conference was held on December 18,2001 at 4 p.m.. Major H.P.S. Ahluwalia, Chairman, Rehabilitation Council of India, was the Chief Guest.
- 2.3.2 Mr. B.V.Reddy, Vice President, AICB welcomed the guests and other dignitaries.
- 2.3.3 Delegates from three States presented their impressions about the Conference and expressed their appreciation for the deliberations at different Sessions and arrangements made by the AICB for the participants.

2.34 Dr. Bliushan Noun' presented a Draft Plan of Action emerging from the deliberations of the Conference, which was adopted unanimously (Please see Section 3 for details ).

=L3.5 In his Valedictory Address, the Chief Guest assured that he would consider favourably reconunendations of the Conference relating to the work of RCI. He also called for providing all-round access to information for the blind, as in the case of access to built - up environment for the locomotor-disabled. Such access may also include Braille markings on Railway and Air tickets etc.

2.3.6 The function concluded with a warm Vote of Thanks, proposed by Mr. J.L.Kaul, Secretary General, AICB.



*Mr B.V Reddy, welcoming the guests.*



*Mr J.L. Kaul, proposing a vote of thanks.*

### 3. PLAN OF ACTION:

3.1 The following Plan of Action based on the comments and suggestions made by the delegates at different Sessions , was adopted at the Valedictory Session of the Conference. Delegates to the "National Conference On The Past And Present Status Of Braille In India" convened by All India Confederation Of The Blind in partnership with Amway Opportunity Foundation, in New Delhi on December 17 — 18 , 2001,after having considered in depth the various facets of the development and use of Braille in India during the past fifty years, do hereby adopt the following plan of action for making Braille more easily accessible and usable for a much larger number of blind children and adults in the country:-

3.1.1 A statutory body on the lines of the Rehabilitation Council Of India, called 'The Braille Authority Of India' may be set up at the earliest by the Ministry of Social Justice and Empowerment, Government Of India, for accelerating and monitoring the development of Braille and its use in general and for achieving the following objectives in particular:

- a. To regulate and greatly enhance the production of reading material in Braille while ensuring the highest quality of output and timely availability of such reading material at affordable cost;
- b. To promote and sustain greater coordination among Printing Presses and Units engaged in Braille production;
- c. To sponsor and stimulate suitable research to evolve appropriate methods of teaching Braille and rapid reading techniques;
- d. To look into the question of the development of contractions and abbreviations in Indian languages and examine , objectively and systematically, the usefulness of such contractions and abbreviations already developed for a few Indian languages;
- e. To review the existing Bharati Braille Code developed and accepted about 50 years back and see through appropriate research, whether the Code requires any modification for improvement;
- f. To strive continuously to ensure that Braille gets a position of eminence in all training curricula for the teachers of the blind ;
- g. To take effective steps to monitor the production of Braille related educational devices at different centers in the country with a view to facilitating their timely availability at affordable prices, and
- h. To monitor and regulate all other matters relating to the use of Braille in India.

3.1.2 As an interim measure and pending the establishment of the aforesaid body, National Institute for the Visually Handicaped, Dehra Dun may take the lead and set up a truly representative 'Braille Promotion Sub-Group' to examine objectively anomalies and discrepancies, if any, in the existing Bharati Braille Code and suggest suitable improvements as also take up necessary advocacy and liaison work to facilitate early establishment of the said Braille Authority.

3.1.3 The Union Ministry Of Social Justice and Empowerment may be persuaded to institute a special Award as a part of the Scheme of National Awards given away on the occasion of the World Day For The Disabled, for the most outstanding Braille Printing Press/Centre in the country, based on yearly output and quality of Braille production.

- 3.1.4 The relevant provision of the Persons With Disabilities Act mandating availability of textbooks free of cost to all blind students up to the age of 18 years, may be implemented by the Union Ministry of Social Justice and Empowerment within a specified time frame.
- 3.1.5 All visual information available in all archaeological monuments and Botanical Gardens may be brought within easy reach of blind visitors through the introduction of Braille and auditory messages.
- 3.1.6 A suitable and uniform policy decision may be taken by the National Institute for the Visually Handicapped, Dehra Dun, in consultation with leading N.G.Os like All India Confederation Of the Blind regarding the principles to be kept in view in the development of Braille contractions and abbreviations in all major Indian languages.
- 3.1.7 Necessary steps may be taken by the NIVH and RCI to facilitate short-term periodic training and refresher courses for personnel and teachers with regard to the use of Braille and the Codes of already existing contractions and abbreviations in the country. NIVH may organize such programmes with the help of N.G.Os like All India Confederation Of the Blind and the Rehabilitation Council of India may standardise the duration and syllabi of such programmes.
- 3.1.8 The Rehabilitation Council of India may ensure that there is at least one Theory paper and one Practicum on Bharati and English Braille in all training courses for the teachers of the blind with 50 percent being the minimum pass marks. Teachers of the blind may be required compulsorily to pass a proficiency test in Braille after every 5 years and the responsibility of arranging such periodic tests for trained teachers of the blind may be entrusted to RCI.
- 3.1.9 As far as possible contractions and abbreviations in Braille may be introduced from 6th standard onwards.
- 3.1.10 NIVH may undertake urgently a research project in conjunction with leading NGOs like AICB, NAB etc. to ascertain how far the presently accepted Braille Mathematics Code for India' meets the requirements of teaching and production of related material in Braille and to fill up gaps, if any. Similarly NIVH may undertake another project to determine whether a new Braille Code for Science is required.
- 3.1.11 On a priority basis Braille translation software which may be easy to use, may be developed to facilitate computerized production of reading material in Braille for Indian languages. Similarly, the existing Braille production centers/units may evolve an arrangement of placing their material on a centrally accessible website to facilitate networking and use of Internet for transfer and exchange of the material produced.
- 3.1.12 A suitable Teacher's Manual containing step-by-step information regarding reading readiness, introducing and teaching Braille to young blind children and newly blinded adults, may be prepared in various Indian languages. The Manual may also include a special section for teaching Braille to slow-learning blind children. Efforts should also be made to develop suitable material for teaching Braille to children with low vision from very early on. The responsibility for preparing such a Manual may be taken up by RCI.
- 3.1.13 The Central Board Of Secondary Education as also the State Boards may be persuaded to include Braille as an optional subject in their curriculum for Class X and the Plus Two stage of education.
- 3.1.14 All of the equipment, software and spare parts required for the production of reading material in

Braille and for the use by blind individuals and institutions may be granted full exemption from Customs Duty and Surcharge thereon.

3.1.15 Railways and Airlines may urgently provide Braille markings on tickets issued by them for the benefit of the blind passengers. Similar easy to detect embossed markings may also be provided on different currency notes.

3.1.16 All India Confederation Of The Blind may urgently constitute a group to be called "The Golden Jubilee Of Bharati Braille Committee' consisting of specialists and Braille users along with its office bearers to take up the task of pursuing and monitoring the implementation of the Plan of Action detailed hereinabove."



*Dr. Anil Aneja (sitting in the middle)  
Comparing the Conference Session.*

**Mr. Lal Advani**  
presenting the Key-note Address.



**Dr. Bhushan Punani**  
presenting his paper.



**Mr. Virendra Singh**  
presenting his paper.





**Dr. N.K. Rai**  
presenting his paper.



**Mr. Harshad U. Joshi**  
presenting his paper.



**Mr. Ketan Kothari**  
presenting his paper.

**Mrs. Swaran Ahuja**  
presenting her paper.

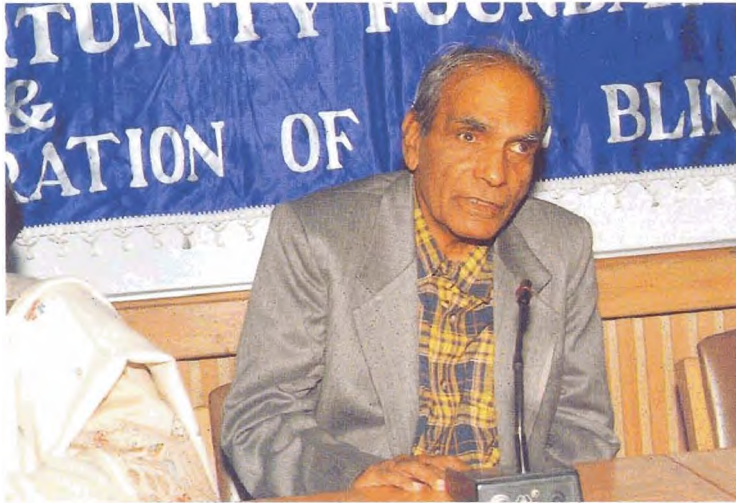


**Dr. R.S. Chauhan**  
presenting his paper.



**Dr. (Mrs.) Sushma Sharma**  
presenting her paper.





**Mr. R.C. Nijhawan**  
presenting his paper.



**Mr. A.K. Mittal**  
presenting his paper.



**Dr. (Mrs.) Swati Sanyal**  
presenting her paper.

## **Annexure - A**

### **RESOURCE PERSONS & PARTICIPANTS**

**1. Mr. Lal Advani,**  
a noted Expert,  
4-70, DDA Flats, Saket, New Delhi

**2. Dr. Bhushan Punani,**  
Exe. Director,  
Blind People's Association,  
Dr. Vikram Sarabhai Marg, Vastrapur, Ahmedabad (Gujrat).

**3. Mr. Rajesh Singha,**  
Chief Executive Officer,  
FI Communications, Atlanta, Georgia, U.S.A.

**4. Prof. (Dr.) V.P. Varma,**  
House No. C-2 ,Block No.1, Kendriya Vihar,  
Sector-56, Gurgaon (Haryana).

**5. Mr. Virendra Singh,**  
Braille Development Officer,  
National Institute for the Visually Handicapped,  
116-Rajpur Road, Dehradun (Uttaranchal).

**6. Dr. N.K. Rai,**  
Joint Director,  
Examination Reforms,  
Staff Selection Commission, New Delhi.

**7. Mr. Harshad U. Joshi,**  
Cburse Coordinator, S.S.T.T.C.(VIC),  
Blind People's Association,  
Dr. Vikram Sarabhai Marg, Vastrapur, Ahmedabad (Gujrat).

**8. Mr. Ketan A. Kothari,**  
Manage' Braille Press,  
National Association for the Blind,  
**R** 1-12, Khan Abdul Gaffar Khan Marg, Sea Face, Worli, Mumbai (M.S.).

**9. Mr. A.K. Mittal,**  
Regional Director,  
National Institute for the Visually Handicapped,  
522—Trunk Road, Poonarnal lee, Chennai (Tamil Nadu).

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**10. Mr. S.C. Ahuja,**  
President,  
Action on Disability and Development India,  
11 Oval View, Churchgate Reclamation, Mumbai (M.S.).

**11. Mrs. Swaran Ahuja,**  
A noted expert,  
11 Ovalview, Churchgate Reclamation, Mumbai (M.S.).

**12. Dr. S.R. Mittal,**  
Reader, Spl. Education Department,  
Jamia Milia Islamia University, New Delhi.

**13. Dr. R. S. Chauhan,**  
Lecturer, Spl. Education Department,  
National Institute for the Visually Handicapped,  
116 Rajpur Road, Dehra Dun (Uttaranchal).

**14. Mr. R.C. Nijhawan,**  
Hony. Exe. Secretary,  
All India Confederation of the Blind,  
Sector-5, Rohini, Delhi - 110085.

**15. Dr. (Mrs.) Sushma Sharma,**  
Reader, Spl. Education Department,  
Kurukshetra University, Kurukshetra (Haryana).

**16. Dr. (Mrs.) Swati Sanyal,**  
Lecturer,  
Training Centre for the Teachers of the Visually Handicapped,  
C/o B.R.A., Lal Bahadur Shastri Marg, New Delhi.

**17. Mr. K. Thiagarajan,**  
President (AICB),  
No. 13 Kalignar Street, D.R.R. Nagar,  
Karainchavadi, Poonamallee, Chennai (Tamil Nadu).

**18. Mr. Pratap Singh,**  
Head Master,  
Sri Jagdamba Andh Vidyalaya,  
Hanumangarh Road, Sriganga Nagar (Rajasthan).

**19. Mr. P. Venkataiah,**  
Principal,  
Govt. High School for the Blind Girls,  
C-137, B-Block, Malakpet, Hyderabad (A.P.).

- 20. Mr. Suhas Bhaskar Roy,**  
Teacher,  
Calcutta Blind School,  
Behala, Kolkata (West Bengal).
- 21. Mr. Arun Kumar Tandon,**  
Teacher,  
Government Institute for the Blind  
Asandh Road, Panipat (Haryana).
- 22. Br. K. Swaminathan,**  
St. Louis Institute for Deaf and the Blind  
Canal Bank Road, Adyar, Chennai (Tamil Nadu).
- 23. Mr. A.K. Sharma,**  
Principal,  
Govt. Inter College for the Blind,  
Mohan Road, Alam Nagar, Lucknow (Uttar Pradesh).
- 24. Mr. Mehta Laherchand Chhotlaj,**  
Teacher,  
School for the Blind,  
Ashram Road, Ahmedabad (Gujrat).
- 25. Mr. Shriman Kanaiyalal Atmaram,**  
School for the Blind,  
Ashram Road, Ahmedabad (Gujrat).
- 26. Ms. Madhuri K. Dhodepkar,**  
Vice Principal,  
Poona School & Home for Blind Boys,  
14-17 Koregaon Park, Dr. S.R. Machave Road, Pune (M.S.).
- 27. Mr. C.K. Aboobacker,**  
President, .  
Kerala Federation of the Blind,  
P.O. Kunnukuzhi, Thiruvananthapuram (Kerala).
- 28. Ms. Paramjeet Kaur,**  
Senior Teacher,  
Govt. Institute for the Blind,  
Jamalpur, Chandigarh Road, Ludhiana (Punjab).
- 29. Mr. Ashwini K. Agarwal,**  
Executive Director,  
National Association for the Blind (Delhi Branch),  
Sector-V, R.K. Puram, New Delhi.

**30. Mrs. Vinita Sharma,**  
Head Mistress,  
AICB. Chandanlal Spl. School for the Blind,  
P.O. Fazilpur, Behrampur, Gurgaon (Haryana).

**31. Mr. V. Janaki Ram,**  
Devnar School for the Blind.  
1-10-125, Mayurmarg Begumpet, Hyderabad (A.P.).

**32. Mr. Sunil Shirpurkar,**  
Mahesh Drishtiheen Kalyan Sangh, Atmalochan Parisar,  
Scheme no. 54, Behind Satya Sai Vidya Vihar,  
A.B. Road, Indore (M.P.).

**33. Mr. Shiv Kumar Gulati.**  
Sr. Braille Teacher.  
JPM Sr. Sec. School for the Blind,  
Lal Bahadur Shastri Marg, New Delhi-3

**34. Mr. Biswajit Dhar,**  
Principal,  
Rama Krishna Vivekanada Mission. School for the Blind & Deaf Girls,  
7, Riverside Road. P.O. Barrackpur, 24 Pragnas (North), West Bengal.

**35. Mr. Arvind Gupta,**  
Teacher,  
Jeevan Jyoti School for the Blind,  
Aktha, P.O. Sarnath, Varanasi, (U.P.).

**36. Mr. Pralay B. Basu,**  
Joint Secretary.  
Rehabilitation Centre for Children,  
59 Motilal Gupta Road, Kolkata (West Bengal).

**37. Mr. P.N. Vyas,**  
**Hony. Secretary,**  
Andhaj an Kalyan Trust, Yogeshwar,  
A-55 Anand Nagar, Dist. Rajkot, Dhoraj i (Gujarat).

**38. Prof. B.Y. Mehta,**  
Secretary.  
National Association for the Blind.  
Panchal Bhuvan, Behind Satyarn Auto Service Shreenagar Road,  
IDAR - 383 430. Sabarkantha (Gujarat).

**39. Dr. R.B.L. Soni,**  
Reader,  
Department of Elementary Education.  
NCERT. Sri Aurobindo Marg. New Delhi - 110016

**40. Mr. S.P. Murthy,**  
Gen. Secretary,  
Karnataka Welfare Association for the Blind,  
No. 69, Nehru Nagar, S.C. Road. Bangalore (Karnataka).

**41. Dr. N.K. Sharma,**  
General Secretary,  
Bihar Netraheen Pan  
Near Panchsheel High School, Kumhrar, Patna (Bihar).

**42. Mr. B.V. Reddy,**  
— Vice President, —  
All India Confederation of the Blind,  
406, Shravana Apartments, Huda Complex,  
Saroor Nagar, Hyderabad (A.P.).

**43. Ms. Shubhangi Mishrikotekar,**  
Teacher,  
Kendriya Vidyalaya, Air Force Station,  
Jaisalmer (Rajasthan).

**44. Dr. M.V. Shirdhonkar,**  
President,  
M.P. Drishtiheen Kalyan Sangh  
33 B/D Killa Maidan, Indore (M.P.).

**45. Mr. Kamalveer Singh,**  
National Association for the Blind,  
Sector - 5, R.K. Puram. New Delhi

**46. Dr. Prem Singh,**  
Reader,  
Jesus & Mary College,  
R/o 2A Sidharth Extension, New Delhi

**47. Mr. K.L. Gupta,**  
Braille Teacher, JPM Senior Secondary School for the Blind,  
ll, Lal Bahadur Shastri Marg, New Delhi

**48. Mr. M.L. Khandelwal,**  
London (England).

**49. Mrs. Krishna Khandelwal,**

London (England).

**50. Dr. Anil Aneja,**

Head, English Department,  
School of Correspondence Courses and Continuing Education,  
Delhi University, Delhi

**51. Dr. R.M. Vyas,**

Asstt. Director,  
C.H.T.I., Rajbhasha Office,  
2A Prithviraj Road, New Delhi

**52. Mr. M.K. Rastogi,**

Superintendent,  
Vocational Rehabilitation Centre for the Handicapped,  
I.T.I. Campus, Pusa, New Delhi

**53. Mrs. YorAko Atsumi,**

GPO Box: 8974, PCN- 1 1 1 , Kathmandu (Nepal).

**54. Miss Ester Winkelhuis,**

C/o. All India Confederation of the Blind,  
Sector-V, Rohini, Delhi-110085.

**55. Mrs. B.K. Nandini,**

National Coordinator,  
AICB Blind Women Empowerment Project,  
Sector-V, Rohini, Delhi-110085.

**56. Mr. P.D. Sharma,**

Principal,  
JPM Senior Secondary School for the Blind,  
Lal Bahadur Shastri Marg, New Delhi.

## KEY-NOTE ADDRESS

# **Braille The Universal Access to Knowledge for The Visually Impaired**

By :

Mr. Lal Advani  
a noted Expert.

Braille has stood the test of time and competition from other media including the tape-recorder, information technology and even low vision aids. The modern emphasis on teaching Science and Maths to the visually impaired has further warranted the pride of place Braille holds in the education and indeed in the entire life cycle of the visually impaired. This has been confirmed by several research studies.

Thluttual euphoria attending the advent of low vision aids, particularly, aspheric lenses and CCTV is inclined to diminish on account of the objective finding that over-magnification reduces the field of vision and n rise to peripheral distortions leading to the emergence of symptoms resembling dyslexia. Laboured rea owing to lack of speed that quite often attends very high magnification interferes with co hension. Moreover, in degenerative and progressive diseases use of low vision aids may be con licated. Thus, for many years to come unless some other scientific revolution takes place, Braille wil ain the doyen of systems for giving to the visually impaired access to knowledge which is the main source of empowerment.

Prior to independence, India did not have a common Braille code. Eight different codes were used in va parts of undivided India. However, as early as 1902, two British Christian Missionaries developed Or l Braille claimed to be a common Code for all Asian languages. But since the early part of 20th ce , Indian nationalism was burgeoning. Perhaps for this or other reasons Oriental Braille did not find readyacceptance in India. The Central Advisory Board of Education recommended several times that a common Braille Code for Indian languages should be developed and a Braille printing plant established. But the British Indian Government was at that time apathetic to the problems of the visually impaired as was evident from a letter written by the then Secretary of State for India to the effect that owing to financial stringency, the British Government could not undertake substantial work for the visually impaired.

