PROCEEDINGS

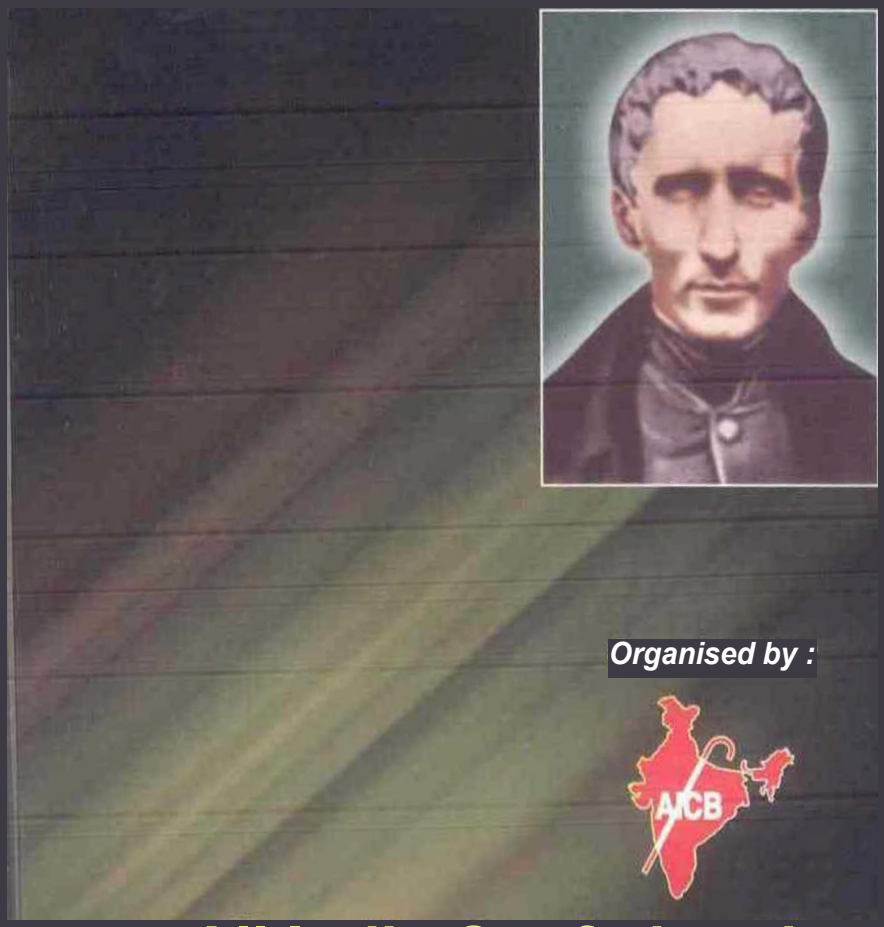
OF

THE CONFERENCE

ON

THE STATUS OF BRAILLE IN THE ABU REGION

NEW DELHI, DECEMBER 22-23, 2008



Organised by :

All India Confederation of the Blind

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Mr. A.K. Mittal, President, AICB, welcoming the delegates.

Dr. Maw' Kumar, Chief Commissioner (Di sabilities), Government of India delivering the inaugural address.

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New Delhi, December 22-23, 2008

Sponsored by:

NABP, Norway,

CBM, Germany,

European Union of the Blind,

DAB, Denmark,

The Braille Mainichi Newspaper Co., Japan

Organised by :

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1. INTRODUCTION:

1.1 t The period 2008-09 assumes special historic significance in work for persons with visual impairment. It marks a crucial milestone in the quest of visually impaired persons to achieve a status of dignity and contributory citizenship across the world. As is well-known, January 4, 2009 is the 200th Birth Anniversary of Louis Braille, who laid, in the real sense, the foundations of genuine empowerment for the visually impaired. Through his invention of the 6-dot embossed script named after him, he did more than anyone else to make it possible for visually impaired children and adults to acquire literacy skills and have access to information and knowledge so essential for their all-round development. That Louis Braille's invention has remained virtually unaltered during the last over 150 years, despite the concept of diverse audio and digital technologies, is a real tribute to the genius and foresight of this great emancipator of the visually impaired.

1.2. The event of Louis Braille's birth bi-centennial is being observed all over the world with great enthusiasm and fervour. All India Confederation of the Blind (AICB), it would be no exaggeration to say that the State, took various important initiatives to have the occasion commemorated in a fitting manner in the country. As a result, largely, of AICB 's persistent endeavours suitably supported by other leading NGOs working with the blind in the country, the Government of India , drew up a year-long programme of activities. AICB itself also undertook to organize several path-breaking events on the occasion alongside other NGOs.

1.3. It was in this context that AICB decided early in the spring of 2008 to convene a conference to discuss the status of Braille and position regarding Braille-development in its different forms and manifestations. Since Louis Braille belonged not just to one country or one single language-group, AICB thought it fit to extend the range and scope of the Conference and make it at least regional by encompassing countries in Asia, especially those covered by the Asian Blind Union (ABU) region of which India and AICB are important constituent members.

l .4. With this wider canvass in view AICB looked around for supporters to conduct the event. AICB 's proposal evoked spontaneous and most encouraging response from various international funding organizations, which bears testimony to the high esteem in which Louis Braille and his contribution are held far and wide. Thus, the following organizations came forward and sponsored the Conference:

a. Norwegian Association of the Blind & Partially Sighted (NABP)

b. Christoffel Blindenmission (CBM)

c. European Blind Union (EBU)

d. Danish Association of the Blind (DAB) and

e. Braille Mainichi Newspaper Co., Japan.

AICB is deeply indebted to each of these supportive organizations for their invaluable assistance.

1.5. Assured of such timely and generous support, AICB proceeded in full vigour to proceed with arrangements for the Conference. As per the decision of its Central Executive Council, AICB decided to hold the Conference at the prestigious venue of India International Centre, New Delhi, on 22" and 23'[d] December, 2008.

1.6. The guiding principle of the Conference was to invite participation from various shades of opinion and interest concerning Braille. Thus, the senior academicians, programme administrators, heads of institutions for the blind, representatives of Braille production centres, Braille and language teachers, blind musicians and, of course, Braille users were invited from within the country. In addition, Braille specialists/users were invited from all of the 3 sub-regions of Asian Blind Union. The response was most heartening. The Conference had 119 participants concerned with Braille production/Braille teaching/administration representing 21 States of the country. There were, in addition. 16 representatives from the following ABU countries:

Afghanistan, Iran, Jordan, Lebanon, Nepal, Pakistan, Sri Lanka, Syria, Tajikistan, Uzbekistan and Yemen.

Two leading international organizations—International Council of Education for People with Visual Impairment (ICEVI) and NABP, were also represented through their senior officers viz. Secretary General and Chairperson, West Asia Chapter for ICEVI and International Director for NABP. Sight Savers International also sponsored a number of their India-based representatives.

A List of Conference participants is annexed **(Annexure-A)**

2. CONFERENCE SESSIONS:

2.1. The Conference opened with an inaugural session at 9.30 a.m. on 22" December. Dr. Manoj Ktimar, Chief Commissioner (Disabilities), was the Chief Guest. The children of the AICB Special School for the Blind commenced the proceedings of the opening session with a most cordial and mellifluous welcome song. Mr. J.L. Kaul, Secretary General, AICB welcomed the guests and the participants and expressed the organization's sincere gratitude to all of the

Welcome song by the students of
AICB Capt. Chandan Lal Special School for the Blind

sponsors. Mr. A.K. Mittal, President of AICB explained the objectives of the Conference and asserted that the Conference seeks to salute the memory of Louis Braille, review the situation regarding Braille books, writing devices, Braille teaching etc. in the participating countries and with a practical and workable Plan ofAction. After inaugurating the Conference, Dr. Manoj Kumar, in his Address, delineated the various innovative measures and steps taken by his office for ensuring protection of rights of persons with disabilities, including the visually impaired and addressing their grievances with speed and efficiency. He expressed the hope that new and challenging employment opportunities would be accessible to visually impaired persons as a result of these initiatives. He assured full support from his side in enabling visually impaired children to have textbooks in Braille as early as possible.

Dr. Manoj Kumar, Chief Commissioner (Disabilities), Government of India lighting the lamp to inaugurate the Conference.

2.1.1. An important facet of the opening session was the presentation of a Keynote Address by Dr. V.P. Varma. Dr. Varma, Retired as the Professor, Department of Philosophy, University of Delhi and had also functioned as the Head of the Department. He is the author of 14 books on Philosophy which are widely read and is the recipient of the prestigious **Shankar Puraskar** (Shankar Award) for his contributions in the field of Philosophy, Arts and Culture. His latest book is a well-researched biography of Louis Braille being published by AICB. In his address, Dr. Varma, paying rich tribute to Louis Braille spoke of the invaluable role the script has played in the successes he has achieved in his career. He considered Braille a

Dr. V.P. Varma presenting Keynote Address

never-failing blessing for the visually impaired opening up new and highly esteemed work options and careers for them. He concluded his Address by making several suggestions for promoting Braille, prominent among which were the textbooks in audio format should not be provided at the school stage and Braille textbooks be made compulsory for all Braille-using school children; a National Braille Competency Test be devised and administered and only those clearing the test be appointed as teachers of the blind; achievements of Braille-using successful blind achievers be disseminated widely through the media.