But as Indians began to. clamour for independence, several extenuating steps were taken to appease the Indian population.

In 1941 the British Government appointed a Committee to develop Uniform Indian Braille. In 1942, the same Govern' ent also appointed a Committee to investigate into the causes of blindness and recommend meast for their welfare. This report became the stimulus for federal interventions in the education and reh, .station not only of the visually impaired but also of other categories of persons with disability.

In 1945, Sir Clutha Mackenzie asked this author to develop standard Indian Braille resembling Standard English Braille, This was circulated to all schools for the blind in undivided India and received a positive response. In 1946, a meeting between Uniform Braille Code Committee and Sir Clutha Mackenzie could not reach a solution. Therefore, in April 1949, the Ministry of Education requested UNESCO to undertake the task of defining basic principles governing the development of Braille codes for different related groups of langtiages in the world. India had 3 different groups of languages, namely, Indo-Aryan,

Persi-Arabic and Dravidian groups. Development of a common code based on phonetic harmony was a challenging task. However, a conference held in Paris in March, 1950, recommended that a sound occurring in any language in the world should be represented by the same Braille symbol throughout the world.

On this basis India developed a common Braille code for Indian languages which after careful study by scholars was sent in April 1951 to all schools for the blind for implementation. A Braille printing press was set up as part of the complex now known as N.I.V.H. in the same year. This was a strong reinforcement for acceptance of Bharati Braille. We have gathered here to observe the Golden Jubilee of a unique experiment which has acquired international status.

The fact that the initial reaction to Bharati Braille was positive by no means indicates that there is no room for improvement. Indeed, as languages develop, many nuances emerge which need to be provided for in written form. Therefore, I believe that there is imperative need for Indian Braille Authority to keep under constant review the functioning of Bharati Braille and recommend remedial steps. A few instances will suffice. There are some technical problems even in writing Hindi which violate the fundamental principle enunciated by UNESCO that a Braille page should be an exact transliteration of the printed page. There are voices of discontent regarding the allotment of double celled symbols to various letters in Hindi and Urdu. Further there is no provision in Bharati Braille for distinguishing varying shades of meaning by different tones.

These are but a few examples of the imperative need for reviewing Bharati Braille. A committee has been appointed for that purpose by N.I.V.H., but unfortunately, it has not made much progress. Indeed, several committees may be needed. It may be necessary to develop a fresh code for writing Chemistry and other similar subjects.

Music continues to be an occupation where a visually impaired person can function on terms of equality with persons having sight. But India lacks a common Braille code for Hindustani and Karnatak Music. Moreover, more and more emphasis is being laid on vocational training of the education of the visually impaired, so that the employability of visually impaired persons could be enhanced. Here again, many technical terms need to be written and perhaps symbols evolved.

Hindi Braille contractions already developed need a fresh look because they have encountered negative reactions from many quarters. Furthermore, the very process of developing contractions and abbreviations is being questioned by Nordic and other countries. There is no hard evidence at least in this country for accepting or rejecting a particular system.

Our teaching methods are outmoded. There is need for ongoing research to develop rapid reading techniques in order to remove the disadvantage accruing to visually impaired students in an age of information explosion.

I do not wish to dilate on the many issues that need to be considered carefully in order to optimize the learning and teaching of visually impaired students whether they are placed in a special school or in integrated or inclusive settings. Braille should be emphasized as a fundamental academic skill which needs to be learnt and perfected by every student with visual impairment.

More and more blind people are aspiring to enter a wide range of professions. Braille has for the visually impaired the same value as literacy for the sighted. Braille learning is the very foundation of modern living.

A recent trend emerging in some schools is a kind of tactile dyslexia which retards or impedes the learning of Braille. A great deal of enquiry is needed to ascertain the causes of this emerging phenomenon:

A number of associated disorders with visual impairment are appearing owing to the rapidly changing profile of diseases causing visual impairment. This is another broad issue requiring close examination.

The issue of research in the rapid reading techniques, teaching methods, mass production methodology, which has undergone revolutionary changes in the past few decades leaves many unanswered questions. Therefore, if we are to promote the education of the visually impaired and their inclusion in a society for all, the development of regular mechanism for reviewing entire spectrum of problems attaining to learning and teaching of Braille acquires extra-ordinary significance. I hope, this Conference will be a landmark in initiating processes to bestow the greater state and voluntary attention on Braille development.

# Golden Years of Braille Development

By :

Dr. Bhushan Punani

Lowenfeld, most leading proponent of appropriate education very richly pointed out during 1975 that the significance of contribution of Braille is critical because without a system of effective communication through reading and writing, the education of blind children would undoubtedly have remained as it had been through the Middle Ages. What he pointed out almost 26 years ago is very applicable to India even today.

## Development of Braille in India :

Incidentally, J. Knowles and L. Garthwaite, representatives of the foreign Bible Society invented the Oriental Braille and published it during 1902, almost a century ago. In the first decade of the 20th century, Dr. Nilkantharay Chhatrapati the then Principal of Victoria Memorial School for the Blind, Mumbai prepared "Nilkanth Braille" which was popularly used in the western part of our country. In fact, by 1947, there were 11 Braille Codes being used in the country. Other milestone developments include :

- 1922: P.M. Advani expressed the need for evolving a common Braille code at a meeting of the Central Advisory Board of Education.
- 1938: Appointment of a Committee for the development of a uniform Indian Braille Code.
- 1943: The Committee prepared a common Braille Code and circulated the same among various institutions for the blind.
- 1947: Ministry of Education established a Unit to deal with education of the blind for developing a Uniform Braille Code and setting up Braille Printing Presses.
- 1950: (March): UNESCO convened an international Braille conference in Paris for developing World Braille Code.
- 1951: A Turning Point :** It was during this year, the UNESCO established the World Braille Council with Mr. Lal Advani as representative from India. During the month of January, the Government of India accepted the recommendations of the International Braille Conference and proceeded to frame a Braille Code, named as "Bharati **Braille**" for Indian languages. It was submitted to the Central Advisory Board of Education for approval. The Board approved the code in principle and recommended that the necessary modifications might be made in the light of the Regional Braille Conference.

During the month of April, the "**Bharati Braille**" was finalized and recommended for its nation-wide use. It has become an international system as Nepal and Bangladesh are also using this code. During this year itself, the Central Braille Press at Dehra Dun began functioning. The year 1951 was truly a turning point in the process of development of Braille in India.

## Golden Years of Development of Braille

These 50 years can easily be termed as Golden Years of development of Braille production facilities in India. These years have witnessed qualitative as well as quantitative development in methods, technology and extent of distribution of Braille material. The following noteworthy developments in this regard have already taken place :

*Contractions & Abbreviations:* The participants of Ahmedabad seminar held during 1970 recommended the need for developing a system of contractions and abbreviations for Indian languages. Mr.H.K Shah prepared contractions and abbreviations for Gujarati language which was first of its kind in the country. Appointment of a National Committee during 1974, convening of a National Seminar by the National Institute for the Visually Handicapped resulted into developing a system of contractions being used at present.

*Braille Shorthand:* The NIVH once again took lead in developing and standardizing a system of Braille shorthand in Hindi, followed developing such a system for Gujarati, Marathi, Tamil, Telgu and many other Indian languages. In fact, *the AICB* took lead in initiating training of blind persons in Braille shorthand. The State Council has already approved a variety of training programmes in Braille shorthand for Vocational. Training and the Vocational Career Courses under the Department of Education. A few blind persons have been employed as stenographers.

*Mathomatical Code:* The NIVH and the National Association for the Blind took up a project with support of the UNICEF for developing a common Mathematical code for India. During 1988, a workshop for this purpose was convened which adopted the Nemeth Braille Mathematics Code and adopted it. The NIVH is also developing Braille Science Notations for India.

*Music Notations:* A system of Braille notations for Hindustani Music has also been developed and adopted. However, such system for Karnatak music is yet to be developed.

*Computerized Braille Production:* The Ramakrishna Mission Vidyalaya, Coimbatore took lead in establishing first computerized Braille Press in the country. It resulted in a nation-wide movement of establishing such presses across the country. The NIVH, NAB and AICB followed suit and opted computerized Braille presses. In 51 years, number of Braille presses has increased from a solitary press to 21 presses.

*Mini Computerized Braille Units:* The last decade has seen emergence of a new trend of establishing computer operated Index 4X4 Pro Braille Embossers of limited capacity. Particularly, the organizations promoting integrated education have adopted such equipment, which is capable of meeting in-house demand for Braille text-books. Such mini presses have come up at many locations across the country. In fact, in the near future, a large number of such units are likely to be established. The users are finding it more convenient to go such units with limited production capacity than to depend upon high capacity Braille presses located at distant locations.

*Use of Latest Software:* Most of these computerized Braille presses, high capacities as well as mini presses are using a variety of computer software for producing Braille books including :

- \* Duxbury Braille Translator
- \* JAWS for Windows
- \* Kurzweil 1000 Reading Software
- \* Optical Braille Recognition
- \* MAGIC Screen Magnifier
- \* Visibility Screen Magnifier
- \* Graphic Software etc.

Almost all the latest software as well as machinery, though completely imported and expensive, is available with the country itself.

*Expansion of Braille Production Facilities:* During this period many institutions viz. Universities Grants Commission, Ministry of Social Justice & Empowerment, State Governments and Christoffel Blindemission, Swedish International Development Agency, Japanese Overseas Development Agency came forward to support establishment of Braille presses. The UNICEF supplied Braille paper for the production of Braille books for children. The Government of India provided exemption from excise duty on Braille paper. The postal authorities exempted Braille books from the postal charges. All these measures resulted into expansion of production facilities and cost effective distribution of the same.

*Access to Braille Books:* The following initiatives have enhanced access to Braille material

- \* The Central Scheme of Integrated Education made a provision during 1982 for Braille books for blind children. With the expansion of Scheme during last decade, the demand for Braille books has increased many folds.
- \* The Scheme also has provision for establishment of Resource Centres in the project area that has resulted into better access of children to Braille material.
- \* The District Primary Education Programme(DPEP) and Sarva Shiksha Abhiyan, Indian versions of inclusive education, if implemented effectively, would result into taking the Braille books to the corridors of regular schools.
- \* The recognition of Braille libraries by the Raja Rammohan Roy Library Foundation, Kolkata has also enhanced access to Braille books at block level in many parts of the country.
- \* In some States, the Operation Black Board has also started providing educational devices to the blind students.
- \* Similarly, indigenous production of Brailleurs by Voltas, Worth Trust and Minal Engineering, their availability at affordable cost and their coverage under the Scheme of Provision of Assistive Devices of the Ministry of Social Justice & Empowerment has resulted into Braille production at individual's finger tips.

*Further Boost:* The entry of the National Book Trust into the fray has made a variety of Braille books on various subjects to blind persons across the country at affordable cost. Similarly, support of Amway to Braille production centres has also enabled production and distribution of Braille books in regional languages very cost effective and affordable. A number of publication houses have also started producing their magazines into Braille and distributing the same at subsidized rates. A number of magazines including Disability Dialogue, Braille Monitor, Sparsh, and BPA Newsletter are being distributed across the country completely free of subscription.

*Efforts of RCI:* The Rehabilitation Council of India, a statutory authority, has made it mandatory for various educational programmes to appoint only qualified teachers. It has organized Bridge Course for improving level of skills of such teachers. It has recently introduced the programme of Continuing Rehabilitation Education that aims at improving Braille teaching skills of special teachers. Similarly, the NIVH and number of NGOs have organized a variety of orientation programmes on teaching of Braille, use of Mathematical code, Braille music notations, Braille shorthand, management of Braille presses and repair & maintenance of Braille equipment. All these efforts have definitely resulted into improvement in the teaching of Braille and better use of Braille equipment.

## Challenges Ahead

Despite all the—., praise-worthy efforts and innumerable achievements in respect of Development of Braille during last 50 years, the growth in the use of Braille has not been very significant. Even after 50 years of development of Bharati Braille, the use of Braille is very restricted due to following reasons:

1. Every blind student is not able to access the Braille books. Even those who are fortunate enough, receive these books very late, many a times, just before their terminal examinations.
2. While Braille contractions and abbreviations have been standardized, the use of the same is very limited. The challenge before the Braille press administration is to incorporate contractions in all the textbooks after a particular standard.

Similarly, the mathematical code needs to be improved and musical notation needs to be further developed and popularized.

4. As far as number of Braille presses is concerned, the country should set the target of establishing a Mini Computerized Braille Press in every educational institute for the blind including integrated education programmes. Similarly, there should be at least one major Braille press in every state and at every national level or major organisation for the blind.
5. The biggest challenge before the country is to promote the use of Braille books and other such Materials. It is essential to improve the quality of Braille teaching and to encourage blind persons to use appropriate Braille equipment and other material. A standardized system and method of teaching, reading and writing of Braille should be developed and administered properly. This system should focus upon:
  - a. Pre-Braille Training.
  - b. Reading Readiness Test.
  - c. System of Reading Braille.
  - d. System of Writing Braille.
  - e. Nature of Braille Writing Equipment.
  - f. Type of Braille Paper.
  - g. Appropriate Computer Hardware and Software.
  - h. Type of Supporting Equipment etc.

6. It is now mandatory to implement various provisions of the Persons with Disabilities Act, 1995, particularly section 30(c) regarding provision of books (including Braille books) as a part of comprehensive education schemes to be implemented by the appropriate Governments. Similarly section 28 of the Act desires the Governments to promote research for the purpose of designing and developing special teaching material. Thus the spirit of the Act is that every blind child must have access to the required special educational material including Braille books etc. In other words, the appropriate Governments are now duty bound to provide Braille books and such other educational material to all blind children irrespective of the mode of education they are pursuing.
7. To meet the above mentioned challenge of ensuring access of every child to educational material and equipment including Braille books, it is desirable to establish a Braille Authority of India on the lines of the Rehabilitation Council of India. Such authority should be provided statutory powers of regulating, promoting and ensuring provision of Braille material to every blind child. And that would be true celebration of developing of Bharati Braille.

# Literacy of Blind Through Contracted/Uncontracted Braille

By :

Mr. Virendra Singh

As a matter of fact Louis Braille gave a new beacon of knowledge to the blind persons groping in dark for centuries by way of formulating a tactile mode of communication in 1829 which is presently known as Braille system being used in major 85 languages of the world.

Though Science & Technology has made great strides in the sphere of information but Braille script still occupies same place today as it did at its advent for the persons with visual disability. Today however there exist several equipments like Opticon, Reading Scanner etc. facilitating the direct access of blind persons to the print.

The world-wide acceptance of Braille as a principal reading medium for Blind persons is the evidence of versatility of punch-form system invented by Louis Braille in 19th Century (John Lorimer & J. Tobin, 1979). Despite great deal of research and experiments made hitherto, in the direction of altering or modifying Braille, its use continued unabated in the same pattern of six dots, since the present form of six dots arrangements has certain characteristics of paramount significance on account of which supremacy of Braille has so far not dwindled though there are audio materials of variety in the market and thereby are being used as a complementary not as a substitute device of Braille for the blind people. As a matter of fact, Braille script with all those merits warranted for the language. **Braille is both reading and writing system unlike** its competitors (John Lorimer & J. Tobin, 1979).

Braille is foremost tactile reading and writing system and is considered primary means by which people who are blind can become literate (Napier 1988; Schroder, 1989; Stephens, 1989). It is a basic medium of communication and has been essential component of programmes that educate children who are blind. Braille has been called "the key to opportunity" (Schroder, 1989 P. 290), "the means of emancipation, the greatest gift to the Blind" (Eldrige, 1979 B, P.331), "a viable equivalent to the print media...highly flexible and adaptable" (Stephen, 1989, P. 288), and "this marvellous beacon...Lhat holds the key in genuine literacy and independence" (Napier, 1988, P.144).

Braille has several advantages of its own so as to corroborate its supremacy over other existing devices of information. One of the major advantages is characterized by the ability of reader who vary speed of reading; to "retrace in order to process ambiguous material more thoroughly" and to use layout features such as paragraph indenting, heading and numbering as "retrieval of queues in guide" in the search for information (Foulke, 1974).

In spite of foregoing advantages, there exist certain flaws and shortcomings inherently in Braille system. The vital area of the concern has been the rate at which it could be read. Average rate of touch reading has been found to be two-three times slower than the average rate of print reading; (Burklen K.,1917, S.P. Hayes, 1920, F.K. Merry, 1932, W.R. Niday, 1940, Berthold Lowenfeld, 1945, Foulke E, Amster, C.Y. Nolan and R.H. Bixler, 1966, C.Y. Nolan and J.C. Kedris, 1969).

In fact one of the major factors a small group for slow reading rates in Braille can be considerably attributed to its six dots structure which leads to a series of shapes that all much "less uniquely distinctive" than in print letter of Roman alphabet and much more readily confusable with one and other. Reversal

and inversion errors are common specially at the early stages of learning (John Lorimer, 1978).

Apart from slow reading rate inherent drawback of Braille is noticed by its bulky shape and size of its production and its high cost since it covers more space on paper which are specifically thick hereby augmenting the voluminous of Braille books which does not merely cause inconvenience to the users but it virtually makes Braille literature more costly as well. Probably that's why Braille books in a country like ours are supplied to the blind persons on subsidized rates of prices.

In the light of the facts delineated above about its merits and demerits, Braille is obviously inevitable and thus the exigency of Braille on account of its tactile nature with all potential of the script cannot be undermined in foreseeable future. It needs to be sustained and promoted with a view to enhance its accessibility to more and more blind population. Only the Braille literacy can be ensured through educational programme in the special schools,

## Development of contractions & Abbreviations

It is established fact that Braille is a staple medium of reading and writing for the blind in the schools across the world. The drawbacks and limitations as discussed above are, of course, a matter of educational concern deserving utmost and adequate attention of ours so that Braille can be made easier and more grasping for touch reader by overcoming these difficulties. At the same time, it is well known to us that the major difficulties encountered in terms of Braille reading rates of two-three times less than the print reading rate, bulkiness and high cost of Braille literature can be relatively mitigated to an extent. In this direction the endeavour made through a specific method of shortening and abbreviating words, part-words etc., have undoubtedly yielded better results. This cost is technically known as developing "contractions and abbreviations" which entails a careful process and procedure to be followed for its effectiveness and efficacy.

It is now appropriate to look at the history of such efforts for evolving codes for contractions and abbreviations in the world. In the introspection of history, we come across the English language for which the code of contractions and abbreviations was first of all framed and finalised in the year 1932 after 100 years of Braille invention. This code is currently in vogue with slight alteration and changes made at the very outset but it does not mean that English Braille contractions and abbreviations are utterly fool proof in its application and uses. There crop-up difficulties with regard to reading and writing stemming from complexities of the related rules and lay out. Appropriate authority associated with English Braille despite being aware of the fact and their willingness to bring about necessary changes, are not in position to initiate such step as it is too late to make a change in the code. Any change or modification if made at this juncture can pose serious problem in terms of available Braille literature and non-acceptance of such changes by the Braille users.

at the other hand, in India entire process of Braille development had to undergo a different kind of controversial situation as to the uniform Braille during the period from 1887 to 1951. It is not desirable for the author to throw light on the issues responsible for its controversial situation. Here it is sufficient to describe that this situation of controversy came to an end with introduction of uniform Braille in the year 1951 prominently known as **Bharati Braille**.

As a matter of course, the development of any code for Braille contractions and abbreviations in Indian languages and Braille code of other kind was not included in the several recommendations made by the Braille Experts Committee constituted by the Government of India for Bharati Braille in the first ten years. The idea of such recommendations was that the newly formulated and introduced Bharati Braille to get ample and adequate time for its popularity among Braille users and thus could give way to the temporary different codes of Braille being used for a long time. In the meantime, as available

record reveals that certain individuals embarked on the task of evolving contractions and abbreviations for Indian languages at their own level. Mr. K.D. Bhattacharya, the then Manager, Central Braille Press, Dehra Dun, was such a person who is believed to have developed for the first time a code for Hindi Braille Contractions and Abbreviations. The copy of this code is in fact not traceable in the official record. Hence relevant information with regard to this code is not available.

Subsequently in 60's, similar endeavours are reported to have been made in respect of framing contractions and abbreviations for Hindi language. These were key persons namely Mr. R.C. Nijhawan, of the then National Centre for the Blind (NIVH), Dehra Dun, Mr. R.N. Kripalani, of Blind Relief Association, New Delhi and Mr. H.M. Shah, of Model School for Blind Children, Debra Dun who made their contribution to Braille by virtue of developing Hindi Braille Contractions and Abbreviations at their own levels.

It is here worthwhile to mention that the codes described above were not sponsored by the Government. As far as the initiative taken at Government level is concerned, it is apparent from the available record that the Government of India for the first time came forward in 70's and formed a Committee under the chairmanship of Mr. R.P. Naik, the then Advisor to Hindi Samiti in Government of India comprising some Braille experts in the year 1973. This Committee was in fact intended to look into the matter of contractions and abbreviations in Indian languages. This Committee was entrusted with the responsibility to thoroughly examine the existing codes and to work out adequate guidelines for such codes likely to be evolved in future. This task was accomplished with assistance of the sub-group of experts constituted by the large Committee as stated earlier. All three codes for contractions and abbreviations developed by three different persons described above were field tested in five Schools for the Blind to elicit necessary feed back from the students on their effectiveness and suitability in terms of space saving, readability and comprehension. The findings of the study revealed that none of these codes was up to the mark.

On the other hand, as a major development Government of India, Ministry of the then Social Welfare set an Institute in 1979 by elevating the status of the then National Center for the Blind, Dehra Dun to an autonomous body presently known as National Institute for the Visually Handicapped, Dehra Dun. As per its role of research, this Institute launched the work of developing code for Hindi Contractions and Abbreviations which was ultimately finalised and approved in December, 1985.

Almost at the same time, in 80's the work was initiated by NIVH for developing contractions in a few other Indian languages. So far there are four Indian languages namely Gujarati, Marathi, Tamil and Hindi in which the codes for contractions and abbreviations have been formulated. But we are not much informed about the use and application of these codes barring Hindi. Hindi books are being printed using contractions in Central Braille Press, Dehra Dun. NIVH worked out a plan of action to popularise the newly formulated code for Hindi Braille Contractions and Abbreviations after its finalisation and approval in 1985. At the inception, use of the code was introduced in the Braille magazine **Nayan Rashmi** being published by NIVH. Simultaneously a series of short-term training courses of two-week duration each was prepared and conducted at National/Regional level to impart training in appropriate application of the code to the teachers as well as personnel engaged in production of Braille literature. The courses of this nature were highly appreciated by the participants. The objective of the training was achieved as evident from the results of the participants obtained from the tests conducted at the end of each course.

In the year 1991 a survey study was undertaken by NIVH so as to obtain feedback from more than 200 participants who had undergone the course of NIVH. Under this survey a questionnaire was prepared to collect information as to the various aspects of Hindi Braille Contractions and Abbreviations including difficulties in application, suggestions for further improvement and modification, if necessary.

The responses of the participants received were encouraging with regard to the application of the

code and suggestions were also received for replacing certain Braille symbols of the code. Presently, short-term training courses as stated above are not being conducted. However as per the findings of the survey, these existing codes need to undergo a review since it has completed successful 16 years of its existence.

He - facts about LUC status Oa **which** leads us to the conviction that there are, on one hand, many other Indian languages without contractions and abbreviations and on the other hand contractions available in a few Indian languages are not being used to a level of satisfaction. Here may be a variety of reasons for this situation. One of these reasons appears to be a shortage of experienced Braille readers to switch over to a new form of contracted Braille in Indian languages. They are not generally convinced of the code for Indian languages at times on the ground that Braille symbols included in the code are rather difficult to recognise or the vocabulary incorporated in the code is not as frequent as required in their view. Thus, they think to compare the code of Indian languages with the contractions of English Braille. In fact contractions of English Braille are undoubtedly better framed due to the fact that there are only 26 letters of the alphabet in English. After allotment of 26 characters out of total 63 there are more characters left which were utilised to ensure better contractions and abbreviations as per the need and nature of English language. In Indian languages there are mere letters of the alphabet in English which require more Braille characters for their tactile representation. Thus, very few characters are left for the purpose of contractions in Indian languages. Apart from this, there are several other factors which have influenced the code of developing contractions and abbreviations in Indian languages which deserve a thorough discussion among the experienced Braille users so that some common consensus can be reached in the direction of evolving codes for other Indian languages.

## Relevance Of Uncontracted Braille

As it is evident from the history of Braille that the blind persons themselves pioneered for the acceptance of Braille and only advocated its supremacy over the contemporary tactile systems like line type systems at that time when Braille script was striving hard for its recognition in the middle of 19th Century. But in the present scenario as to the future; the present; the needs of the people to have undergone a slight change. The reasons for this change and the consequences likely to affect the entire gamut of the issue are quite imperative to be discussed. As a result of a change among the Braille users as well as the educators of the V.H., a demand has started emerging in favour of uncontracted Braille. Though this kind of demand has not yet appeared on authoritative forums in case of India but elsewhere in the world, a concern is being expressed by those who either lack required skills for reading and writing Braille or by those who are not medically fit to learn Braille because of inadequate sensitivity in finger touch.

Apart from this, there is a category of such blind persons which due to their attitudinal bias are not motivated to learn Braille and they tend to resist the acceptance of Braille and its utility in the life of the Blind persons. For other people of this kind, the question as to whether contracted/uncontracted forms of Braille is not important but they tend to be with at the process of all work. Literacy and rehabilitation is possibly completed even without adopting Braille as a mode of reading and writing.

At the same time, it will not be erroneous to admit a harsh but true reality that existing serving system associated with programmes of education and rehabilitation for the visually impaired are not less responsible for such a tendency of negative nature towards Braille. The factor predominantly responsible for negative approach is that adequate preparation of teaching resources is not ensured in certain organisations dealing with the education and rehabilitation services for the Blind persons at large. Consequently the blind people remained deprived of required skills for Braille and ultimately they fall prey to an unhealthy viewpoint concerning Braille and its potential. Sometimes the technique of presenting Braille during the course of instruction is also faulty and inappropriate causing a damage to the meaningfulness of Braille

for the new generation of blind population.

It is, thus, that under the guise of inadequacy of the competency this kind of demand is being emphasized by the people in favour of introducing uncontracted form of Braille in the production of Braille literature and in the programme of education and rehabilitation for the visually handicapped.

As a matter of fact, in a country of ours, there is no provision for contracted Braille in most of the languages with exception to Hindi, Gujarati, Marathi and Tamil. However, the voice against the contractions is being heard from some parts of the country.

The issue of contracted/uncontracted Braille is not very important for us. This is the appropriate time for us to take effective measures for sustaining Braille which is the staple medium of reading and writing in the schools for the blind despite the advent of devices of variety in the field of information.

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# Relative Merits of Braille and Audio Channel for the Education of Blind Children in India

By :

Dr. N.K. Rai

## Abstract

To ascertain the relative merits of Braille and audio channel for the education of Blind, comprehension level of visually handicapped children using two different modes of task presentation through audio channel (cassette tape) and Braille channel were studied. The children were from Class VI (N=38), Class VIII (N=25) and Class IX (N=22). 28 prepared lessons, finalised after a pilot study of Hindi, Social Studies, Science and English were presented to two groups of children under ABBA order through Braille and audio channel. Mean differences computed for comprehension scores of both the channel of presentation, did not reveal any significant difference. However, it was evident that audio channel is less time consuming, with no significant loss of comprehension. Hence it can be used as a supplementary mode of reading for the educational purpose of the blind children.

## Introduction

For the education of the blind, two primary communication modes are available—reading and listening. The advent of Braille opened up new educational horizons to blind children. But the information explosion of the current century is placing the blind child at increasing disadvantages owing to proverbially low reading speed in Braille.

The rapid techniques of Braille reading have not yet gained wide currency. Optimum utilization of the auditory channel is therefore, categorically imperative. Learning through auditory channel at present plays an informal role in the education of blind children.

Schools have emphasized reading in the form of Braille in India and also large types books in the West. It is well known that reading of Braille and large types of Books is quite slow.

This implies that to cover the same amount of reading material in any given selection, the blind students would take two to three times more than his sighted peers. In terms of educational handicap, the reading rate discrepancy is one that grows in significance as a blind student advances through the grades and encounters, progressively, greater reading requirements (Nolan, Brothers & Morris, 1973).

Is there any alternative for a blind student? Whether recorded material can successfully improve a blind student's potential for successful comprehension? There is no doubt that Braille reading and writing plays an important role and will continue to play a crucial role in the education of the blind. It is more true in India where resources available for the education of the blind and the visually handicapped are extremely limited and tape recorders and cassettes are relatively more expensive. Maintenance facilities are not available in rural areas. But, can we remain blind towards an intelligent human resource simply because they are blind and we have very limited resources at our disposal. In the growing age of technological advancement we must provide them education through the best possible techniques and methods.

There are no clear guidelines to determine the type of material that should be available to blind and visually handicapped children through Braille and cassettes. An understanding of their comprehension will contribute significantly to improve the quality of education imparted to them. It will also facilitate better preparation of reading material as per the needs of the students and the requirements of different subject areas.

A review of some of the studies revealed that about 85 years ago, Erikson and King (1917) presented lesson material both visually (through silent reading) and orally and observed that auditory lesson presentation was in general more effective. Ruessel (1928) found that the auditory method of presentation was superior at the seventh grade level and the visual method was slightly superior at the ninth grade level. Many investigators (Bischoff 1967.. Bixer 1963. Cobb 197, Daigherty 1974, Gore 1969, Hallan 1976, Morris 1966, and Nolon 1973) concluded that the presentation of academic material through the auditory mode is the only way possible for a visually handicapped student to receive academic instruction at the rate demanded by today's educational programme. Hacket (1968) found listening and reading comprehension to be similar. Karaker made an attempt to verify whether comprehension depend upon the type of material and the level of difficulty it represents. Results of his study indicated that the type and caliber of materials were the primary determinants of effectiveness. Nolan (1968) reported superior comprehension scores when material classified as social studies were compared with literature or science. This study further revealed that comprehension of literature was superior to science.

These studies provide better understanding and insight into the problem of choosing a suitable media for the education of the blind children. Such studies have not been conducted in India where they are immensely needed. Keeping in view the same the author of the paper conducted a study to measure the comprehension of visually handicapped children using audio and Braille channel. The same is presented here in brief.

## **Objectives**

From the studies carried out so far, it has been established that the reading rate of visually handicapped subjects is two to three times less than that of their sighted counterparts. Hence it aims to ascertain the following:

1. Whether learning through auditory channel would lead to better comprehension of visually handicapped children.
2. Whether learning through listening, with the help of tape recorded material will do much to decrease the time needed to cover a study assignment.
3. Whether comprehension of various types of material produced through Braille and on cassettes will serve to improve the quality of education imparted to visually handicapped children.
4. Whether such a study will facilitate the preparation of reading material in line with the assessed requirements and potential of blind children and the requirements of different scheme subjects.

## **Definition of Important Terms**

The following are the operational definitions of important terms :

### *Comprehension*

Comprehension may be defined as an act of or capacity of the mind to perceive and understand. It

may also be defined as a power to grasp ideas. In this study, it was measured through the scores/marks obtained by the respondent on each subject i.e. Hindi, Social Studies, History, Civics, Geography, English and Science or a multiple choice Braille test.

### ***Auditory Channel***

This channel pertains to a mode of presentation of stimuli material (Test Lesson) to the respondents, through the cassette recorder of pre-recorded material or cassettes.

### ***Braille Channel***

This channel pertains to a mode of presentation of stimuli material (Test Lessons) to the respondents through material transcribed in Braille.

### ***Tools***

Two lessons prepared in Braille and recorded on cassettes for each of the subjects for each class mentioned-below-were used

- I For Class VI: Hindi, Social Studies, (History & Civics) & Science.
2. For Class VIII: Hindi, English, Social Studies (History, Civics and Geography) and Science.
3. For Class IX: Hindi, English, Social Studies (History and Civics).

The content of the lessons was taken from the books prescribed in central schools. References of diagrams, charts and maps were omitted. Length of each lesson was restricted to 250-270 words only. However, the length of the lesson for Hindi for Class IX was kept to 370 words. Efforts were made to ensure that the respondents were not familiar with the material of the lessons. For this purpose it was ensured that the books prescribed in the schools from where the data was collected were not included for the selection of the content for test material. To measure the comprehension of the students, a multiple choice test in Braille was prepared for each lesson.

- I Braille speed test.
- II Marks of student of last examination passed.
- III Personal data schedule.

### **Method and Procedure**

This study was aimed at ascertaining differences between Braille and auditory channel in terms of comprehension of school subjects. Towards this end, an experimental research design had been used. In other words half of the students were exposed to a first set of lessons through Braille channel and the remaining half were exposed to the same set of lessons through auditory channel. This procedure was reversed by presenting a second set of lessons to the subjects. The subjects in two groups were matched on class academic achievements and on Braille speed.

This investigation proceeded in three, major stages. The first of these was directed towards the preparation of a lesson for each subject i.e. Hindi and Social Studies for Class VI, VIII and IX, Science for Class VI and VII, and English for Class VIII and IX. In all, there were 28 lessons. A multiple choice test in Braille as also prepared for the purpose of measuring the comprehension of the students and all the

28 lessons were then recorded on cassettes. This was followed by a pilot study. The purpose of the pilot study was to ensure the difficulty level of the lessons. The lessons were then finally recorded on 120 - 125 w.p.m. on cassettes and transcribed in Braille and a separate paragraph of 500 words was prepared and transcribed in Braille for each class in Hindi and English, for measuring the Braille speed of the respondents.

## **Sample**

54 Boys and 31 girls constituted the sample of the final study. The children were chosen from a residential school for the blind, from Class VI, VIII and IX. An overview of the sample is presented in Table No.1.

A Braille reading speed test based on the material finalised for presentation was administered, to determine the Braille reading speed of each subject based on the text of 500 words prepared as stated above.

## **Hypothesis**

H-1: It was hypothesized that there will be no significant difference in comprehension through either Braille or auditory channel.

H-2: There will be no significant difference in comprehension through Braille and auditory channel on each subject i.e. Hindi, English, Social Studies and Science..

## **Results**

For the most part analysis of data was based on parameteric statistics "t - test" was mainly used to assess the significance of the difference between two means so as to compare the comprehension of the subjects on material presented through Braille and auditory channel. Our second hypothesis, that there will be no significant difference in comprehension through Braille and auditory channel on each subject (i.e. Hindi, English, Social Studies and Science), stands rejected while comparing students of Class VI. It is, however, retained while comparing students of Class VIII and IX on comprehension through Braille and auditory channel.

The results are presented in Table No.2 and 3. The results of the present study are similar to the results of the study conducted by Hacket (1968). Hacket demonstrated that comprehension through listening and reading is similar. Most of the studies Erickson 1917), Bischoff (1967), Bixler (1963), Cobb (1977), Daughtery (1974), Gore (1969), Halton ( 1976),Morris (1966) and Nolon (1973) have concluded that the auditory method of presentation is superior. Some of them have felt that the presentation of academic material through the auditory mode is the only way possible for a visually handicapped student to receive academic instruction at the rate demanded by today's schools. What could therefore be the reasons for the results of the present study to be contradictory to the results shown by large number of studies conducted abroad in the field. On the basis of the study, it appears that the tactile method (Braille channel) of presentation is superior to the auditory channel of presentation. Before any conclusion is put forward, it is desirable to compare the speed of recorded material with the average Braille speed of the respondents. It may be recalled that the speed at which the material was recorded was kept constant at 120 - 125 words per minute. It may also be recalled that the Braille speed test was given to all the subjects. It was found that the Braille reading rates of the respondents were much lower. In the case of only four respondents, reading rates in Braille exceeded 100 words per minute. It can, therefore, be logically deducted that the average reader took almost double the time that he took in listening to the same material.

If therefore, be safely concluded that even if there is no significant difference in comprehension through Braille and auditory channel the latter is certainly better than the Braille channel as a method of presentation. Findings of the present study have demonstrated that there is no significant difference in comprehension through Braille and auditory channel. In most of the comparison this was however, not found true in the case of Class VI students (boys and girls together) when a comparison was made on history through Braille and auditory channel and also in the case of girls when comparison was made in Hindi. In both these cases the differences were found significant in favour of Braille channel. On the basis, of these few findings, however, one can not establish that the Braille channel of presentation is superior to that of auditory channel in view of the fact that similar results were not found while comparing results of the Class VIII and IX. This could therefore, be a just chance finding.

It can be safely concluded that the auditory channel of presentation is faster without any significant loss of comprehension, when compared with Braille channel of presentation. It is suggested that a study be conducted on similar lines by recording the material at a much faster speed.

## Conclusion

Results of the investigation shows that

1. Comprehension through Braille channel is slightly better than comprehension through auditory channel while taking a total sample into consideration. However, the differences between the two were not found significant, except in history in Class VI students where a difference was found to be significant in favour of Braille channel.
2. Comprehension through auditory channel was found better in science subjects in case of girls. However, the differences were not found significant.
3. Girls of Class VI performed better in Hindi subject through Braille channel and the differences were significant at 0.05 level and 0.01 level. No significant difference was found in case of boys.

The results show that our final hypothesis that there will be no significant difference can not be rejected. It has been established that there is no significant difference in comprehension through Braille and auditory channel in most of the comparisons.

## Implication for Education of the Blind

Development of materials and techniques to teach students through listening recorded material should be accelerated. It may be an effective reading medium for the sighted who encounter difficulty in reading print, Since comprehension was found to be slightly better through Braille channel of presentation, it may be concluded that Braille is still the most suitable medium for reading and writing for the blind.

It can not, however, cope with reading rate, assimilation and acquisition of knowledge demanded by today's schools. During the period of data collection of the study, some of the educators of the blind were of the view that if reading through Braille is replaced by recorded material, there is every possibility that it may affect the acquisition of spelling, punctuation etc. It is, therefore, suggested that teaching through listening should only supplement and not supplant the Braille method.

**Table No. I - Overview of the Samples**

CLASS	MALE				FEMALE				TOTAL
	Rural		Urban		Rural		Urban		
	Adventitious Blind	Congenital Blind	Adventitious Blind	Congenital Blind	Adventitious Blind	Congenital Blind	Adventitious Blind	Congenital Blind	
VI	6	14	2	6	0	3	0	7	38
VIII	0	II	1	3	0	3	0	7	25
IX	0	6	3	2	0	2	3	6	22
TOTAL	6	31	6	11	0	8	3	20	85

**Table No. 2 - Means, standard deviations and t-ratios comparing comprehension of all subjects through Braille and Auditory channels for all respondents**

CLASS/SUBJECT	COMPREHENSION CHANNELS				T-RATIOS	N
	Braille		Auditory			
	Mean	St. Dev.	Mean	St. Dev.		
All Respondents	12.32	4.38	11.13	4.21	1.80	85
Class VI	15.56	3.20	10.42	3.01	1.71	38
Class VIII	15.76	4.60	14.12	4.43	1.27	25
Class IX	9.64	3.79	8.95	3.99	0.57	22
Hindi	2.84	1.39	2.41	1.59	1.88	
History	2.87	1.28	2.65	1.27	1.10	
Civics	3.27	1.31	3.18	1.27	0.35	
Science	2.67	1.32	2.52	1.15	0.68	
English	2.52	1.56	2.00	1.45	1.08	
Geography	2.12	1.36	1.96	1.13	0.44	

\* Science test was not administered in Class IX.

\*\* English test was not administered in Class VI. 14 students of Class VIII (4 boys and 10 girls), 12 students of Class IX (1 boy and 11 girls) were also not included in this test, for not knowing English contractions.