The full text of the Keynote Address is annexed **(An nexure-B).**

2.2. Business Sessions:

2.2.1. In all, the Conference had a total of 6 business sessions during the two-days of deliberations. Each session dealt with an important topic relating to Braille.

2.2.2. The format of the session was so designed as to provide sufficient time and scope for the participants to present their comments/points-of-view. Each session commenced with a detailed presentation by a noted expert and was followed by extensive discussion. Care was taken to ensure that the representatives from outside India get sufficient opportunity for making their interventions.

2.2.3. Each session was chaired by a reputed academician/ administrator/Braille expert. An efficient Braille user was designated as the Rapporteur for each session. The entire Conference-deliberations were coordinated by Dr. Anil Aneja, Vice President, AICB.

2.2.4. Session-wise Conference programme is annexed **(Annexure-C).**

The six papers presented at the Conference are annexed **(Annexure-D).**

A summary ofeach of the Business Sessions follows.

3 SUMMARY OF SESSIONS:

3.1. **Business Session-1:** "Status of Braille in Different Regions in India and Participating Countries".

a. Chairperson: Dr. Anita Julka, Professor, Department of Education of Groups with Special Needs, NCERT, New Delhi;

b. Principal Speaker: Dr. S.R. Mittal, Professor, Special Education, Department of Teacher-Training and Non-Formal Education, Jamia Milia Islamia, New Delhi;

c. Rapporteur: Mr. Kamalbir Singh, Principal, Model School for the Visually Handicapped, National Institute for the Visually Handicapped, Dehra Dun.

In her introductory remarks, Professor Julka, regretted the fact that Braille was not being given the high attention it deserves in various educational settings, especially inclusive education programmes under SSA (Education For All) Scheme. She narrated an incident where visually impaired students were given ink-print books just for the sake of **being given something.** She asserted that the National Curriculum Framework, however, includes Braille and sign language for study. She underscored the vital significance of Braille and emphasized the need for assigning to it a place of high importance. She thereafter introduced the principal speaker.

From left to right Mr. Kamalbir Singh, Dr. Anll Anoja, Dr, Anita Julka, Dr. S.R. Mittel

In his presentation, paying tribute to Louis Braille on his bi-centennial birth anniversary, Professor Mittal expressed his grave concern over the fact that very few visually impaired children have access to Braille textbooks and that, too, in extremely limited numbers. He regretted that not only textbooks are scarce, but Braille is also not taught in our schools in a systematic manner. There is an unfortunate apathy towards Braille among many school-administrators and teachers who lay unnecessary emphasis on the use of audio material. This creates various problems for the users. According to Professor Mittal, the country has about 250 small Braille printing units and if these are properly managed, Braille books can be provided to all children easily. He went on to offer a number of suggestions, stressing the need for making it mandatory for all teachers of the visually impaired to show their competence in Braille before they are re-registered with the Rehabilitation Council of India. He called for a total ban on the use of audio textbooks for visually impaired children up to class-12 and providing them all textbooks in Braille. He also highlighted the need for giving Braille greater visibility by using it for all practical day-to-day purposes for visually impaired persons.

The presentation was followed by comments from delegates from other countries. The representative from Lebanon stated that there were about 8000 visually impaired students in his country and 3 special schools. About 15% students received education **in regular** schools. Nothing apart from school books was available for the visually **impaired** students in the country and there was no special curriculum for teaching **Braille..** Most of the work of Braille production was organized **by NGOs and little government effort was visible in that direction.**

The representative from Syria pointed out that Perkins Braillers were not available for the majority of students in his country, though there were some Braille printers. Shortage of Braille paper was a major hurdle.

The representative from Jordan informed that while there were some residential schools for the blind imparting elementary education, the number of students pursuing higher education was very limited.

In Yemen, according to the country's representative, there were 11 special schools but no Braille printing press. That is why the students had the only option of depending on audio material.

The delegate from Iran intimated that the printing of Braille books was mostly undertaken by NGOs and there were about 5000 students, half of whom study in special schools and the remaining in integrated settings.

The representative from Uzbekistan stated that a large number of blind and low vision children are studying in special schools, with the lower age limit for admission being seven years.

The delegate from Tajikistan speaking through a translator pointed out that the country had about 3000 visually impaired children. Of these, about 440 were studying in special schools and many of the others were going to regular schools. No special equipment were available for Braille printing and they had to depend upon their neighbour, Uzbekistan and also obtained help for Braille printing through Japanese Embassy. A special TV film had been prepared on Louis Braille and special education.

The Sri Lankan delegate told the participants that about 1000 Braille books were available through 13 libraries in the 3 languages spoken in the country. There were 12 Braille presses and the students use Braille extensively. Textbooks were made available in Braille by the government.