**Table No. 3 Means, standard deviations and t-ratios comparing comprehension of Class VI, VIII & IX for each subject through Braille and Auditory channels**

SUBJECT / CHANNEL	CLASS VI			CLASS VIII			CLASS IX		
	Mean	SD	t-ratio	Mean	SD	t-ratio	Mean	SD	t-ratio
Hindi			1.57			0.42			1.20
Braille	2.50	1.31		3.28	1.46		3.04	1.40	
Auditory	2.08	1.38		2.88	1.74		2.45	1.76	
History			2.03			0.84			0.10
Braille	3.34	1.21		2.00	1.29		2.36	1.13	
Auditory	2.79	1.14		2.28	1.39		2.32	1.43	
Civics			0.37			0.78			0.45
Braille	3.21	1.28		3.56	1.29		3.00	1.38	
Auditory	3.10	1.35		3.28	1.24		3.18	1.28	
Science			0.31			0.58	Science test was not administered		
Braille	2.53	1.18		2.88	1.51				
Auditory	2.45	1.03		2.64	1.32				
English	English test was not administered					0.54			0.94
Braille				2.18	1.47		2.90	1.66	
Auditory				1.82	1.47		2.20	1.47	
Geography	Geography test was not administered					0.67	Geography test was not administered		
Braille				2.20	1.35				
Auditory				2.00	1.13				

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# Assessment of Requirement of Reading Material for School-Age Blind Children in the Country

By :

Mr. Harshad U. Joshi

Right from primitive ages to this modern age, it has been observed that "education" was at the base of development of mankind. Right from the ancient ages, the "civilizations" which were able to frame a sound pattern of imparting education were ahead of other civilizations and had survived in case of hard times. In short, education has always played the most important role in the development of the individuals or of all the members of the society. This fact was more fittingly emphasized by the well-known author Diderot. He has written that, "If you wish to help the visually impaired children to be an independent member of the society instead of a dead weight, the easiest way is to give them education and make them able to stand on their own".

As a result, educational institutions for the visually impaired children, started after a few decades. Subsequently, the tools for reading and writing by the children themselves came into existence. A child who was to put deep footprints in the history of the development of the education for visually impaired children was born on 4th January 1809 in France. His name was Louis Braille. He created a tactile script, which was popularly known as "Braille" in his memory became the most important tool for visually impaired individuals throughout the world to their ideas to the world.

This innovation made a starting revolution that made it possible to read all the printed Materials through the fingertip of a visually impaired person.

For imparting education, the society is providing textbooks to all the children who are enrolled in the schools. This was not possible in the case of visually impaired children. Manuscripts were prepared. In due course of time, Braille printing presses were invented. This facility has helped in solving the problem of providing books to visually impaired children, who were studying in schools. So far as our country is concerned, the first Braille press was installed in Dehra Dun in 1951. The aim of this venture was to make provision for text-books for the children of school going age.

It was a hard task for a single Braille printing press to comply with the requirement. A number of factors were posing difficulties. The entire country is divided into different linguistic states. Hence, books have to be printed in various languages prevailing in the country. Over and above, the large number of school age visually impaired children was another hurdle.

As we know, "Necessity is the mother of invention", and as a result, a number of Braille printing presses came into existence in various parts of the country. At present, there are nearly 21 Braille printing presses and they are trying their best to fulfill the basic needs of the visually impaired children. Here, I wish to give an example of my state. We have one Braille printing press in our center. We are trying to receive a modern computerized printing press. But, till this day, we have to pull on with the existing one. We try to fulfill the basic requirement of textbooks for all the school going children. When the new syllabus is introduced, we are not in a position to provide the text-books in time. When there is some unexpected breakdown in the press, again there is disruption in the supply of Braille text-books. All these unforeseen mishaps ultimately affect the quality of the education of the visually impaired child.

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Braille reading material is to be provided in such a manner that it should be maximum used to satisfy their emotional, psychological and educational needs of the visually impaired child. Generally the reading material can be provided in either "Interline type" or "Inter-point type". Interline type will be easier for the beginners and the children in the lower classes. When the child enters the fourth or fifth grade, inter-point type will be all right.

The controversy is still going on between material provided in "Open Grade" and that is provided in "Contracted Form". Besides using the contractions and abbreviations in the Standard English Braille, contractions and abbreviations have been formulated in various Indian languages. In my opinion, we should have one body such as "Braille Authority of India" at a national level. This authority can frame rules & regulations for printing Braille material. They can look into the matter of synchronizing the contractions and abbreviations of various languages in our country. Generally, all the languages have their origin in one language. We can have common contractions for common words used in various languages, e.g. "Math". "Pita", "Desh" and "Duniya." As a result, when one child has to learn more than one language, he will have less trouble in learning the contractions.

The use of contracted Braille has helped V.I. child to read and write braille with ease and speed. It also reduces the bulk of printed Braille material, together with the reduction in the cost of printing Braille materials. This will enable the organizations and/or Governments to produce more material in the same allotted budget. Discrepancies have also been found in "At what age contracted material is to be put under the fingertips of a V.I. child". In our country, many schools introduce English as one of the subjects in the curriculum from standard V or even later. The child has to learn a new language and also the contractions and abbreviations. At this stage, perhaps, it would be more appropriate that we introduce contracted English Braille not in Standard V, but at a later stage.

The Braille presses are printing the material for the V.I. children. If the Braille press machine operators and the proof readers are not of standard, the quality of Braille books is not up-to-the-mark. Erroneous printing leads to erroneous learning in the case of a V.I. child. He has no option of referring to other good quality printing material, which is the case of a normal child. Hence, in case of a V.I. child, for good and correct knowledge of language, the provision of good quality Braille material is a must. And for that, we, the forerunners in the field of education should take a lead in this direction.

The supply of Braille textbooks at the right time, i.e. it should be provided to the V.I. children right in the beginning of their academic year. The printing schedule should be arranged in such a way that the school age children may receive the material preferably in June or latest by July.

With the increase in the number of Braille presses, and with the introduction of special electronic computerized Braille units, we may assume that we will be in a position to fulfill the requirements of reading textbook material in Braille shortly. The national regional agencies working for the welfare of visually impaired have started establishing lending Braille libraries. Most of the libraries have books transcribed in Braille manuscriptly, as these are not produced in a big lot. Printing them in Braille is not economically viable. After going through a few catalogues of these libraries (not all), it has been found that the selection of the books has been made at random. They are not selected keeping in mind the needs of particular age groups. Generally, it should cover all age groups and should be selected in such a way that it may satisfy the emotional, psychological and educational needs of all age groups.

In case of normal children, a lot of literature is available in various forms, which helps their educational, emotional and psychological demands. For our children, we do not have anything except textbook material. Stray efforts have been made to print "Chanda Mama" and the like in Braille.

Besides residential setup, when our children are studying in normal schools, there is an urgent need to provide similar material to our children in Braille. This will help them in our effort to put them at par with the normal children.

With the help of modern electronic computerized Braille units and with the addition of special software, all types of graphics can also be produced on a Braille sheet. This may help us in producing Braille literature (Bal sahitya) for our children keeping in mind their aspiration. Ultimately, it will help the V.I. child to have an all round growth along with his sighted peers.

Provision of text material for subjects like Mathematics, Science and Geography in Braille is also an essential part of our programme of supplying reading material for school age blind children. The timely use of "Brai I le Mathematics Code for India" can help to fill -up the gap. All the teachers training centers should teach this code, as a part of their training programme. The determination on the part of the administration, Braille presses, Principals and Teachers can pave the way for the V.I. child to learn Mathematics: during their studies. Here, I would like you to request the "NIVH" to formulate a Science Code in Braille. This will help the Braille presses to print Science textbooks in proper form, which ultimately leads to proper teaching of Science to V.I. child. Generally, Mathematics and Science are a little neglected subjects in our field. In this modern age, if a V.I. person is to be gainfully employed or is to be socially accepted, the proper knowledge of Maths and Science is very essential.

Recently, it has been observed that, there is a decline in the standard of knowledge of Braille among the V.I. children. Various factors are at the root of this decline. Firstly, psychological "Haw" has been created that "Braille is very difficult to learn". Secondly Braille is not introduced in the right manner, as it should be. They are not made aware of the importance of the knowledge of Braille, in the successful career of a V.I. individual. We have observed that every successful V.I. individual has a knowledge of good quality of Braille.

The development of other electronic technical devices such as typewriter, recorder, computer, reading machine and provision of live readers & writers have also helped in the deterioration of the use of Braille. Some think that these devices are the alternatives of Braille. Experience has revealed that they are not the substitute of Braille but are supplementary to Braille. The knowledge of good Braille makes a V.I. individual more independent and less reliant on others. And in that process, all these modern electronic devices will be of great help, which ultimately will lead to association in the society, which is our goal of imparting education to a V.I. child.

To make Braille reading more interesting and less time consuming, proper methodology of teaching Braille reading should be developed and should be introduced throughout the country. Good competency in Braille should be stressed upon and should be popularized amongst V.I. children. It does help in learning languages in a better way and also helps him/her to acquire one's rightful place at all the levels of the society. Inadequate knowledge of Braille on the part of teacher of the V.I. child can also be a cause in the deterioration of the standard of knowledge of Braille amongst the V.I. children.

Parents, other family members and friends of V.I. children, social workers who are willing to work as transcribers, should be encouraged to learn Braille. The possession of good knowledge of Braille by these groups will help the V.I. children to learn it in a better manner.

I hereby congratulate the organizers to select this subject, which needed to be highlighted since long. This has provided an excellent platform to put my views before the august audience and for that I am highly thankful.

I am sure the educators, the experts and the honest workers in this field will put enough stress on the learning of good quality Braille for an all-round development of VI child, which may pave the way for his/her successful career. Amen.

# **Existing Braille Presses— Their Contribution and Future Role**

By :

Mr. Ketan Kothari

## **Introduction**

Education of the Blind began in India more than 110 years ago. In those days, the education imparted to the Blind was rudimentary and for the most part, consisted of oral education. Reading and Writing were not emphasized much. In 1901 first School for Blind Girls was started in Mumbai and the process of educating the blind continued at a rapid pace thereafter.

By 1930 Braille had been introduced in India. However, there were various codes of Braille leading to great deal of confusion and chaos.

It was only in 1951 that the Government of India accepted the Braille code for the Indian languages- Bharati Braille. This was an event of historical significance for, it paved the way for faster and more effective spread of Braille as a medium for literacy of the blind. It was in this year that the Government of India set-up first Braille Press at Debra Dun which is now known as the Central Braille Press.

After this, various Braille presses were set-up at different places both by various State Governments & Non-Governmental Organisations. The National Association for the Blind, India set-up its press in Mumbai in June 1958 which was later on designated as the Regional Braille Press for Western Region.

## **Contribution Of Braille Presses**

Such presses came up in Kolkatta, Chennai, Ahmedabad etc. In this initial period most of these presses concentrated on printing of text-books. Some of these presses also started printing periodicals in various languages. The Central Braille Press printed several Hindi classics in this period. The technology used in the initial period was of most elementary nature i.e. braining on metal sheets (either zink or aluminium) and printing out copies with the help of the press. This was a very laborious process and involved lot of time and effort. Preservation of data was also not very easy as the metal sheets due to the exposure to natural elements were prone to wear and tear. Despite of these difficulties the press published excellent literature in terms of quality. In late 60's and early 70's the concept of Tactile Graphs and Maps started getting its due importance. In 1970 the NAB Braille Press (which is now known as NAB SIR J. DUGGAN BRAILLE PRESS) brought out arguably the first ever Braille Atlas in India which also consisted a few Maps showing outlines of various Regions and other Geographical features. Towards the beginning of 80's Automatic Presses were also installed which revolutionize the printing speed. It was in 1989 that a major step was taken in the field of Braille Production Technology in India. In this year the first ever computerized Braille production Unit was set-up in Coimbatore. The whole concept of computerized Braille production transformed the idea of Braille production. In 1994 NAB, India installed a computerized braille embosser which with the help of conventional machines laid to a dramatic increase in the quantum of Braille production. Specialized journals on science, current affairs, women's affairs, chess etc. were also started by various Braille presses throughout the country. After the setting-up of the AICB Braille press at Delhi in mid 90's the subject and the variety of Braille production also underwent a noticeable improvement. They have started printing books on various topics ranging from Science to

Human Rights with the help of Corporate bodies. They and other Braille presses have tried to optimise the use of available computer technology. The project run by AICB in collaboration with the National Book Trust is a very laudable project in this regard. Another change that was consequent to the introduction of computer technology was the increasing number of Braille production units. Braille production became a much more viable and attractive proposition to many Institutions working in the field of Blind Welfare. Many local Braille production units have been set-up in Schools, Institutions and even in some public libraries. However, this has unfortunately resulted in the decline of quality of Braille as there is a dearth of good braille specialists. There is unfortunately lack of good translation software for Indian languages which prevents the optimum use of the capacity of the machines available at various centers. A word need to be mentioned about the presses set-up by the Government. They are, with the exception of the central Braille press, conspicuous by their indifferent approach towards the braille readers. The unavailability of raw material, machinery in disrepair, lack of co-ordination between the general requirement and the production are notable features of these Presses. This urgently needs to be rectified. Another important aspect which can not be over-emphasize is that of finance. Most of these presses are finding it very difficult to produce quality literature in sufficient quantity and make it available at a reasonable price to their readers. In these days of economic hardships the state and the corporate bodies must be encouraged to lend a helping hand. This would precipitate growth in the readership of Braille literature.

## Future Role

In this age of competition it is of paramount importance that the blind people should be exposed to a variety of literature on a wide range of subjects. Theoretically speaking, this is not at all difficult in view of the fact that we have got more than 50 Braille Production Units in this country as indicated by Annexure and this number is growing at a rapid pace. Regrettably though, this does not appear to be an easy task. There is absolutely no co-ordination and networking amongst these Braille production units. Consequently, there is lot of duplicity of work and wastage of scarce resources. There is an urgent need of co-ordination and use of satellite technology in this respect. Whatever material is printed at a given Braille press can be put on the Web and can be copied by other Braille presses throughout India according to their needs. This would help us in overcoming the said problem. In the foreseeable future we must set-up a national body to monitor the production carried out at various Braille presses there should be an electronic repository of all the data entered in various languages at different Braille presses. Secondly, we must concentrate our efforts in developing a good translation software for Braille to Indian languages with a Braille Editor. This would eliminate to very large extent the dependence on Braille specialist. Any good typist would be able to serve the same purpose as a Braillist. We must harness the best software engineers in this country to overcome this difficulty. Thirdly, the production of books on Maths and Science as well as on Computers should be increased as the knowledge of the blind in this field must grow as they have to compete with their sighted counterparts on equal terms. For this purpose, there is a need to spread awareness of the Indian Mathematic Code amongst adult blind Braille readers. The use of Tactile Maps and Graphs should begin at a very young age for blind children so that their perception in this regard would develop. For this purpose we must also devise a standardised code for deciphering the Maps. Braille presses are not mere printing presses. They have to be viewed as semi-educational institutions. Hence, the quality of Braille must be given utmost importance. There needs to be periodic refresher courses for Proof Readers and Braillists not only with regard to changes in Braille code but more importantly the changes in semantics and syntax of the languages used in respective Braille Presses. If this is not followed vigorously then we may end up with a paradox in which we may have a 'flood' of Braille books but very few good Brai I lists and Braille Readers. Further, with the ever growing number of Braille production centers, one can foresee a situation wherein we can provide Braille transcription facilities to individuals such as students, professionals like lawyers etc. This in the long run may also help in reducing the financial burden on these units.

## Conclusion

Ever since the invention of Braille and the consequent setting up of the first Braille press in India we have travelled a long way. The journey has not been without pitfalls. There have been times when we have not been able to give to our readers the minimal reading material. However, those days have passed. In the past decade the scenario in this field has changed drastically. The future of Braille in India at least seems fairly bright. Nevertheless, we must guard against complacency. One needs to be ever vigilant and conscious of the needs of Braille readers, both children as well as adults. Braille presses must never overlook the constantly changing conditions while deciding on their printing programme. Only then we can really fulfil our mission.

## Annexure

List of Braille Presses/Braille Production Units in India:-

1. Andhra Pradesh Vikalangula Co-op. Corporation, Deaf & Dumb School Campus, Malkapet, HYDERABAD 500036, Andhra Pradesh.
2. Regional Braille Press, Malkapet, HYDERABAD, Andhra Pradesh.
3. Caring Aids for the Visually Impaired 'Grokur, 5-9-22/3, Basheerbag HYDERABAD-500029, Andhra Pradesh.
4. All India Confederation of the Blind, ABU/AICB Braille Press, Sector - V, ROHINI, Delhi.
5. Makirn Memorial Braille Press, Blind People's Association, Dr. Vikram Sarabhai Road, P.O. Polytechnic, AHMEDABAD-380015, Gujarat.
6. Mrs. R.S. Kalaria Braille Press, Blind Men's Welfare Association, P.D. Malaviya College Campus, Gondal Road, RAJKOT-360002, Gujarat.
7. NAB Surat District Branch, C/o. Andhjan Shikshan Mandal, Ghoddod Road, SURAT-395007, Gujarat.
8. National Federation of the Blind, Braille Press, Near Atam Suddhi Ashram, Delhi Road, 13lieHADURGARH-124507, Haryana.
9. Government Braille Press, Govt. Blind School Campus, Tilak Nagar, Sayaji Rao Road, MYSORE, Karnataka.
10. Braille Transcription Centre, Canara Bank Relief & Welfare Society, 27th Cross, Banashankari 2nd Stage, BANGALORE-560070, Karanataka.
11. Shri Karthika Thirunal Shashtyabdapoorthy, Memorial Braille Press, Kerala Federation of the Blind, THIRUVANATHAPURAM-693037, Kerala.
12. Government Braille Press, M.P. State Govt. Panchayat & Social Welfare Directorate, Marwari Lane, Sadar Bazar, BILASPUR, Madhya Pradesh.
13. NAB M. P. State Branch, Braille Press, Scheme No. 54, A. B. Road, Behind Satya Sai Vihar School, 1NDORE-452010, Madhya Pradesh.

14. NAB Sir J. Duggan Braille Press, 11 Khan Abdul Gaffar Khan Road, Worli Seaface, MUMBAI-400025, Maharashtra.
  15. Indian Association for the Visually Handicapped, IAVH Electronic Reading Centre for the Blind, University Club House, 'B' Road, Churchgate, MUMBAI-400020, Maharashtra.
  16. Poona Blind Men's Association, T.1.1. Complex, 109, Dr. Helen Keller Road, liadapsar, Pr,,,,, 013, Maharashtra.
  17. [AYH Reading Centre, University of Pune, Gangeshikhind, PUNE-411007, Maharashtra.
  18. IAVH Reading Centre for the Blind. Nagpur University Library, North Ambazari Road, NAGPUR-440010, Maharashtra.
  19. Red Cross School for the Blind, Dist. Ganjam, BERHAMPUR 760001, Orissa. 20. L.K.C. Jagadamba Andh Vidyalaya Samiti, Hanumangarh, SRIGANGANAGAR-335001, Rajasthan.
  21. Regional Braille Press, Government School for the Blind, Poonamallee, CHENNAI-600056, Tamil Nadu.
  22. Christian Foundation for the Blind, Braille Press, Pal lavaram, CHENNAI-600043, Tamil Nadu.
  23. Little Flower Convent, 127 G. N. Road, Cathedral P.O., CHENNAI-600005, Tamil Nadu.
  24. Sri Rainkrishna Mission Vidyalaya College of Education, P.O. COIMBATORE-641020, Tamil Nadu.
  25. Indian Association for the Blind, Higher Secondary School & Rehabilitation Centre, Sundarajanpatti, Arumbanoor Post, MADURAI-625107, Tamil Nadu.
- Central Braille Press, N.I.V.H., 116 Rajpur Road, DEHRA DUN-248001, Uttaranchal.
27. Shri Hanuman Prasad Andh Vidyalaya, Durgakund, VARANASI, Uttar Pradesh.
  28. Regional Braille Press, Ramakrishna Mission Ashram P.O., NARENDRAPUR Dist. 24 Parganas, West Bengal.
  29. V.M. School for the Blind, Tardeo, MUMBAI, Maharashtra.
  30. Jagruti School for the Blind, PUNE, Maharashtra.
  31. Blind Welfare Association, AMRAVATI, Maharashtra.
  32. Development and Welfare Association of the Blind, NALAGONDA, Andhra Pradesh.