The following points/comments/suggestions were offered by the Indian participants:

a. There is an urgent need of having a national repository to facilitate sharing of Braille material.

b. There should be proper training in Braille and mobility and visually impaired children should be admitted to regular schools only after such training.

c. Annamalai University, Chennai had developed a device which would enable the visually impaired to read news headlines with the help of 'raised bubbles'.

d. There should be a separate post of a Braille teacher in all schools having visually impaired students.

e. Special attention has to be given to the needs of Braille books in the North-Eastern region.

f. Knowledge of Braille should be made compulsory for visually impaired aspirants of group A and B posts.

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f. Knowledge of Braille should be made compulsory for visually impaired aspirants of group A and B posts.

a

g. Braille Code for Manipuri script should be recognized at the appropriate level.

Prof. Mittal responding to some of the comments stated that as a result of the initiative of AICB, Braille is likely to be introduced by University Grants Commission as an optional subject at the Under-Graduate stage and as a compulsory subject at General B. Ed. courses. He also wanted that a special award may be instituted for the best Braille Educator.

Dr. Anil Aneja concluded the session by thanking the Chairperson and the principal speaker as also all participants.

3.2. Business Session-2: "Providing Textbooks and Reading Material in Braille - The Need of the Hour".

a. Chairperson: Mr. S.K. Rungta, General Secretary, National Federation of the Blind;

b. Principal Speaker: Dr. M.N.G. Mani, Secretary General, ICEVI;

c. Rapporteur: Ms. Sachu Ramalingam, Secretary, AICB.

The Speaker made a broad survey of the scenario obtaining in ABU- countries with regard to Braille production and Braille teaching, on the basis of the responses received on the questionnaire circulated for the purpose by AICB. The following information emerged:

a. Most countries do not produce any Braille writing devices;

b. Not much data was available regarding digital resources available with various Braille presses;

c. Many countries use Braillo-400, Everest and Index printers for Braille production, while obsolete printing equipment is used in some countries;

d. Non-textbooks material is minimal in Braille and Mathematics books are scarce;

e. No special device is available to teach Braille and Braille is taught through conventional techniques.

The speaker then went on to talk of the ICEVI and WBU joint global campaign for `Education For All Visually Impaired Children'. He intimated that Hong Kong Resource Centre has agreed to be the central focal point for distribution of various devices.

The speaker made several important recommendations, which included:

a. The question of non-availability of contractions in various languages should be carefully reviewed;

b. Children in inclusive education setting must be ensured adequate textbooks in Braille and teaching of Math and Science must be an integral part of school curriculum for them and the practice of allowing exemptions be given up;

c. An appropriate Braille Authority may be setup at the national and regional levels;

d. Adequate supply of Braille paper for production of books needs to be ensured;

e. Modern Braille printing technologies must be used more extensively;

f. Unified Braille Code may be promoted in Arabic speaking countries;

g. Training programmes need to be conducted in Braille Mathematics Codes and maintenance of Braille equipment and Embossers.

The speaker also highlighted roles of national governments in ensuring adequate supply of Braille books at greatly reduced charges. He suggested that the governments may retain the same school curricula for at least 5 years to avoid frequent production of books which is costly and time-consuming.

From left to right Mr. S.K. Rungta, Dr. M.N.G. Mar

The governments may also ensure proper coordination in respect of Braille production by assigning specific text to individual presses, promoting preparation of master copies in e-format on a large scale and having embossing facilities at selected centres.

The speaker also cited various provisions of the UN Standard Rules and UNCRPD which could serve as effective means to persuade governments to provide required Braille textbooks and appropriate learning material at affordable costs. He named various softwares and programmes which could be considered by the governments.

The speaker concluded by suggesting the following specific sequence of Braille production on professional lines:

a. Editing stage;

b. data entry stage;

c. proofreading stage;

d. teaching material (activity-based learning);

e. preparation stage;

f. Printing stage;

g. binding and dispatch;

h. price subsidy.

The session was highly interactive with the following issues being raised :

a. Technology has a key role to play and publishers should be persuaded to bring out print material in a specific e-text format compatible with the requirements of instant Braille conversion;

b. Braille textbooks must carry tactile presentations to facilitate effective "learning by looking" which is the general practice in print textbooks for younger children;

c. Textbooks at school-level must be given in Braille only;

d. Attempt should be made to develop an inter-point Braille writer;

e. The need of Braille books for visually impaired students studying at the university-level must also be addressed;

f. General class-room teachers should be suitably sensitized about the importance of Braille .

The Chairperson concluded the session by summing up the proceedings and called for joint projects with ABU and WBU for meeting Braille reading requirements on a large scale.

The session came to a close with a vote of thanks to the Chair.