# Introducing Braille to Young Blind Children Reading Readiness, Flash Cards, Teaching Methods & Approaches

By :

Mrs. Swaran Ahuja

Braille as a script has its own importance. It is a very effective and powerful script as compared to other scripts. It is the only script in the world in which any language can be written and read—be it English, Hindi and other Indian languages, Persian, Chinese, Japanese, French, Spanish etc etc. You name it and it can be written and read in Braille. No other script has the capacity to become a vehicle for all the languages of the world. Therefore, undoubtedly it is a SUPER SCRIPT. We could call it the "queen of all scripts".

When Louis Braille invented this very novel method of reading for the blind, it was said that this method had opened the floodgates of knowledge for the blind.

For the blind Braille is not only the medium of education, it also spells self-reliance, self-respect and social integration. It is this aspect of Braille's effectiveness which compels us to lay more emphasis on Braille.

Having worked in this field especially with blind children, first and foremost I would like to say that primarily children are children— whether sighted or sightless. Therefore the basic approach to teaching any subject does not change because of blindness: However, depending on the needs of children, some changes do become necessary in the application of methods and in the choice of teaching aids etc.

I have had some experience of teaching young blind children to read. And, I would like to share my thoughts and share some of my experiences with you. My first experience of teaching Braille was in a school for blind children in Bombay where I was asked to teach reading to young blind children. Before starting my work I decided to observe the existing methods of introducing Braille to young blind children. What I observed was—children were singing and reciting Braille letters with their dot numbers. Like this: =1,3 II = 4,6 14 =1,3,4 and so on. I was aghast to observe this method. It had no relationship with reading. There was no paper— there was no Braille. There were only meaningless numbers of dots and names of alphabets that had no meaning for children. This was in 1959. I only hope that this kind of practice of introducing Braille to young blind children does not exist any more.

I would like to draw the attention of all teachers, especially those teachers who are given the VAISTiiitit\*\*IWAWil1454ikti/Vu.n.kb I i nd children and are responsible for teaching them to read, tp,tl ç,t,tlat,when we teach 'Braille to e ,toe me teaçinic enl' Voitsitt N't them a language. This could be Hindi, 6nsjarati MentaliVtarri tt,.....qs'Kl4.41...

Also, I would like to clarify that Braille and reading are not two different subjects. We teach children just to read. Yes, the medium of teaching them to read is different — it is Braille. Because the children are not able to see, they cannot learn to read through Devnagri, Roman or Arabic scripts. Therefore they learn to read through Braille.

When children with sight are taught to read, we do not say that they are learning Devnagri or Roman script — they are learning to read. On the time-table is shown a period for reading/writing — not Roman or Devnagri. It should be the same with children without sight. We teach them to read and later write which is through Braille. Teaching them to read means teaching Braille. It is important to understand this relationship between Braille and reading. We cannot separate the two. Their existence is dependent on each other — reading cannot be done without Braille and Braille is lifeless if it is not read. 34 2IN, slc-I (4'14 3.4ft t1

Before we discuss the methodology of teaching blind children to read, I think it is necessary to know as to what we want to achieve at the end of our efforts. Clarity of purpose will help us to charter a path that will lead us to our goal. This is important as **introduction to reading** is the first step towards language learning. And, language learning is **the foundation of all learning. It is the source** for acquiring all knowledge. The **foundation must be very strong if we really want to open the floodgates** of knowledge for our children.

## Goals

Just teaching the techniques of reading through Braille is not enough for good reading. Our efforts and the methods we adopt should result in the children being able to:-

1. develop good reading techniques i.e. correct finger movement and use of both hands;
2. read correctly;
3. read with comprehension;
4. read with expression;
5. read with satisfactory speed;
6. develop interest in reading;
7. read effortlessly and
8. develop fondness for books.

In other words **Braille should become a very natural medium of reading** for blind children. This would also mean that reading should be totally effortless—as effortless as it is for a sighted child. Not just that, they should also **enjoy reading**.

To achieve these goals, we need to take specific steps in the right direction. The first important step that needs to be taken is towards **Reading Readiness**.

**Reading Readiness** simply means getting the children ready to read. This in turn would mean:

1. to develop the sense of touch to recognise the tiny Braille dots and differentiate between different letters and
2. to get them interested in reading i.e. to make them want to start learning to read.

Here are some suggestions for achieving Reading Readiness:

**F** **Increase children's vocabulary** by making them aware of their environment. We can do this by exploring the immediate environment, stories, anecdotes, visits to a garden/zoo etc.—sharing of personal experiences—talking about family, friends, pets etc.,

Expose them to real **first-hand experiences**,

Use Montessori sensory aids to develop the sense of touch i.e. to develop the three basic qualities of touch—recognition **of shape, size and texture.**

- Create an **atmosphere of Braille/reading** in the class by doing the following:

Stick a Braille label on the door of the class-room indicating—K.G., Standard I, Standard II etc.;

Stick name labels on desks;

Have Braille labels on all toys;

Hang an Alphabet Board with corresponding 3D toys e.g.

—                      — <sup>4</sup>1+10f, etc.

- Fix a Board at a convenient height for the children with "Touch and Tell" cut out figures of different shapes in 3-4 sizes e.g.:



and other interesting items.

Familiarize the children with "**Touch & Tell**" books of simple but different shapes in different sizes;

Give children **5-6 page books with Braille lines** of different lengths interspersed with one letter of the alphabet on each line to be called a dot picture. These books will give the children an idea of a book—introduce fingers to Braille dots—train the fingers to go in a straight **line** and move from line to line;

- **Read out short stories** to children with expression during Story-time. Make it a point to tell the children that today you are not going to tell them a story but will **read out** a story for them;
- **Invite one of the good readers** from another class to read a story/poem to your class of young blind children. This can prove to be an effective reading readiness step.

Having taken these reading readiness steps, the question will arise **When to begin the actual teaching of reading? What is the right time to make a start?** The answer is simple — **begin only when the child is ready.** Wait for the right moment when he himself asks for it i.e. when he/she comes to you and says, "I also want to read. Please teach me to read". **This is the moment.** Don't miss this moment even if it is not convenient for you. Leave every thing aside—spare a few minutes—begin the first lesson. Always be prepared for this moment and have your first few lessons ready in advance.,

## **How to Begin? What Should be the First Lesson?**

This is important. While making a decision regarding the above, please remember the basic principles of teaching:

—proceed from known to the unknown and

—proceed from simple to the complex

Also, there are some **DO's and DON'Ts** which must be paid attention to before you take your first step towards actual teaching of reading.

DO's	DON'Ts
<p>Make sure that the child has a comfortable chair and desk according to his height.</p> <p>2. Ask the child to wash his hands and dry them. Fingers should be clean and free of sweat.</p> <p>3. Do a relaxing exercise for hands and fingers—lightly opening and closing the hands.</p> <p>4. Always use Braille paper—freshly embossed.</p> <p>5. Present the <b>actual Braille letters on paper</b>,</p> <p>6. The child should use the top pad of the right hand index finger. But if a child insists on using his left hand, let him do so.</p> <p>7. Encourage use of both hands as soon as possible though not on the first couple of days.</p> <p>8. Make reading periods short and interesting.</p>	<p>Don't present Braille in any different form. Don't use the so called Braille teaching devices like Braillette Board, marble board, Braille cube etc., as they are too big to be recognised by single touch.</p> <p>Don't teach recognition of letters by the number of dots it has as then the finger starts to look for those numbered dots rather than the sole letter.</p> <p>Don't let the finger go up and down on each dot separately rather than the whole letter as it retards speed in reading.</p> <p>Don't let the child perceive the dots in letter with his nails as this will <b>damage</b> the writing.</p> <p>Don't let the fingers press hard on the dots as then recognition becomes difficult.</p> <p>1. Don't use metal sheets with Braille letters/ words. It is harmful for the sense of touch.</p>

## Methods of **Introduction to Reading**

And now begins the actual work of introducing the child to his first lesson of reading. Make the right choice of method and the right way to present it.

Basically, there are **three methods** which have been tried by various teachers and they have all claimed success in their efforts and experiments. I would like to describe these in brief.

1. **Letter Method:** This is an age old method. In this method children first learn to read individual letters, then they learn to join the letters and read words and finally read words making them into sentences. In short the process of teaching goes **from letters to words to sentences**.
2. **Word Method:** In this method children are presented with meaningful words. Then they are expected to split the words into letter and recognise each letter of the words they have read. After they have learnt to read a few words, they combine them to form sentences. So in this method we go **from words to letters—to words--to sentences**.

3. **Sentence Method:** In this method the teacher starts by presenting a complete sentence. It is then broken up into words and then letters.

## Choice of Method

The choice of method depends on you. Choose what you think is right and an effective method for the children you are going to teach. I myself have used a combination of the conventional "letter method" with "word method" leading to reading of sentences after a few lessons.

I know that Sentence and Word methods have been quite effective with sighted children. But, let us not forget that our children are blind and will be learning to read by touch. There is a vast difference between the sense of sight and the sense of touch. The field of sight is much larger than the field of touch. A sighted child can see a full sentence at one glance. Not only that subconsciously he can also realise that the full sentence he is seeing is made up of smaller bits (words) and these small words are made up of still smaller elements (letters) and they are all different.

The field of touch is much smaller and has its own limitations. As far as reading is concerned, the field of perception of the little index finger pad is very very small. It can actually read only one letter at a time. This is the reason that I prefer to use the age old "Letter method" combined with the "Word method" from the very beginning i.e. from the very first lesson.

I like to start with the easiest four letters of the alphabet. After learning to recognise these letters, the children start to read words made up of these letters at the end of the first lesson itself.

### FIRST LESSON:

4, aT  
 F 3T  
 3T W 3T 7  
 ▪ 3T

### Attention:

- Fix the first lesson Braille paper on the desk/soft board so that it does not move.
- Guide the child's finger to keep it lightly on the first letter and move gradually to the letters that follow.
- Guide the child to perceive the whole letter under his finger.
- Ask and expect the child to recognize the letters by their different shapes.
- Remember, when teaching blind children to read, initially we need to work on a one-to-one basis.

After the child has actually read these words giving him a sense of achievement, talk to the child in short sentences using these words e.g.:

Vg, 3T c T 1§1e4 1 tiro

Wm Rot afR \_\_\_\_\_ 3117 W4 41;1f W?11?

E  
neces

Inte  
two

to

As the child actually starts to read, a sense of achievement will be the reward not only for the child but also for the teacher. You have now taken your first important step on a long path.

### SECOND LESSON:

Start by having a short conversation using the words he has learnt to read

—aizr                      TZ?—  
eticl wi '11d ii 3Trtr4 3T4r d (6 A Til7g

Revise by presenting the words of the first lesson on Flash cards between 31 & 4 and so on.

Introduce the next three letters **v** **q** **tr** in the same manner as the first

\* the, rseau., icstt. l-c

\* Make words using letters of both the lessons e.g.

\* Talk about all the words and have a pleasant conversation

P H.4%.1 1.101 I11 II 1111114 FC/bla      1111 11101      k/ FL

\* ~ trarh an antra chart                      li me of fintc—rliffpnant in cive and intercnerced wit'

\* Attach these two pages to the earlier

**Staple a cover page to the above 4 pages**

11,1.111, 2VI      1111\_ Juni, 51 v      1.11.

*procedure of revision with conversation, Flash Cards and presentation of new words*

### Choice

This depends on every teacher. You may choose letters by adding an extra dot to the previous letters e.g.

adding dot 4 to      अ = च  
                                 ल = प  
                                 क = म

and then adding dot 5 and so on .....

## OR

Use the regular Primer being used at this stage with children generally, i.e. with sighted children. That can also be quite interesting and very effective especially under the system of integrated education. It may need some editing and adaptation though. It is certainly worth trying.

Carry on like this taking one step at a time of introducing 2-3 new letters and words. Start making very short sentences as soon as possible after they have learnt to read a few words. This may happen after a week or two of teaching. Of course, the progress in each child's case will depend on the child's capacity to learn.

When you introduce the first sentence, it should be short (not more than 3 words), language-wise correct and meaningful. This would also mean that the child is introduced to the first punctuation sign—full stop or iw.kZ fojke Explain to the child why the sign is called "full stop" before starting the next sentence. Please note that by teaching like this, you are teaching not just the techniques of reading Braille but are actually teaching meaningful reading and sowing the seeds of language learning.

## Flash Cards

Before proceeding further, I would like to draw your attention to the preparation of flash cards. They should be:

- made of thick Braille paper,
- about 4" x 3" in size,
- embossed with a full Braille line above the words/sentences.

This line above the words/sentences will help the child to place the Flash Card before him in the right position. Inform the child accordingly.

## Keeping Interest Alive in Reading/Motivational Steps for Reading

It is very important to sustain the interest in reading so that with time, the process of reading becomes effortless and it becomes a natural medium **for getting information, gaining knowledge and a source of pleasure and enjoyment.**

To achieve this it will be necessary to bring in variety in the reading material and methodology. Use different approaches to make the reading periods interesting and full of fun. This will make the children look forward to the reading sessions.

## Suggestions for Developing Interest in Reading

- \* Use Flash Cards
- \* Play Reading Games e.g.

**Match the Cards: Prepare two Sets of Flash Cards**— one having names of animals and other **with the sounds they make. Ask** the children to match the animals with their sounds.

**Read and Do:** Prepare a set of Flash Cards with one activity on each card e.g. "**dance**", "**clap your hands**", "**jump up and down**", "**sing a song**", "**make a boat with paper**", "**go to the garden & get me a flower**" etc.

This can also be a group **game**—ask children in turn to pick up one card and do as directed.

**Passing the Parcel:** Reading content of this game would be **the same as "Read and Do"**, but, this game brings in a variation with music, action of passing the **parcel and a prize at the end of the game.**

**Solve the Riddle: Write one riddle on one Flash Card. Prepare quite** a few such cards. Ask children to solve the riddles. This game can be played individually as well as in a group. .

**Any teacher with imagination can think of and devise many simple reading games and activities.**

As children progress in reading provide them with:

\* **Small 4-5 page simple story books with only 5-6 lines** written on each page. Use simple subjects like "My Toys", "My Pets", "My Mother", "My Sister", "My Friend" etc.

\* **Use simple story books for children available in the market.** Make sure that children comprehend what they read. This can be assured by having a couple of questions at the end of each story and/or by asking the child to tell the story he has read to the rest of the class.

\* **Fix a Pin Board in the class** which has:

— a new "thought for the day" every day,

— a short poem of 5-6 lines,

— a couple of jokes,

— Time Table,

— Calendar,

— Braille picture,

— Map of the class .... etc.

\* **Have a Library Corner in the class with very short books of interesting stories suitable** for your class.

**Attention: Please ensure at this stage to use interline Braille** and not inter-point. Also, write only on one side of the paper in the first phase of reading. This is done to make the learning process of reading as easy as possible.

\* **Braille Atmosphere throughout the School: Not just the class-room, the whole school should have an atmosphere of Braille** 3404 T cncuatut fiTauT cbt-it •TruRi

An atmosphere of learning can be created in the school by taking the following steps:

Have a Notice Board in the school for:

- information and announcements so that children realize that they need to read the Notice Board regularly to keep themselves up to-date with the happenings in the school,  
School news,  
interesting stories,  
headlines of daily news,  
extra-curricular events  
"Thought of the Day" etc....

Responsibility of looking after the Notice Board should be given in turn to senior students in pairs. This is important for setting a good example for the junior students.

**Have a good School Library.** Every class should have a weekly Library Period on the Time-Table.

**Have a tactile Globe** in the central hall of the school with India and within India your city/town marked on it.

**Have various tactile maps** on the corridor walls with relevant information in Braille.

**Have 3-D simple statues** (if possible in wax) of great people of our country with a couple of sentences written about them in Braille on the side of the statue. •

e.g. Gandhi j — wit ३१-1di  
"3-TreerI ITT41 q4:" a 1c1 FeRclIN ti 2.ft  
Nehru ji — ० ११ ११-1chCf  
.16t' " 241

By the time children reach Standard IV, they should be able to read correctly, with comprehension & expression and with satisfactory speed. To achieve this:-

**use audio aids—tape** recorders, radio plays, stories, T.V. etc.,

**record children's reading** by turn and let them do self-analysis,

**invite a good reader** of the school to come and read something interesting to the class,

after the material has been read and listened to, **ask a few questions to ensure comprehension.**

(Ask one of the children of the class to welcome the invitee and another child to thank him).

- do story dramatisation,
- do play readings.

All these steps will help in achieving the goals of good reading i.e. flawless reading, comprehension, expression and satisfactory speed.

## Rapid Reading

After the children have developed the art of good reading, efforts should be made to bring in faster speed in reading. This will become important as the children progress to senior classes. One method which I believe is quite effective if practiced carefully is called "Rapid Reading".

"Rapid Reading" simply means reading rapidly. I will not go into its techniques etc., as we will be hearing about it in detail this afternoon.

## Teaching to Write in Braille

It is much easier for the child to learn to write on a Braille writing machine like the Perkins Braille. But in our country we are not able to afford this for every child. Therefore, we need to teach writing on a writing frame/slate. I usually follow the following steps:-

Introduce writing only after the children have started to read a few sentences fluently.

Familiarize the child with the Writing Frame—its various parts—Board-Guide-Stylus.

Teach him to fix the paper and move the Guide from line to line.

Write yourself with the child's hand on your hand feeling the position of the stylus (perpendicular to the paper) and movement from top to bottom and right to left.

- Explain how the dots appear on the other side of the *paper*. Therefore, the writing is being done from right to left, to enable us to read from left to right.
- Let the *child explore the Braille Cell in* the Guide *with the Stylus*. His attention should be drawn to the **5012Po** vidrifertmcfiring *dots*.
- Let him feel the dots he has embossed.

Advise him to punch all the dots in a cell leaving one cell blank in between. Let him write a few lines or even a full page like this. This will enable him fully to orient himself with the Guide.

Please note that up till now the child is not asked to write any word. The emphasis till now is on **forming clear, firm** easy to read dots.

Start writing of small words. Simple ones like the ones used for teaching to read is a good idea and progress gradually. Most children at this stage will be able to do this without the teachers help. But, some will need help.

Ask children to copy a few words/sentences.

Introduce punctuation signs as they come in their reading/writing experience. Explain the rules governing them.

- Gradually, as the children progress, teach them finer points of writing, e.g. how to indicate a new paragraph etc.

## Contractions and Abbreviations

Yesterday we had a discussion on the subject of "Contractions & Abbreviations Versus Open Braille in Indian Languages". We know that codes of contractions and abbreviations have been developed for some Indian languages—Hindi, Marathi and Gujarati. But, it is very likely that they will not be used by the average blind person because it will not be easy to master so many different codes. In fact this could cause quite a confusion.

Code of contractions and abbreviations known as Braille Grade II is being used for English. However, one thing which should be kept in mind by the teachers is that contractions and abbreviations are not taught as a separate subject to young blind children. They should be introduced to the children as and when they occur in their reading matter according to their age and vocabulary. At that stage i.e. at the occurrence of every new symbol, the teacher should explain to the child about the rules governing that particular contraction or abbreviation. Also, he should be advised to use it while writing. Thus the complete tnikoitit tiallimaigt4a414 abbreviations is not introduced at one time. Over a period of time, the blind child goes on adding to his stock a few contractitovswiti \*biteingimmalailitudissemniluditimmotkamuvez whole cone Itittlftletfts.