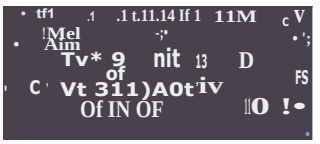
3.3. Business session-3: "Critical Issues Relating to Braille Codes in Participating Countries".

a. Chairperson: Mr. Amer Y. Makarem, Immediate Past President, ABU.

b. Principal Speaker: Mr. A.K. Mittal, President, AICB and Treasurer, WBU.

c. Rapporteur: Dr. R.S. Chauhan, Secretary General, Convention of the Blind Intellectuals, Dehra Dun.

The Chairperson introduced the speaker who, then, commenced his presentation stating that AICB had circulated a comprehensive questionnaire among ABU affiliates and some of the questions concerned the position of literary Braille Codes in the region, the availability of Braille contractions and abbreviations and their use, situation regarding Braille translation softwares, whether any of the countries had revised the Code and if the same Code is used in a language as is followed



From lett to right Dr. R.S. Chauhan, Dr. Anil Aneja, Mr. Amer Y. Makarem, Mr. A.K. Mittal

for that language in some other countries. 16 countries responded to these queries. 7 of them belong to the Middle East and West Asian sub-region, 6 to the South Asian sub-region and 3 to Central Asia. Analysis of the data revealed that almost all of the responding countries have a literary Braille Code for their respective languages. Braille contractions and abbreviations are available in languages like Arabic, Urdu, Hindi etc. These are being standardized for Nepali. Yet the use of these contractions is not very widespread. Not many languages have undertaken an extensive review of the existing Braille Code. The Central Asian countries have, however, made some revision. There is an urgent need for proper development, standardization and use of Braille translation softwares.

The region has the unique situation of one language being spoken/used in more than one country, even beyond the region - Tamil and Arabic for instance. However, it is not very clear whether the same Code is being used for producing Braille material in the concerned languages.

A gist of the discussion which followed the presentation is given below:

a. The Braille Code for Nepali language has some minor variations from the Bharati Braille Code and a translation software is almost ready for that language;

b. A few translation softwares had been developed for Indian languages, though their accuracy is still to be tested;

c. A Tamil translation software was ready for use;

d. The Tamil Braille contractions and abbreviations had been accepted for use in the Tamil speaking parts of Sri Lanka;

c. It was necessary to have Braille Authorities to look into issues concerning Braille contractions and translation softwares;

f. There was some discussion, even debate, about the pros and cons of using Braille contractions and abbreviations. There was, however, general agreement that while contractions were useful, these needed to be simple and easy to learn;

g. World Braille Council is now to be led by a specialist from this region, Mr. J.L. Kaul, Secretary General, A1CB and all contentious matters relating to Braille may be addressed by the Council. ABU has also set up a Braille Committee and India too, now has a Braille Council. These moves would strengthen the development and promotion of Braille.

In his concluding remarks the Chairperson informed that Arabic language did have a translation software and a set of contractions and abbreviations, though these did not enjoy recognition uniformly across the sub-region. Therefore, there is an urgent need of striving towards uniformity in Braille formats.

The Chairperson thanked the speaker and the participants before declaring the session closed.

3.4. Business session-4: "Different Codes - Mathematics, Science, Music, Computer-Symbols".

a. Chairperson: **Professor B.Y. Mehta, Ex-Commissioner (Disabilities), Gujarat;**

b. Principal Speakers: **Mr. K. Raman Shankar, Director, NAB, Department of Education, Braille Press & Talking-book Studio and Mr. Jagdish Chauhan, Lecturer-in-Charge, NAB Training Centre for the Teachers of the Visually Handicapped;**

c. Rapporteur: **Mr. Ketan Kothari, Programme Officer, Sight Savers International.**

At the outset, the Chairperson welcomed the gathering and stated that Math and Science are crucial in any academic endeavour. It is sad that the blind are not given ample opportunities to acquire proficiency in these subjects. He hoped that the session would give detailed information about the prevailing situation in respect of the Braille Codes in these disciplines. He regretted that there was very little unanimity with reference to Braille Music Notations. He then introduced the speakers and the Rapporteur for the session and handed over the deliberations to them. The speakers commenced their presentation by going through the limitations of the literary Braille Code which necessitated the development of a separate Code for specialized symbols used in subjects like Mathematics, Science and Music as also Computer-material. They gave a detailed account of the historical evolution of the Braille Mathematics Code right from the Taylor's Code to the present-day system. They also elaborated upon the main principles of Nemeth Code, which was the foundation of the Code in India.

From left to right **Mr. Ketan Kothari, Dr. Anll** Aneja, Prot. B.Y. Mehta, **Mr. Jagdish Chauhan, Mr. K. Raman Shankar**

Thereafter, they dwelt at length on how the Math Code for India evolved with the joint efforts of NIVH and NAB. A manual was prepared in order to facilitate easy learning of the Code throughout the country.

In the next part of their presentation, the speakers discussed Braille Music Notations providing important technical details. They brought out the development of Notations from the time of Louis Braille and narrated particulars of workshops and

seminars sponsored for the purpose by WBU. A historical review of the evolution of Braille Music Notations in India was also undertaken, which resulted in the approval by NIVH of a well-structured Music Code for Hindustani Music. Notations for Karnatak Music was still under preparation.

Thereafter, information was provided about the situation regarding Computer-Braille Symbols which were adopted by the Braille Authority of North America (BANA) and are in use in India too. These symbols are based on ASCII Code and extensive use is made of dots 4,5 and 6 to indicate most of the symbols.

In conclusion, Mr. Raman Shankar proposed that extensive training programmes should be organized in the said Codes and Computer Symbols. He also informed that a set of Braille symbols for Social Sciences, especially Geography is under development.

There was a lively exchange of views and comments after the presentation, which is summarized below:

a. The tendency to allow exemption from Math and Science must be curbed and eliminated;

b. A revision of the Braille Mathematics Code for India was underway to cover all print symbols occurring in print Math textbooks up to Class-12;

c. There was no uniformity in respect of Braille and Science Codes in Pakistan, Afghanistan and Nepal. Nepal did not have separate Music Notations in Braille;

d. Sri Lanka used Nemeth Code for Math and Science and they had developed a special Code for Social Science as also for Computer Braille for Sinhala language;

e. There was a pressing need to have special symbols for Geometry also.

In conclusion, the Chairperson summed up the whole discussion and requested the organizers to make special efforts for promoting the study of Math and Science for blind students at least till Standard 10. He further pointed to the need of adopting entire Nemeth Code in India for the benefit of blind students opting for advanced Math and Science.

The session closed with a vote of thanks to the Chair and the speakers.

3.5. Business Session-5: "Creating Awareness about Braille as an Essential Education and Communication Tool for the Blind in Developing Countries".

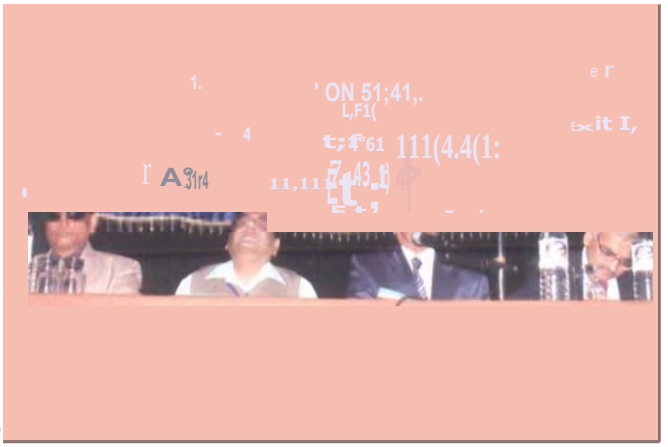
a. Chairperson: **Dr. S.R. Mittal, Professor in Special Education, Department of Teacher-Training and Non-Formal Education, Jamia Milia Islamia;**

b. Principal Speaker: **Dr. Bhushan Punani, Executive Director, Blind People's Association and Chairperson, West Asia Chapter, ICEVI;**

c. Rapporteur: **Mr. M.K. Rastogi, Chairperson, AICB Advocacy Cell.**

At the outset, the Chairperson introduced the principal speaker and stated that though he had various high qualifications and attainments, he has endeared himself to all by proving to be a genuine friend of the blind. He thereafter, requested the speaker to take over.

Beginning his presentation, the speaker made a count of visually impaired persons taking notes in Braille and/or reading the Braille volume containing Conference papers. To his extreme dismay, he found that very few participants were using Braille for the said purposes. He wondered whether this was not indicative of a sharp decline in the importance of Braille and he thought that the best tribute to Louis Braille would be to make Braille accessible extensively and provide at least a Braille writing frame to each and every child with blindness.



From left to right Mr. M.K. Rastogi, Dr. Anil Aneja, Dr. S.R. Mittal, Dr. Shushan Punani

The speaker identified the following areas as being responsible for the present deteriorating state of Braille and its use as a tool for education and communication. The reduced importance being attached to Braille in various settings; lack of Braille production facilities and shortage of Braille paper; sharp decline in the use of library services; very little teaching of Braille in inclusive education programmes and the lack of proper Braille teaching techniques in special schools; neglect of Braille in courses of special education (visual impairment) especially in courses of distance learning.