In conclusion I would like to say that introduce young blind children to reading in a fun-filled, easy and meaningful way so that Braille becomes a very natural medium of gaining knowledge for them. As hoped by Louis Braille himself, Braille will then unlock the floodgates of knowledge for our children. It is in your hands and I believe you can do it.

# Braille and Children with Low Vision

By :

**Mr. Subhash A. Datrange**

## **Abstract**

*Should Braille be primary or secondary medium of instruction? Has instruction in Braille and print have to be parallel or non-parallel? How to equip a child with several other literacy tools to supplement and reinforce his repertoire. And how critical is the role of parents in selecting the right media for learning & literacy.*

*This paper attempts to provide some guidelines for reaching right conclusion in the best interest of LV child. The paper concludes by coating opinions of three world leaders in the field of education of the blind and visually impaired children, on the burning issue of Braille for children with Low Vision.*

*(Key words: Braille — general learning media — literacy tools — low vision — parallel or non-parallel instruction — primary & secondary medium of learning — print reading — specific literacy media)*

## **1. Introduction**

The selection of appropriate literacy media such as ordinary Print, Braille or large print, has been for long primary educational issue for professionals in the field of visual impairment. There is no straight jacket answer to the dilemma. It remains unresolved because of philosophical believes and political faiths held by educators. Many a times the issues out weigh pedagogical consideration.

## **2. Sight saving Classes**

Until mid 20th century sight saving classes were considered essential. Attempt for practicing Braille to use residual vision was believed to cause it to deteriorate. Educational materials were dominated by text featuring sight saving methods. Students were often reprimanded for using their vision. They were blindfolded or required to wear **high** collars. Natali Barraga study (1963) **greatly influenced educators** to encourage LV children to use their vision for reading.

## **3. Implications of Visual Impairment:**

When blindness occurs, the individual goes through many critical phases such as:

1. Confronting: Shock, denial & blame or guilt.
2. Adjusting: Depression, anger, and bargaining.
3. Adapting: Changes in lifestyle, realistic planning & adjusted expectation.

Grief and depression are normal reactions to blindness, but are necessary before one can relearn essential skills.

The choice of literacy media is no doubt delayed during this period. The adjustment of an individual whose vision loss occurs over an extended period may be long and difficult (Vander Kolk, 1981) the reasons for which are listed above.

#### **4. Shared Attributes of Adventitiously vision impaired readers**

It is essential to know what will help in finalizing the ultimate choice regarding the Media in the case of readers who have acquired visual impairment late in life. The common characteristics of these readers must therefore be carefully weighed. These are:

- I. Familiarity or mastery over print reading before they lost their vision.
2. A changeover from print to Braille medium following significant vision loss during adolescence.
3. A possibility that some of them have fluctuating vision which could extend their adjustment process.
4. Adjustment to blindness is accomplished in a relatively short period in the case of some, who have suffered traumatic and sudden vision loss.
5. All these readers have gone through the stages of denial and bargaining.
6. Resistance to Braille initially outside the classroom until reading print is no longer functional.
7. More confidence and effectiveness in using Braille, lead to positive changes in their self-esteem and self-confidence.
8. Thus the process of learning Braille is therapeutic.
9. The fluctuating vision, numerous surgeries and expectation of restoration of vision, often gives them false hopes. This situation hinders their life.

#### **5. Ordinary print reading as an option**

In many cases print reading is insisted for L.V. child. But this is hardly in his interest because his print-reading speed with comprehension would be slow, so also his writing speed. As a result, low vision child continues to work long after the other children have completed their assignments. The child is also not comfortable when teacher asks him to read aloud. As regards writing, low vision child takes much longer time to complete the same texts than his sighted peers. Thus he slogs while other children enjoy recess from visual work.

#### **6. Assessing the child for efficiency in Print Reading**

For students with LV, an additional component is the examination of their reading efficiency in various print media. This test helps to ascertain fatigue and stamina in print reading.

#### **7. Assessing the child for potential to read Braille**

Braille should be considered (a) if child's eye condition does not remain stable or (b) consistent and targeted instruction do not yield results. Demonstration of rudimentary level of tracking skills and tactile sensitivity indicate child's potential for learning to read and write in Braille.

#### **8. General learning media and specific literacy media assessment**

Koenig and Holbrook (1989) developed comprehensive process to guide the selection of general

learning media and specific literacy media for students with visual impairment. It includes detailed procedures in the following essential areas:

- \* Documenting the student's use of sensory channels—visual, auditory and tactile as primary or secondary channels.
- \* Selecting general learning media, including both instructional materials and teaching methods.
- \* Selecting the initial literacy medium for formal instruction in reading and writing.
- \* Conducting on going assessments of the initial decision and determining when to provide instruction in additional literacy tools.

## 9. Continuing assessment

The purpose of continuing assessment is to arrive at basic conclusion regarding learning medium. The factors to be considered are:

- \* Evaluation Of ophthalmology, optometry, clinical low vision, and functional vision, to determine whether there has been a change in the student's visual functioning since the last review.
- \* To ascertaining reading efficiency rates and reading grade levels to determine whether the student reads with sufficient efficiency.
- \* To cognition academic achievement to determine whether the student is continuing to make progress in his or her current medium or media.
- \* To determine whether the student is able to read his or her own handwriting as an effective judging mode of communication.
- \* Judging the effectiveness of the student's existing repertoires of literacy tools, to determine whether instruction is needed in additional literacy tools to meet the demands of present and future literacy tasks.

## 10. Factors influencing decision regarding Braille

**Teacher must carefully decide while he introduces Braille on various factors such as :**

- \* Braille as the objectively determined need to supplement print.
- \* Strategies to replace print. —
- \* To evaluate the need to introduce Braille reading and writing to determine the student's potential for learning and using Braille.
- \* To determine role of Braille in accomplishing a specific task needed for continued progress in school or to facilitate independent living and employment.
- \* To access the time required to teach Braille reading and writing skills relative to other identified needs of the student.
- \* The desire of the student and his parents to initiate or continue instruction in Braille reading and writing.

## 11. Introducing Braille as a learning medium

Students with Low Vision often miss valuable messages because the use of vision alone may provide inadequate or inaccurate information.

Suddenly instead of focussing on Braille, LV children may seek alternative methods of gaining access to information, such as audio tapes or CCTV. But they are confronted with reality of blindness when they discover these methods are inadequate for acquiring information and coping with demands of academic pursuits. Lest such children lose motivation to learn, alternative medium of Braille must be considered.

## 12. Deciding whether Braille should be primary or secondary medium

Before assessment process helps to decide whether Braille should be primary or secondary medium of instruction, conclusive answers will be essential to the following issues:

### Is the goal :

- \* to supplement print reading & writing skills: to establish another functional literacy medium.
- \* to replace print reading skills as a primary medium at some time in the child's life when vision will deteriorate grossly.
- \* to impart basic academic skills: for teaching Braille?

While deciding the primary medium of Instruction, the need of the child should not be compromised in any manner. Therefore, the decision on selecting literacy media should always focus on providing students with a variety of skills and tools needed to live and lead productive life in a competitive society.

Koenig and Holbrook (1989) call this process as *"Filling a student's toolbox with the tools needed to accomplish the decision regarding choice of medium."*

## 13. Teaching Braille to Low Vision children

There are reportedly Five basic approaches to teaching Braille to blind & visually impaired children. These are Basal reader, Language experience, Whole language, Patterns & Read again approaches. The merits & demerits of these approaches are listed in Annexure.

## 14. Parallel and Non-parallel instruction

Parallel instruction in which a student learns to read both print and Braille and non-parallel instruction in which student with skills in basic print reading is introduced Braille. A student beginning to read in Braille will learn readiness skills, word identification straggles, comprehension skills and so forth, **in both media at the same time. The expectation here is that similar progress will be made in both media.**

In the non-parallel instruction mode, the student will continue to develop basic reading skills in print, while instruction in Braille will focus on learning a new code. **Eventually, the level of Braille reading skills is expected to match the level of print reading skills.**

**Teacher is advised to adopt the following strategies for the two Modes under discussion:**

<b>Parallel Instruction</b>	<b>Non-parallel Instruction</b>
Maintain balance in the use of both print and Braille to become effective in both media and to become effectively equal.	Here the focus is to maintain academic achievement in print reading while developing Braille reading skills.
Develop practice of reading Braille throughout the day and evening. If Braille is read only during the classroom instruction, it can not be mastered.	Do not expect the child to use Braille immediately to achieve academic goals. Since in the beginning, Braille reading will be slower and less efficient than will be print reading.
Provide opportunity for applied and sustained practice in reading Braille.	Phase Braille work evenly in the curriculum at various" points keeping in mind how much <b>time a student is taking for</b> accomplishing a given task.
Integrate print & Braille in the curriculum with equal frequency. Encourage student to decide which medium to choose for a particular task.	Print reading must continue as an important tool as long as the child has sufficient functional vision.

## **15. Where Braille is contra-indicated as Primary Medium**

Some students with low vision will try to use their vision to read Braille, rather than learn to decode Braille tactually. Deciphering Braille visually is slow and laborious, since there is little or no contrast between the Braille dots and the surrounding paper.

Braille should not be the primary reading medium when the child is demonstrating a high level of visual ability, by refusing to read Braille tactually in the above manner.

## **16. Integrating Braille into the curriculum**

After all the purpose of learning to read Braille is not just reading but to help the child accomplish the given task for e.g. by reading a menu the reader decides what food he should order. It is therefore essential that Braille must be gradually and systematically hooked-up into the academic curriculum of the school.

## **17. Literacy tools**

**There are several literacy tools which could be employed in conjunction with Braille such as : Touch Typing, Large print, CCTV, Key-Boarding, Tape-Recorders, Speech Synthesizers use of Abacus, oral Mathematics etc.** All tools should be considered in relation to the tasks that need to be accomplished in school and later in adult life.

**What is the role of Braille reading and writing in the student's repertoire of literacy tools?**

This will shape the content and intensity of the instruction that is provided. If basic literacy skills are to be established in Braille, highly intense and consistent instruction is necessary, as would be the case in respect of print.

## 18. Characteristics of a likely print reader and Braille reader

The following are the typical attributes of the two types of readers:

<b>Characteristics of a likely Print Reader</b>	<b>Characteristics of likely Braille Reader</b>
<p>Uses vision efficiently to complete tasks at near distance.</p> <ul style="list-style-type: none"> <li>* Shows interest in pictures and demonstrates the ability to identify pictures or elements within pictures.</li> <li>* Identifies his or her name in Print or understands that Print has meaning.</li> <li>• Uses Print to perform other prerequisite reading skills.</li> <li>• Has a stable eye condition.</li> <li>* Has an intact central visual field.</li> <li>• Shows steady progress in learning to use his or her vision as necessary, to ensure efficient Print reading.</li> <li>• Is free of additional disabilities that would interfere with progress in a developmental reading programme in Print.</li> </ul>	<p>Shows a preference for exploring the environment tactually.</p> <p>Uses the tactile sense efficiently to identify small objects.</p> <p>Identifies his or her name in Braille or understands that Braille has meaning.</p> <p>Uses Braille to acquire other prerequisite reading skills.</p> <p>Has an unstable eye condition or a poor prognosis for retaining his or her current level of vision in the near future.</p> <p>Has a reduced or nonfunctional central field to the extent that Print reading is expected to be inefficient.</p> <p>Shows steady progress in developing tactile skills that are necessary for efficient Braille reading.</p> <p>Is free of additional disabilities that would interfere with progress in a developmental reading programme in Braille.</p>

## 19. Parent's Involvement

Braille is not a symbol of total blindness as it is sometimes believed. Parents are reluctant to accept Braille instructions for such misconception. Parents should therefore be explained the truth. It would be better if they themselves learn to read and write Braille. They would thus be motivated and encouraged to talk to other parents about advantages of Braille.

The involvement of parents and other family members not only decreases the child's isolation in learning something that most people do not know, but provides an opportunity for increased communication between parents and their child. Parents are advised to:

- \* Help the child with his or her home work in Braille.
- \* Show their pride in their child's work by displaying Braille homework papers on the refrigerator or placing selected paper in a scrapbook.
- \* Become involved with their child in reading and writing competition. Advocate for the provision of Braille materials in public & private places. (Hotel menus, Bank Statements etc.)

## 20. External Considerations

**Many a times issues not quite germane or relevant to the main decision play dubious role in the final process, viz.:**

- \* Administrative considerations, such as the availability of a qualified teacher for the purpose, the available time in the teacher's schedule, or cost factors.
- \* The teacher's level of comfort in teaching Braille reading and writing.
- \* The educational team's philosophical or personal biases for or against teaching Braille reading and writing to students with low vision.
- \* A child's measured visual acuity or other clinical measures.

These factors should not be allowed to influence the decision regarding Braille.

## 21. Educators view point

While writing this paper the Author recently conducted a brief opinion survey to know the views of the world-known educators on this issue. In all, twelve respondents were approached world-wide. Their "front-line status", was the sole criteria. Here are the replies received from three of them via e-mail and fax communications:

**Natali Barraga professor Emeritus university of Texas, Austin opines that :**

### *Why Braille be taught?*

The only justification for teaching Braille to a low vision child would be if the child had a progressive eye condition and print reading was becoming more difficult and slower and he/she would eventually need to use Braille. Every child is different, and the eye condition itself would not necessarily require Braille except in the situation I mentioned. Clinical acuity is not a criterion either. Some children with very low vision do very well with appropriate low vision devices, while others with the same acuity may not be so efficient visually. Back to No. 1., I do not believe (and research does not indicate) that it is an "either/or decision". A large percentage of low vision children will use both print and Braille for several years and often throughout their school and later life. When there is any doubt as to medium, children should use all their senses in learning especially in the first 8-10 years. Often they will be able to help the teacher to decide which is better for which purpose. There are so many factors to be considered: learning ability, lighting, results of learning assessment media, attitude and on and on.

### *Age at which Braille is introduced?*

Braille or tactile learning media may be introduced at the same time print media is introduced;

however, if the child tries to look at the tactile media rather than exploring by hands, then you would not introduce Braille; that is a visual child at that time. When print becomes smaller, and magnification devices make reading very slow at best, then Braille may be appropriate for some purposes. A child with any functional vision should continue to use vision as much as possible even when Braille may become the primary learning medium.

### *Techniques of teaching Braille?*

American Printing House for the Blind in Louisville KY has a whole programme and set of materials for pre-Braille activities which you could order and must precede the introduction of Braille symbols.

### *Reservations*

There are numerous reservations to teaching Braille to L.V. child both from a pedagogic and a logical frame of reference. Any child who tries to read Braille by sight should be using print primarily with appropriate magnification. The best Braille readers seldom read more than 125 words per minute. If a child can read print efficiently and without unusual fatigue at that rate, then he/she does not need Braille. Braille is not available when the child leaves school (that is textbooks or professional material), only recreational reading material.

### **Mr. A. K. Mittal the Regional Director, National Institute for the Visually Handicapped, Chennai says that:**

"I am firmly of the opinion that Braille must be taught to all visually impaired children, blind or with low vision, unless medical prognosis directs otherwise. I hold this view for the following reasons":

- a. In the case of children with various eye-conditions, reading print after sunset becomes very difficult and takes more time.
- b. Unless otherwise specified medically, reading print in magnified form or through projection (CCTV etc) could be fatiguing for the child.
- c. It may also result in greatly reduced reading rates and consequential drop in motivation.

Teaching Braille to children with low vision has to commence as early as possible. During my association with the School for the Blind in New Delhi. I found that a number of children with residual vision could read Braille very well and very effectively, if it was taught to them systematically from early on.

Braille should be taught to these children, in my opinion, by touch only, with the help of the usual "Word reader". It is interesting to state that many children with varying degrees of vision were found in the School where I worked, have become very effective touch readers of Braille:

It is a pleasure for me to commit to paper my experience of teaching Braille to VI students. I think, the reason to learn Braille and how to teach it varies from person to person and from case to case.

### **Margarete Tanner, Nuremberg, Germany.**

"Let me tell you about my individual method.

As you probably remember, in Nuremberg Educational Center there are several classes for the blind and for the visually impaired students, they live together in the boarding house and contact in their spare time. Clever V.I. student's are interested in learning standard Braille from their blind friends. One reason is — letter writing in the holidays. But Braille is used occasionally and the V.I. read with their eyes.

Who among the V.I. students should learn Braille exactly? All who want to do so. But most of them will not. Some are afraid that they could become blind later on.

The V.I. students must realize that Braille is a helpful and necessary technique for them. Because of a progressive eye disease like Glaucoma or Retinopathy, they cannot read even in large print any longer.

In Braille, you can write quickly with the help of a Braille printer. The students enjoy writing, but the Problem is of reading by touch! Therefore I combine writing and reading.

I have prepared a small book in large print showing corresponding letters/words, beginning with the dots 1, 2, 3 followed by dot 4, later on by dot 5 and 6. First we printed letters as per syllabus and words followed by sentences.

Students read what they have written again and again by touching with the fingers. The fingers become acquainted with the shape of the Braille letters.

It's useful to train the child to read daily for about half an hour. No body is allowed to use eyes for reading. Within six months they are able to read unknown poems and short texts.

I made use of this method with adult V.I. people with the same good results. I hope I have been of some help to you".

## Conclusion

The author would like to conclude this paper with a caution. He never taught or practised Braille anytime in his life. Therefore, he had to rely heavily on tried and tested practices of teaching Braille documented, expert educators candid views and a large body of research material which he accessed globally. The statements made in the paper should therefore be interpreted keeping this in mind.

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## **Annexure**

The merits & demerits of the basic approaches

Approach: Basal reader

Advantages: Makes efficient use of instructional time. Is a comprehensive and sequential approach.

Disadvantages: Offers no control over the introduction of Braille contractions.

Type of Instruction: Ideal for parallel instruction and useful for non-parallel instruction.

Approach: Language experience

Advantages: Involves no concerns about student's experiential background Is flexible -useful for teaching reading in print and Braille.

Disadvantages: Offers no control over the introduction of vocabulary and Braille contractions. May appear unstructured.

Type of Instruction: Equally valuable for parallel and non-parallel instruction.

Approach: Whole language

Advantages: Is highly motivating to the student. Offers opportunities for reading and writing activities with classmates with normal vision. Provide student with appropriate tools.

Disadvantages: Offers provision of adapted materials. Lack compatibility with itinerant teaching model.

Type of Instruction: Ideal for parallel instruction and may be useful for non-parallel instruction.

Approach: Patterns

Advantages: Is a comprehensive programme. Offers controlled introduction of vocabulary and contractions. Is not dependent on pictures.

Disadvantages: Is incompatible with other approaches.

Type of Instruction: May be useful for parallel instruction, but of limited usefulness for non-parallel instruction.

Approach: Read Again

Advantages: Is a comprehensive programme. Is designed to teach the Braille code to individuals with adventitious blindness.

Disadvantages: Has age appropriateness restricted to older students. Has beginning exercises that appear contrived.

Type of Instruction: Useful only non-parallel instruction.

# Teaching Braille to Slow Learning Blind and Visually Handicapped Children — A Growing Need and a Serious Challenge

By :

Dr. R.S. Chauhan

## Introduction

The subject of teaching Braille to Slow Learning Blind and Visually Handicapped Children (SLB/VHC) is certainly unique in several respects. First of all, it has received virtually no attention so far. It is precisely this reason that even an extensive scanning of literature in the related field could yield little information on the subject. Moreover, the author considers it timely to meet the educational needs of a sub-group among the V.H. children which is going to register a fast growth in coming years. Discussions with highly placed officials reveal that the Government of India is taking bold initiatives to increase the educational coverage of disabled children, including VHC. They are aiming at twenty-five per cent coverage during the tenth Five Year Plan period against the estimated one per cent coverage during the ninth Plan. Naturally, this increase will bring many slow learning children also into the educational process.

The author proposes to discuss the **characteristics of such children, major possible causes leading to the condition, importance of Braille even for them and practical strategies for effective intervention.**

## Causes and Characteristics

We are yet to have universally acceptable body of knowledge about the causes leading to slow learning phenomenon among the children. However, certain intellectual, biological and socio-cultural factors are considered capable of yielding positive information and reliable guidance for our investigation and objectives. Some of them will be discussed briefly in the following sub-sections.