The speaker then went on to elaborate upon the 'Education For All Visually Impaired Campaign' launched jointly by ICEVI and WBU along with other international organizations. The campaign provides appropriate support including financial assistance for reaching out to the un-reached children especially in developing countries. The campaign aims at making inclusive education really meaningful by ensuring proper support services including adequate facilities of Braille teaching and provision of reading material.

The speaker put forward the following suggestions:

a. All the class teachers in regular schools in all developing countries should be imparted proper orientation to Braille and other devices to attend to the special educational needs ofblind children enrolled with them;

b. There should be proper child-assessment services and child-preparatory services with focus on pre-Braille and Braille reading before children are enrolled in regular schools;

c. Too much emphasis on audio material is responsible for weaning students away from Braille books. While audio books may be useful as reference material for higher education, these need not be used as replacement for Braille books which should be provided free of cost up to the senior secondary stage;

d. National governments and organizations working with blind children must ensure that every child has access to appropriate educational devices, including Braille kits and Geometry equipment;

e. Children with low vision need not necessarily be forced into learning Braille, since this denies Braille-learning opportunities to an equivalent number of children really needing Braille;

f. Braille is useful not only in traditional avocations but also in new and emerging professions;

g. Examinations of blind children must be conducted in Braille right from the primary level;

h. Teachers for the blind must have necessary proficiency in Braille;

i. Outstanding Braille using students should be suitably rewarded;

j. Braille should be given greater visibility in different spheres.

k. For this purpose, hotel menus, bus numbers, bus and rail time tables, as well as telephone directories should be available in Braille;

1. There should be at least one lesson on Braille in all textbooks for Class-5.

Opening the discussion after the presentation, the representative from Iran informed that there are adequate facilities for learning Braille in that country. They have over 10000 Braille titles, modern Braille printing facilities and free access to Braille books. They bring out one newspaper in Braille.

The representative from NAB (India) spoke of his organization's initiatives to popularize Braille among volunteers and family members in rural and urban settings. He commended the measures to others also.

The representative from Lebanon stated that there is shortage of Braille teachers in his country and they do not have adequate Braille writing devices. Braillers are quite expensive.

Another delegate called for supportive measures to save blind students from the problems of carrying loads of Braille books to school. The representative from Tajikistan offered a way-out stating that students in his country get two sets of Braille books free of cost, so that they could retain one set at home and another at school. He further added that in his country, teachers have to qualify the test of Braille skills

within 6 months of their appointment. The representative from Jordan informed that every blind child is taught Braille and gets Braille books free.

Another delegate spoke about the shortage of Braille material in rural areas and suggested CBR workers should also have necessary Braille skills.

A leading teacher-educator from India presented the idea of "twin-vision" (books having both print and Braille versions) for Nursery children.

In his concluding remarks, the Chairperson gave the slogan: "No Braille, no job as teachers of the blind". He also called upon Rehabilitation Council of India to conduct Braille Proficiency Test for teachers of the blind at the time of their applying for re-registration.

The session concluded with a vote of thanks.

3.6 Business Session-6: "Teaching of Braille to Children and Recently Blinded Adults".

a. Chairperson: Dr. Sushama Sharma, Dean, Faculty of Education and Chairperson, Department of Education, Kurukshetra University;

b. Principal Speaker: Mrs. SwaranAhuja, noted veteran teacher-educator;

c. Rapporteur: Mrs. Parimala Bhatt, Hony. Secretary, NAB India.

In her introductory remarks, the Chairperson underscored the importance of early years in learning Braille, since most of the intellectual development takes place during this period. She strongly recommended introduction of Braille reading readiness techniques to kindle necessary interest in Braille and prepare children in a meaningful manner for the acquisition of the required skills. She, then, pointed out that while for the locomotor disabled, barrier-free environment denotes easily accessible built-up places, in the case of the visually impaired, it must refer to ease of access to information for which Braille plays a pivotal role. She then introduced the speaker, who had over 40 years of experience of teaching blind children as also training teachers of the blind and was among the pioneering teacher-educators in the field,

From left to right Mrs. Parimala Bhatt, Dr. Anil Anela, Dr. Sushama Sharma, Mrs. Swaran Ahuia

The speaker, at the outset, emphasized the special place of importance of Braille in the life of a blind person in terms of opening up

flood gates and also helping change society's perception about blindness. Braille for the visually impaired, has the same value as literacy for the sighted and must be recognized as a fundamental academic skill.

Braille, she explained, must be taught as a part of a language and Braille and reading are not two different skills. To illustrate, when children with sight are taught to read, we do not say that they are learning Devnagri or Roman Script, but as learning to read a language. It should be the same for children without sight. Braille is not, and should not be treated as a separate compartmentalized subject.

The speaker then went on to elucidate upon the goals of teaching Braille, viz. develop good techniques and habits for reading with accuracy and comprehension; develop fondness for books and acquire good writing skills.