## Slow Learning vs. Mental Retardation

Slow Learners were considered mentally retarded in the past. This tendency is evident from the remarks of Johnson (1963) who observed that "Slow Learners compose the largest group of mentally retarded persons". There is a definite shift now in this regard. "The term *slow learner* most accurately describes children and adolescents who learn or underachieve, in one or more academic areas, at a rate that is below average yet not at the level considered comparable to that of an educable mentally retarded student". (The Encyclopedia of Special Education, 1987). The safe inference is that slow learners can not be clubbed with the mentally retarded but their achievement level is certainly lower than that of the average children. They are between the border-line and the average children. In case, appropriate intelligence tests are available and administered to such pupils, their IQ will be about 75. Due to the lack of reliable procedures and appropriate instruments to quantify this condition the Slow Learners do not constitute a separate Special Education Group of children even in the United States and consequently, do not receive any financial aid under the provisions of PL-94-142. (The Encyclopedia of Special Education, 1987).

## **Learning Disability**

Although children with learning disability are considered to possess average or above average intelligence, however, they usually function well below their intellectual levels in academic subjects and there is an adverse effect on the development of their reading skills. They tend to reverse the sequence of letters/spellings (Frank M. Hewett, etal, Education of Exceptional Learners, 1984).

Furthermore, according to Kirk (1962), "A learning disability refers to a retardation, disorder,-or delayed development in one or more of the processes of speech, language, reading, spelling, writing or arithmetic, resulting from a possible cerebral dysfunction and/or emotional or behavioural disturbance and not from mental retardation, sensory deprivation, or cultural or instructional factors". (Quoted by Hewett, 1984).

The author is inclined to believe that sensory deprivation, cultural practices inimical to the disabled as well as inappropriate instructional factors have a strong possibility of converting a child with visual impairment into a slow learner.

Shorter span of attention and perceptual handicap are also the possible products of learning disability. A learning disabled child, therefore, is likely to be slow in learning Braille since its processes demand comparatively sustained attention and involve complex perceptual factors.

## **Diabetes**

Diabetes is known to cause blindness through retinopathy. It also leads to impairment of sensitivity of hands, the major player in reading Braille. Experiments found as much as eighty per cent loss in sensitivity as a result of diabetes. The study reported positive results of sustained Braille instruction to the tactually impaired blind diabetics. (The Journal of Visual Impairment and Blindness, January, 1985).

## **Lack of Appropriate Instructional Material**

"Learning to read is a complex task regardless of the medium through which the skill is acquired". (Caton, 1979). This process is made comparatively easier and more pleasant for the seeing children with the help of specially designed books in the beginning. A survey conducted by Bleiberg in the United States in 1970 found the ninety percent teachers considering the books in use placing undue emphasis on visual experiences. Eighty-three percent teachers expressed their dissatisfaction with the books for the V.H. beginners. Bleiberg concluded, "The books presently in use do not meet the needs of blind children who are learning to read. The content of the books should have less emphasis on visual imagery and more emphasis on the senses that blind children use, e.g., touch, smell, hearing and taste". (Quoted by Caton, in the Journal of Visual Impairment and Blindness, October 1979).

The situation in the United States has since registered a positive change but there is no move in this direction in our country. It is a serious impediment in the process of learning Braille for the young blind children.

## **Multiple-Disability**

Visual handicap in combination with other impairments in any degree is likely to have an adverse effect on the ability of a child to learn in general and on his acquiring Braille reading skills in particular. It applies to all V.H. children having hearing impairment, learning disability or diabetes as an additional factor.

## **Other Causes**

Growing negative attitudes towards Braille, application of contractions and teachers with poor Braille skills are other major causes responsible for adding to the increasing numbers of the slow learners with reference to Braille.

Thus, it may be observed that the children known to have learning disability, diabetes, low IQ or negative environment for Braille are likely to be slow learners.

## **Distinction between General Slow Learners and Braille Slow Learners**

The author is of the opinion that all types of slow learners will be slow in acquiring Braille skills. There may be some children who may not be slow learners in other subjects and yet they may experience serious difficulty in learning Braille only. They may be called "Braille Slow Learners". Such a distinction is essential for effective and proper intervention to help them.

## **Importance of Braille**

In spite of several inherent limitations of Braille and a growing tendency to dismiss it as an outdated medium, it is the most important, readily accessible and cost-effective method of information storage and retrieval for the blind. It is definitely much more so for the slow learning blind due to the ease of repeating the desired information, the ability to control the speed of reading, as a bridge between them and the world, and a buffer against loneliness in addition to being a source of utilising their leisure-time effectively and happily.

Probably, Helen Keller could not attain the levels of independence and success that she achieved without Braille in spite of her intellectual capabilities. Braille provides the Visually Handicapped with a sense of equality. About Braille, Dr. Rajendra Sethi, a blind with profound deafness, opines, "It means freedom to me. It is platform of equality for me—equality with my sighted counterparts". (Sethi, Blind Welfare, August, 2001).

## **Strategies to Help the Slow Learners:**

### *1. Designing special Reading primers for the Beginners:*

Knowledge of a group of experts from the disciplines of Braille, Linguistics and Psychology may be required for designing such primers to be effective instruments of teaching and learning. Adequate attention must be paid for choosing the proper words to suit their experiences and perceptual levels. Moreover, the words must be composed of the Braille symbols which are easy to be recognised for the beginners.

### *2. Use of Open Braille.*

The slow learners should be provided reading material in open Braille even beyond primary level unless some of them show interest in contracted Braille themselves. It is essential to avoid the complexities of the contracted literature since the Slow Learners have tactual impairment, perceptual handicap, low IQ, learning disability or negative attitude towards braille— any one of them or a combination of two or more factors.

### *3. Use of Jumbo Braille:*

It is yet to be experimented with in our country. It is, therefore, suggested to have a small unit for

providing material in Braille form for establishing its efficacy for the slow learners since some research findings have indicated positive outcomes.

#### *4. Developing Positive Attitudes to Braille:*

With the availability of better medical services to more and more people, a growing number of V.H. children are blessed with some amount of vision. They tend to show negative attitude for Braille. They may even show open resentment. "Attitudes vary often, are **prom\* evelvbefore'a** student begins to study Braille. This is especially true if Braille has become a symbol "of the inferior hand—a mark of inferiority. More so, if a child read print earlier". (Myrna R. Olson, in *Journal of Visual Impairment and Blindness*. October, 1979). Many of such children grow to become Educated II literates.

They have to be convinced that Braille is not meant for the totally blind alone, that it can successfully be used in combination with the print reading skills to their advantage and that it is capable of giving them much more freedom and pleasure in life.

#### *5. Optimizing the Tactile Acuity:*

Measures to develop Tactile Acuity to the optimum levels can also go a long way in assisting the Slow Learners. They can have muscle-strengthening and tension-relieving exercises before-reading classes in addition to exercises for fine touch discrimination.

### **General Measures:**

In addition to the specific strategies discussed above for intervention with the Slow Learners, some general measures are also required for improving the Braille teaching and learning environment.

They include:

1. Convincing the RCI to recognise only such teacher-education programmes for the V.H. children which have a separate course on Braille,
2. A minimum of fifty per cent marks must be obtained by the trainees to be successful in the examinations,
3. Introduction of a compulsory Braille Test after every five years for the teachers, and
4. Pressurizing the teacher-education managers to have minimum uniform standards for Braille reading and writing skills in a test.

### **Conclusion:**

It is evident from the foregoing discussion that there is virtually no literature on the subject of teaching Braille to the Slow learners—a very important field for investigation. Moreover, Braille retains its importance even now for blind—much more so for the Slow Learners.

There are several possible causes leading to the phenomenon of Slow Learning among the children. They can be contributed by psychology, biology, socio-cultural and instructional factors—any one of them or a combination of two or more factors. The slow Learners can certainly be helped with appropriate specific interventions:

It is hoped that this presentation will generate a powerful ripple of intellectual exercises and research leading to some concrete measures and programmes for the benefit of the children under discussion.

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# Perceptual Factors in Braille Reading

By :

Dr. Sushama Sharma & Mr. R. C. Nijhawan

*The purpose of this paper is not to study the physiology of tactile perception involved in Braille reading. This is merely an attempt to outline some specific errors in perception when reading Braille. However, the present paper draws some comparisons between visual and Braille reading. Further the paper will highlight the findings of various researches in perceptual errors in Braille reading. That various line types were discarded in favour of Braille proves that broken lines are far easier to recognized by touch than straight. lines. You might well ask why then Moon was being taught to the elderly blind in England in preference to Braille. We can only make a guess here. Perhaps this i.) more-a-case-of-nettio than anything else. After all William Moon wa. a Britisher and the system evolved by him was to be accorded some in his country.*

## Visual and Braille Reading- A Comparison.

In both visual and Braille reading, one depends heavily on peripheral cues such as contexts, expectations and stored information. Nolan and Kederis (1969) contend that visual reading and Braille reading are quite different perceptual processes. However, Bliss, Crane, Link and Townsend (1966) and Foulke and Warm (1968) hold that information is processed in essentially the same way independently of whether the incoming information is visual or tactile.

There is a significant difference in perceptual processes of visual and Braille reading. In visual reading the perceptual units are "chunks" of text form comprising an information taken in during single eye fixation. These perceptual chunks depend not only on the skill of a reader but also on the complexity of the text. However, in Braille reading the unit of perception is the Braille character. Thus, reading takes place by synthesizing the individual characters into meaningful wholes.

The tactile sense has its limitations. However, there is some evidence that Braille reading does not exploit the tactile sensory channel optimally (Hampshire, 1981). Better results can be achieved if words rather than letters serve as perceptual units. In rapid reading, words and even phrases do indeed act as perceptual units. This is proved by the fact that many Braille readers are capable of reading more than 120 words per minute. This is achievable only during rapid reading when, in perceptual terms, temporally extended sequential patterns cTriKaille text are fOrma. l l owever, all E3raiHe-readers-are-notrapid-readers. This may be due to poorly structured teaching strategies, low intelligence, poor coordination of hands, and poor sensitivity of the tactile sensory modality.

## Research findings on errors in Braille reading.

Research reports delineate various problems in reading Braille which could be classified broadly into two categories:

1. Errors in perception
2. Errors in orientation

Reported in the first category are four problems, namely : **added dots, missed dots, ending problems** and **gross substitution**. Similarly four problems were reported in the second category, namely : **vertical**

**alignment, horizontal alignment, association,** and reversals (Nolan & Kederis, 1969; Hampshire, 1981).

According to Nolan and Kederis the most frequent missed and added dot errors occur within 3,4, and 5 dot characters as it is only this group of combinations which have what could be considered as shape. According to them, to the 5 dot characters, specifically, a dot cannot be added and the shape retained, while among the 3 and 4 dot characters the number of alternatives or chances of symbols being similar in shape is greater by a factor of three to one.

In gross substitution, words are sometimes replaced by totally dissimilar words. Errors in vertical alignment are caused by the position of a symbol in the upper or lower position of a Braille cell. Horizontal alignment errors are limited to characters similar in shape but distributed among dots 1-2-3, at the one hand and dots 4-5-6, on the other.

Reversal errors are, of course, connected with braille characters forming mirror images. In the initial stages, learners make reading errors on this count. But gradually such errors decrease or completely go away.

Nolan and Kederis have also found that the more dots a character has, the more time it takes to recognise it. They have listed the various Braille symbols arranged according to the time taken by each on a measure of recognition thresholds.

Researchers have reported that the order and magnitude of errors changes with grade levels of the readers. Reversals and substitution errors decrease while ending dots and association problems increase with grade levels. However, missed dots, added dots, vertical alignment and horizontal alignment errors remain unchanged with grade levels.

But it appears that there are individual differences in shaping the perceptual apparatus of Braille readers. Some readers may be prone to make more reading errors when tackling vertical alignments, while others may make more errors when coping with horizontal alignments. One of the present authors has been an active Braille reader for more than 30 years. •During times of rapid reading, he sometimes confuses the "k" sign with the "ch" sign, "s" sign with "t" sign and "n" sign with "y" sign. These are examples of orientation and perception errors.

## **Role of Contractions**

There is no denying the fact that contractions and short forms help in increasing the reading rates. However, the number of contractions and short forms of words should be kept within reasonable limits so that the Braille reader is not overburdened.

Another dimension we wish to touch upon here is that of the age of onset of blindness. In many western countries where the pattern of disease has changed and blindness has been reduced only to an old-age problem, use of contractions may not be advisable or necessary. The situation in India is markedly different where thousands of children become blind every year because of malnutrition.

## **Rapid Reading**

As already stated, rapid reading is not possible if the unit of reading remains single Braille character. This is possible only when whole words or even phrases become units of reading while moving the fingers on a Braille page. This would mean that from the very beginning, the whole word method should be used with Braille learners. Dot calling should be avoided at all costs. Smooth, even and light movements of the fingers should be encouraged so that the sensory receptors in the fingertips can function efficiently.

Correct posture while reading Braille is essential to avoid fatigue and perceptual distortions.

Another important habit which should be inculcated among Braille readers is the use of both index fingers instead of one, especially at the initial stages (Foulke, 1979). Braille readers who use both fingers read faster because they have learned to use the fingers in a coordinated manner. It may be pointed out here that the right hemisphere of the brain is responsible for the recognition of patterns. It follows, therefore, that the right index finger should be able to read Braille more efficiently than the left index finger. We have noticed many blind persons reading with their left index finger with remarkably fast speed. However, the matter should be scientifically researched. It must be understood that improving the way and increasing the rate of moving the fingers over the Braille page will automatically increase the reading rates. This fact cannot be over-emphasized as it forms the very crux of rapid reading techniques. But we can move our fingers faster as long as comprehension is not affected. However, with practice, both reading rates and comprehension will increase.

## **Conclusion**

Braille has some inherent drawbacks and is not a neutral carrier of information as some would regard print. However, information processing is essentially the same in Braille reading and print reading. There is a fundamental difference in perceptual processes between Braille reading and visual reading, although it is not known as to whether it is due to physical characteristics of the finger tips and the stimulation Braille characters cause or whether the actual processing capacity of the tactile modality is the limiting factor.

In spite of the fact that Braille has its limitations, it is by far the best reading system for the blind which has hitherto remained unchallenged. Perceptual problems while reading Braille are varied, some of which may be remedied with time or by appropriate intervention strategies when others will remain unchanged.

It is imperative that whole words and even phrases and not individual letters form units of reading. Habits of rapid reading must be inculcated early during the teaching process by motivating the learners to move their fingers with increased speed on the Braille page.

It is widely concurred that contractions increase reading rates significantly but that contracted codes should not be too complex and intricate. Experts also believe that contractions should be introduced from the very beginning so that unlearning could be avoided.

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# Technology and Development of Braille Aids and Devices

By :

Mr. A.K.Mittal

## Introduction

Access to the print word has, traditionally, been the single most challenging factor for the blind and the visually impaired in their quest to keep themselves abreast of the rapid proliferation of knowledge and information evident today. Braille continues to provide a most reliable and convenient medium for facilitating such access not only in developing countries like ours, but also elsewhere. This is evident from the fact that even in the present day stress on various computer and I.T. based applications for information-access for the blind, technology continues to be harnessed for developing simple as well as highly sophisticated Braille-related aids and appliances. Our objective in the succeeding paragraphs is to make a brief review of what technology-applications have been able to achieve in the areas of Braille-writing, printing and reading, so that some useful and practical indicators could be identified to meet the needs of Braille users in our country.

## Trends Abroad

Innovative efforts based on a wide range of technology-applications in Japan, Europe, Canada, U.S. etc. have led to the development of a large number of devices involving the use of rudimentary to highly complex applications in fields relating to the use of Braille. These devices range from the conventional Braille-writing slates and frames to computer-aided gadgets and machines of varying kinds.

## Simple Devices

Perhaps, the most commonly used and cost-effective Braille device to date, continues to be the Braille-writing frame and stylus. These frames and slates are now available in various sizes and dimensions. These include a single-line Guide with up to 25 cells which produces Perkins size Braille and is useful for labeling and similar tasks. Also available are Braille Playing Card Slates requiring slotting the playing card into the frame and using a stylus to put Braille markings at the corners of the card, as well as Braille Mini-Slates with note-books to facilitate convenient noting of addresses and telephone numbers. There are also a wide variety of two-line, four-line and seven-line frames. We also have slates of different types with a Board underneath to facilitate convenient writing on desk-tops. Further, there is the very popular Marburg Braille Frame which produces interpoint Braille with up to 30 cells per line. The Indexed Braille Address Book having about 100 blank address sheets with 26 Brail led alphabet index cards at the front of the address book, is another example of simple and robust use of common sense to facilitate easy listing of addresses in Braille.

## Braille Writers

From simple Braille frames and slates, we move on to Braille writers of different types. Among these, the most commonly used is, of course, the Perkins Writer. This metal Braille writing machine has the twin benefits of being upward writing and easy checking of Braille as it is written. Other varieties of Perkins Writers are: Jumbo Cell Perkins producing larger dots which are useful for beginners or those

who have difficulty in reading standard size Braille; the Unimanual Perkins which has been adapted for one-hand use; Perkins Dymo Adapter which is ideal for labeling; Perkins Correcting Slate - a 4-line metal slate for correcting Braille errors.

Also available on the market are some other Writers, e.g. Light Brailier with 32 cells weighing 2.3 Kg., Apollo Brailier with up to 49 cells weighing 4.3 Kg. — both produced at the Japan Braille Library, Tokyo, and Eurotype Writer, which is a light and robust mechanical Brailier having a maximum of 44 cells per line produced at Marburg, Germany.

## **Vocational Devices**

Through the application of simple and intermediate technology, many training and vocational devices have become accessible to the blind, some with Braille (or more appropriately) tactile markings. We can identify in this category, various types of scales, rulers, tapes and other measuring devices along with meters and gauges. A device of considerable employment potential in countries like ours is the one which facilitates taking down dictation in Braille shorthand. There are two such important machines. The first is the Marburg Tape Printer which produces a continuous line of Braille on 13 mm paper tape. The Tape Printer fits into a plastic case which has rubber feet to help prevent the machine from sliding about. This device is also known as the Marburg Stenography Machine, produced originally in Germany. The other Braille shorthand machine is designed to take dictation at up to 140 words per minute with characters produced upwards on a 24 mm. wide paper roll with adjustable tension and extension arms to wind back a completed roll.

## **High-tech-applications**

Electronics and information technology-based applications have also contributed towards the development and production of several highly beneficial, albeit expensive, Braille related equipment. Mention must be made in this category of devices like Mountbatten Brailier Standard and Mountbatten Brailier Option 2, which are a kind of personal Braille embosser for connecting to almost any type of personal computers and having the capacity of embossing Braille at 8 characters per second. These can also operate as a model electronic Braille-writer with 128 K memory.

Another notable device of this kind is called Braille Lite. It has 18-cell or 40-cell refreshable Braille output with a Braille keyboard and simple command structure. It facilitates storage for 800 pages of Braille in up to 77 files. It also has the necessary facility for converting Braille into print instantly.

Yet another special high-tech contribution presents itself before us in the form of a Braille Display. This is an electronic device which can be connected to a computer to produce into Braille the material available on the computer screen. This is the much talked-about "paperless Braille" of today. The Display represents a line of text with the help of Braille cells. Each cell has a 6 metal or nylon pins that are driven electro-mechanically. The user can read a line of Braille cells by touching the pins of each cell as they come up. Additional lines can be read after refreshing. The number of Braille cells in a Display can vary from 20 to 80.

## **Braille Production**

Preparing reading material in Braille in the desired number of copies has been posing a formidable challenge to the ingenuity and skills of engineers and technologists through the years. Various modes and methods had been tried out. Among the earlier ones was the use of a Braille Duplicator, which involved inserting pegs into plates to form Braille characters. The technique of vacuum forming of plastic sheets with the help of Thermoform machines the master copy being prepared on Brailier, has also been in

vogue. Then, for a long time, the mechanical and electronic Braille stereotyping machines were used for preparing the master copy on metal plates and taking out Braille copies on paper through pressure technology. However, these machines have now been almost completely phased out in the developed countries.