She explained various techniques and stages of Braille reading readiness in detail. The objective is to develop the sense of touch and to get children interested in Braille as also increase their vocabulary. The approach is, in most cases, the application of Montessori sensory aids. Such readiness should be introduced during pre-school years and various tactile aids may be used extensively.

The speaker dwelt at some length upon certain 'do's and don'ts' which must be kept in mind before taking the first step towards actual teaching ofreading. The purpose is to discourage counting of dots for comprehending letters of the alphabet as also refrain from the use of devices like Braillette Board, Marble Board etc. Reading should be encouraged as a natural and interesting phenomenon.

Explaining the methods and the right way to teach Braille, the speaker pointed to three methods viz. Letter Method, Word Method and Sentence Method. She stated that while the choice of the right method depends on the teacher and his/her assessment of student's capabilities, a combination of letter and word method is preferred.

Next was the turn of the presentation of the first few lessons in teaching Braille. Obviously, the actual selection of letters/material depends on the environment and the teacher's resourcefulness. The basic rule is to proceed from simple to complex.

The use of flash cards was discussed in some detail. Specific procedure for preparing and presenting the cards was discussed and explained. Introduction of a variety of material and methodology was emphasized. This was followed by a few suggestions for sustaining children's interest in reading and activities for promoting rapid reading. The simplest way, according to the speaker to achieve the desired results, is to provide plenty of interesting material for reading. More the children read, greater their interest and speedier their reading. After all, 'practice makes the man perfect!' The entire school should have a 'Braille atmosphere'. Before concluding, the speaker elaborated upon techniques of teaching Braille to late coming school children and recently blinded young adults. It is necessary that efforts be made for helping such individuals to accept their blindness, develop their sense of touch, build up their self-confidence, be introduced to a Braille watch. Methods and approaches

should basically be in line with the basic principles of teaching i.e. from 'simple to the complex', 'from abstract to concrete'.

In conclusion, the speaker paid rich tributes to Louis Braille and his tactile script.

Since this was a rather shortish session and since the presentation was quite inclusive and comprehensive, the major outcome of the brief interventions was that:

a. For sustaining reading speeds, the use of both hands is preferred;

b. If Braille is taught the right way from the very beginning, children should acquire efficient skills latest by class 4;

c. Children should be introduced directly to various dot-combinations, letters and words and the practice of counting dots should always be discouraged;

d. The booklet on Braille reading readiness brought out by Mr. Athlekar in Mumbai is a useful resource.

The session concluded with a vote of thanks.

4 CONCLUSION:

4.1. Closing Session:

The concluding session of the Conference commenced at 3p.m. on 23'" December. Mr. Terje Iversen, International Director, NABP, was in the Chair.

In his introductory remarks, Mr. Iversen referred to some glaring disparities among different participating countries, as derived from various presentations and interventions. For instance, he explained that while many countries had a number of Braille presses making it possible to share text and information, some others had very obsolete Braille printing equipment. There was also need for running repair and maintenance courses in respect of Braille Writers and other equipment while a few countries already had necessary facilities. The same was the situation regarding Braille teaching, which was reasonably advanced in some countries and quite backward in others. He endorsed the idea of having National Braille Authorities in different countries and the Region to address the problem of these disparities and related issues. He, then, called upon Mr. A.K. Mittal, President, AICB to present the

Representative from Syria participating in the discussion

Plan ofAction emanating from Conference deliberations.

4.1.1. In his initial remarks, Mr. Mittal explained the procedure followed for formulating the Plan. Suggestions and inputs were invited and received from a number of participants. Consultations were also held with senior representatives of leading organizations from India as well as the Middle East and Central Asia. In addition, recommendations made under different Conference-papers were referred to. Based on these approaches a draft plan was worked out. Mr. Mittal further explained that the participants were free to e-mail other points not occurring in the draft plan within 3 to 4 days, which would be given due consideration. The language and style and sequencing of the draft plan would be further improved after the Conference, since the present draft has been prepared in the background of constraints of time.

Mr. Mittal then presented a 25 point draft plan which focussed closely on various facets of Braille such as:

- **Development and Coordination**
- **Production and Distribution of Braille books**
- **Inclusive Education**
- **Teacher-Preparation and Competencies**
- **Recruitment of Teachers**
- **Pedagogical Aspects**
- **Awareness-Creation**
- **Follow Up Mechanism.**

The Conference adopted the draft plan and the proposed procedure for giving it final shape.

Representative from Iran participating in the discussion

4.1.2. Three participants from India — from NFB (North East Region), from NAB (India), Mumbai and from National Institute for the Visually Handicapped, Dehra Dun - summed up their impressions about the Conference. Similarly, three representatives from other participating countries, one each from