The advent of Braille translation softwares and computer—aided Braille embossers 15 to 20 years back has brought about a veritable revolution in the field of Braille production through the application of modern technology. The translation softwares facilitate instant conversion of text into Braille and vice versa through appropriate computer programmes. Such programmes can access direct input from a range of inputs like word-processed files, data-based files, optical character recognition etc.

One, of the most widely used translation softwares is that of Duxbury Systems. It works with all major Braille printers. It allows creation of highly accurate Braille for textbooks, office memos, schedules, letters etc. irrespective of whether the user is familiar with the Braille code and rules or not. However, to date it does not produce material in Indian languages.

In addition, Edgar: the Duxbury Braille Editor is most helpful for sighted or blind transcribers who prefer to use only 6 - key editing without the full Translator. Braille can be composed and edited on-screen.

A wide spectrum of electronic Braille embossers is available today. These include light and portable printers of the speed of 8 to 15 characters per second, to heavy-duty machines having the amazing speeds of 400-600 characters per second. A Company in Europe has also come up with an embosser capable of producing Braille at the astounding rate of about 800 characters a second. It is, thus, very much within the realms of possibility now to meet the entire requirements of educational and other reading material in Braille for both blind children and adults.

## **The Indian Situation**

In sharp contrast, we, in our country have mostly been able to utilise so far simple, even rudimentary technology in this behalf. The establishment of the Central Braille Press in Dehra Dun in 1951 and the setting up in Dehra Dun itself of a Workshop for the Manufacture of Braille Appliances around 1954 marked the starting point of the country producing Braille books and equipments. A few leading NGOs and some private agencies also took up these tasks later on. During the last decade or so, some important institutions of science and technology have also, happily, undertaken some work towards the development of a few prototypes or models of equipment and software involving the use of intermediate, even advanced technology.

The wide variety of Braille equipment produced at the Workshop, which now forms a part of NIVH is heavily subsidised by the institute and is, therefore, within reach of the average user costwise. On the other hand, the Braille devices produced by NGOs and private manufacturers are rather costly, since these are not subsidised and their quality, too, leaves a lot to be desired, in some cases.

Yet it must be stated that India is among the very few developing countries producing indigenously a wide range of Braille devices. We have several Models of Braille-writing frames and slates. An interpoint Braille writing frame developed and produced at NIVH has proved extremely popular. A manual Braille writer, the Taj Brailler was also manufactured about two decades back. A new Braille writer has now been produced by a company in Gujarat and an organisation in Tamil Nadu has undertaken the task of assembling and supplying Perkins Braille writers. A Thermoform machine and a conventional Braille Duplicator are also available within the country as well as Braille shorthand machines. In the area of the application of advanced technology, mention must be made of special softwares being developed to facilitate Braille

translation in Indian languages as also designing a computerized classroom teaching device. The development of an indigenous Braille embosser has also been attempted.

The country also has a number of computer-aided Braille embossers Imported from abroad and being put to good use for producing textbooks and other reading material in Braille. Some State Governments and a few smaller NGOs are, however, still using the conventional machines for Braille production, although they, too, are looking for suitable alternative and cost-effective technologies.

## **Conclusion**

Thus, it would be obvious from the foregoing that technology throughout the world has played a significant role in developing new, exciting and need-based devices pertaining to the use of Braille. We, too have built up quite a reliable base in our country for the development and production of the needed Braille devices and reading material during the post-independence years. However, there is no room for complacency. We have a large present and prospective Braille-using population to cater for. We need more research and accelerated production. The establishment of the Technology Project in the Mission Mode under the Union Ministry of Social Justice and Empowerment some years back marks an important milestone in the country's efforts to stimulate and promote research and development in Braille and other fields. The recent Legislation for Persons with Disabilities, also lays stress, through its sections 28, 42, and 48 (c) on appropriate Governments promoting and sponsoring research for designing and developing the needed assistive devices for disabled children and adults.

Let us, therefore, pool all our efforts and resources together for developing appropriate technologies and devices relating to the use of Braille in the country and strengthen ongoing endeavours.

# Development of Low Cost Teaching - Learning Material for Braille

By :

Dr. (Mrs.) Swati Sanyal

Braille is a medium of communication and important learning mode for most of the students with visual impairment. The reading medium of Braille has been called "the Key to opportunity" (Schroedar, 1989), "the means to emancipation, the greatest gift to the blind" (Eldridge, 1979), "a viable equivalent of the print media" (Stephens, 1989), by various authors. In spite of being so important access to literacy, a general lack of interest towards Braille learning is being shown by many visually impaired children. The easy availability of electronic media is often held responsible for this. But the teachers cannot shy away from their responsibilities by putting the blame on the extra facilities that today's generation is getting. It is primarily the responsibility of the teachers to devise interesting ways to teach Braille and develop a positive attitude towards learning Braille among children.

A sighted child, from a very early age, gets to see a lot of interesting written materials around him, which tempts him to learn to read. He may pretend to read by copying or imitating others. He also has an additional advantage in that he can learn through pictures. A variety of interesting pre-reading materials are available to him. A visually impaired child, on the other hand, hardly gets any such opportunity. But the teachers can offset many of these disadvantages through careful planning and preparing of simple yet interesting teaching learning materials. It is needless to say here; that such teacher-made material should essentially be low cost or practically be no cost.

Before getting into the details of the various teaching learning materials for Braille that a teacher can prepare, it will not be irrelevant to quote a eight year old Swedish boy, who just discovered the mystery of Braille reading.

"The fingers are touching and then it comes into the **fingertips** and when you have thought enough for a while, it comes, out that it is called "A" and "B" and I don't know how it comes out. It comes to the brain and so it thinks and then you say the words in your mouth. It is so strange, that it can come through the fingers into the mouth."

"Strange", it may seem to the child, but his description of his learning process highlights two most important factors in Braille reading i.e., tactual discrimination ability and perceptual ability (the kind of mental organization needed for Braille Characters' recognition). Before Braille is introduced, a child must have a clear group of basic concepts (such as same and different and positional awareness), good tactile discrimination, skills and adequate language to understand and express symbolic thought. Most of these Braille readiness concepts are important for any visually impaired child to learn, regardless of whether or not he will be able to read Braille. Before Braille itself is specifically introduced, however it is important for the multidisciplinary team to decide if learning Braille is a realistic goal or educational priority for each individual child.

Keeping in view the various skills that are needed to be developed for effective Braille teaching at every stage the following materials could be used.

## **A. Teaching learning materials for Pre-Braille stage.**

A blind child reads with his fingers and this process involves discrimination through touch, coordinated hand movement and muscular control. This would mean that various materials and activities should be provided to the children to acquire these skills to a sufficient level.

### **Activity I**

#### **Texture Matching**

##### **Skills**

- \* Tactile discrimination
- Sorting
- Object identification

##### **Material**

Three boxes and an assortment of common items found in student's environment spoon, tooth brush, leaf, pebbles, cloth, cotton, beads, sticks, feathers etc. introduce new items often. Select wide variety of objects and textures.

##### **Procedure**

- Select a group of objects that have two grossly different attributes such as rough and smooth.
- \* Place all the items in a box.
- Have students select an item from the box and identify it as rough or smooth.

Set up the activity as sorting task.

- Place two other boxes on the table and designate one for rough and the other for smooth items.
- Have the student identify the attribute of the item and place it in the appropriate box.

##### **Variations**

As student's tactual discrimination skills develop, increase the difficulty of the task. Different clothing textures could be used and students may be asked to arrange them according their graded smoothness/roughness.

### **Activity II**

#### **Shape matching**

##### **Skills**

- Tactile discrimination
- Sorting
- Recall

## Material

Cut outs of regular figures like squares, circles, triangles from cardboard, booklet prepared by pasting the similar shapes.

## Procedure

- \* Show the circle to the student
- \* Ask him if he has ever seen similar shape in his environment. Do not bother the child with the geometric names of the shape.
  - Then show him the triangle.
  - Ask him about the difference between this and earlier shape.
  - Show the booklet.
- \* Ask the student to find out the shapes seen.
  - Give him the square and ask him on the same lines.

## Variations

This exercise is very useful for developing sense of touch. To develop tactile sense still finer, draw similar shapes on relief papers with the help of spurwheel.

### Note:

The activity is not a one-day exercise. All the shapes should not be shown to the child at one time.

Various researchers have investigated the relationship between certain tactual abilities and Braille reading. Considerable attention has been paid to the mechanics of Braille reading, with factors such as hand position, hand dominance, finger movements, finger pressure, regressive movement and return sweeps being the foci of studies by Maxfield (1925), Smith (1929), Burklen (1932), Fertsch (1947), Lowenfeld & Abel (1967). Children who do not develop proper Braille mechanism often become slow reader. For developing a proper Braille mechanism graded activities need to be performed.

## Activities for Developing Proper Braille Mechanics

### Activity I

#### Beginning or End

#### Skills

- Tactile discrimination
- Tracking skills
- Left/right orientation

### Materials

- \* Braille paper with lines of Braille letters on each page with various lengths
- \* Pushpin
- \* Heavy Cardboard

## Procedure

- \* Give student a paper with a line of Braille. With either same Braille letters or full cell.
- Ask the student to find the beginning of the line & track along the line from left to right until he reaches the end.
- \* As the student understands the beginning & end put several lines on one page & have him find the beginning & end of each line.
- " Attach the Braille page to a heavy piece of Cardboard, and have student place a pushpin at the beginning & end of each line.
- \* In the beginning the child may use the index finger of his one hand for going through, the line. After some time encourage him to use index fingers of both the hands.

## Variations

- \* For students who are able to identify many letters of the alphabet. The Braille lines can be made up of various letters of the alphabet. Have student identify which letter is first and which letter is last in each line.
- \* Once student has mastered the beginning and tracking across the line, place two or more lines on each page. Have student count the number of cells in first line. Then locate the beginning of the next line, and count the cells in that line.
- \* Some cells in each line could be left vacant. Ask the student to find out the vacant cells in each line.

## Activity II

### Turn the Page

#### Skills

- Scanning
- Find the beginning or end
- Turning the braille page

## Rationale

In order to make students read Braille with reasonable speed, they should be given practice of handling Braille books which are often bulky. They should learn to turn the pages with ease.

## Materials

- \* Used Braille sheets tied to make a dummy/simulated Braille book.

## Procedure

- \* Give student a book made of rough/used Braille sheets.

- Have student locate the beginning of the line of each page.
- Ask them to scan from left to right of each line with light touch.
- \* Help him to learn quick backward sweeps.
- Once he reaches the end of the page Show him the way to turn the page.
- Give him regular practice of this activity.

### Activity III

#### Which letter is different?

##### Skills

- Tactile discrimination
- Letter recognition

### Materials

Index cards with Braille letters (cut the top left corner to help student orient the card properly).

### Procedure

- \* Give student an index card with four Braille letters on it. Each letter is double-spaced and three of the four letters are the same (e.g. b, b, c, b).
- \* Have student identify which letters are the same and which one is different.
- \* This activity can be done independently by each student by asking him or her to place a sticker on the one that is different or erasing the one that is different.
- \* Teacher can later check the work done by each student.

### Variations

This activity can be done by searching for the different letter from a box containing various cards with single letters on it.

Once the first stage of Braille teaching i.e. Pre-Braille stage is over the student should move on to the stage of actual Braille reading. This stage could be named as "Introduction to Braille". Prior to actual teaching of reading Braille, it is necessary that some motivating activities are carried out by the teacher, which will create healthy environment for the child to read Braille (Athalekar 1993).

These activities could be as under:

1. Paste labels with child's name on his personal belongings.
2. Some common objects like cups, saucers, plates, bottles, boxes etc. as collected and their names are pasted on them in Braille.

How to teach Braille to a visually disabled child is a researchable question. Nolan & Kederis (1969) found through a study that the unit of perception in tactual reading is the individual Braille character observed over a temporal interval. It would follow from this that Braille reader first will p erceive single letters and then combine them into a meaningful word.

However, various researchers have opposed the above finding. According to them sentence method, word method are better way of teaching Braille to children. The sentence-word-letter method is suggested by Mani (1992). It is very difficult to pronounce judgement on the comparative merits of various methods of introducing Braille. Sentence and the word method have distinct advantages over letter method, but we will go away from the reality if we ignore letter method. Almost every good Braille reader of our country has learnt Braille through letter method. What is important to remember is that children differ in their learning styles and accordingly teacher should prepare and use various types of learning materials and adopt a suitable method. For teaching reading a lot of teacher-made Braille text materials should be used. Following are certain material and activities suggested for the purpose.

## **B. Introduction to Braille**

### **Activity I**

#### **Sorting Braille words**

##### **Skills**

- Tactile discrimination
- Word recognition
- Letter recognition

#### **Materials**

Flash cards having familiar words. Cards could be made up from thermoform papers or X-ray plates for larger durability. Flash Cards should be of about 8 cm. in length and 5 cm. in width. It is necessary that after writing a word or sentences in Braille there should be a Braille line below it. The line helps the child to place the flash card before him in right position (Athalekar 1993).

#### **Procedure**

- \* The Flash Card containing a familiar word will be given to the child.
- \* Show him the word by holding his hand in such a way that the tip of his index finger of his right hand is placed over the first letter and move it through the next.
- \* While doing so, tell him the word.
- \* After reading this word for several times the child will know these letters.

#### **Variations**

- \* This word could be written on one side of the Flash Card and on the other side this word could be given in the midst of two other words.
- \* Ask the child to identify the word from the various words.
- \* The teacher can make a number of Braille flash cards using familiar words.

Once the child is able to recognize the words through shapes, activities related to word analysis and synthesis could be taken. With analysis the child will know the letters of the word and by synthesizing known letters may form new words.

A creative teacher can think of various activities using these materials to teach Braille reading.

## Braille Writing

Reading precedes writing. Unless the child is familiar with the dot configuration of the words which are written he cannot check what he writes. Moreover writing in Braille slate and stylus needs enormous muscle control. Due to these important reasons Braille writing is usually taught after Braille reading. A child needs training in holding the stylus, fixing the paper and placing the guide. The teacher can show him how to write. The child should also notice that writing is done from right to left. His attention should be drawn to the sound while punching each dot.

Before the starting of writing of Braille words, the child must be asked by the teacher to punch all dots of the Braille cells after sufficient practice, he could be asked to punch the dots of upper cell and then those of lower cell (Mani, 1992).

To bring about certain variety in writing activity, following type of exercise could be tried.

### C. Introduction to Braille Writing

#### ACTIVITY

##### Copy Cat

##### Skills

Braille word recognition  
Braille writing

#### Materials

- \* Flash Cards with Braille words
- \* Braille slate, stylus
- \* Braille paper

#### Procedure

Give student a box of cards having names of different animals:

- \* Student selects a card from the box.
- Student identifies the word.
- \* Student tries to copy it on the slate.
- \* This activity requires some supervision to ensure that the student is starting from the right side of the card and duplicating the card correctly.

#### Variations

This activity may be played as a game for two students.

- \* Each student has to select a card.
- \* He must identify the word verbally and then copy it on his slate.

- \* If the student is able to correctly identify the word he gets one point.
- \* If he is able to duplicate the word he gets another point.
- \* The students with more points win.

## Activity 11

### Initial Consonant recognition

#### Skills

- \* Initial consonant recognition
- Taking turns

### Materials

#### Game Card

- Divide a 15 cm. by 15 cm. card into 5 equal squares.
- Prepare blank 3 by 3 cm. cards that fit into the squares.
- Word vocabulary list.

### Procedure

- Each student is given a game card.
- \* Each square contains a Braille letter.
- \* The teacher says a word such as "boy", and students are to search their card for the letter that makes the beginning sound.
- \* When the student finds the letter "b" he covers it with a blank.
- \* The objective is to cover all the letters in the card.

### Variations

The game could be played with the whole word identification instead of initial consonant recognition.

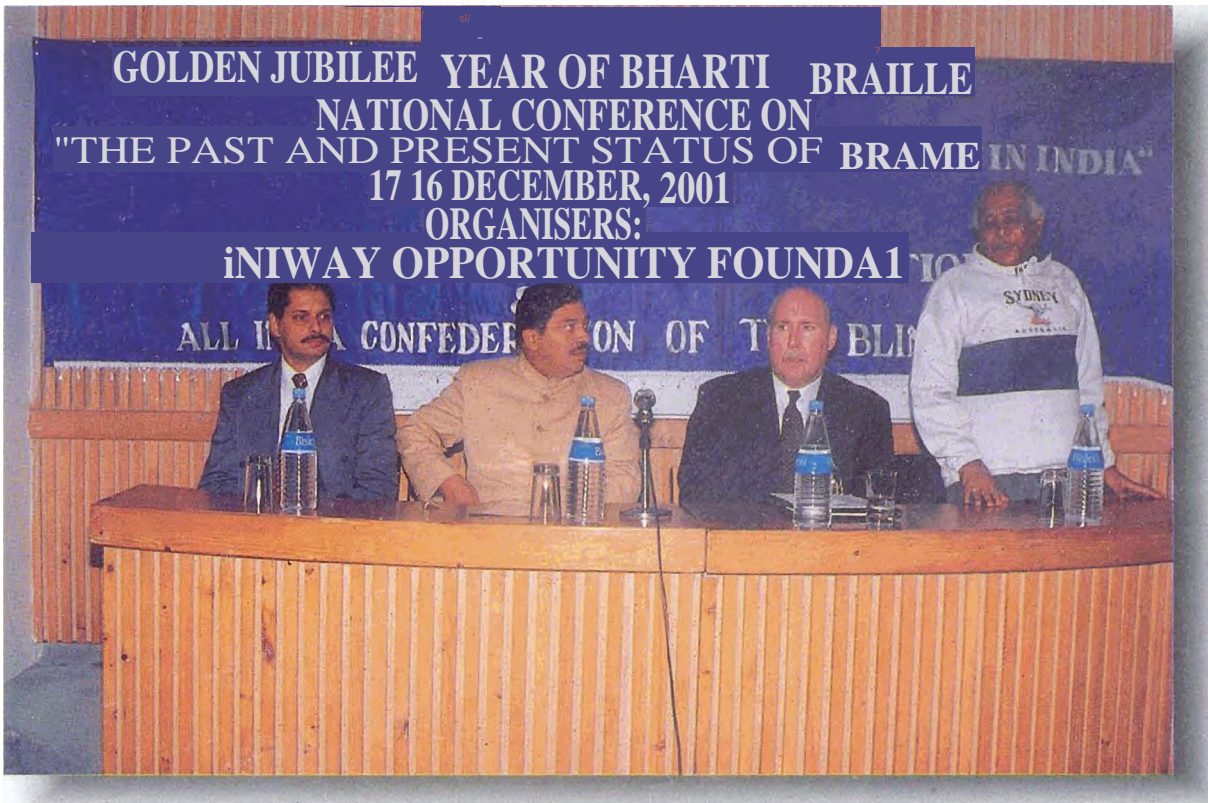
It is important to make sure that child's interest in reading is maintained and Braille becomes a natural medium for gaining knowledge for him. For the sustained interest of the students a teacher can also take the following steps.

- a. Provide simple story books in plenty which can be finished fast.
- b. Have a soft board in the classroom wall and on it, put up.
  - Various small articles, poems, stories etc.
  - Headlines of interesting news items.
  - Class Time Table etc.

All these and many more teaching learning material could be prepared by teachers. But they should be used well and changed often to make learning effective.

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*Mr. K. Thiagrajan, President, AICB welcoming the guests at the Inaugural 'Unction.*

*Delegates at the Conference.*





*Mr. Rajat Banerji, Manager, Amway Opportunity Foundation proposing a vote of thanks in the Inaugural Session.*

*Major H RS Ahluwalia, Chairman, ;Rehabilitation Council of India, delivering Valedictory Address.*

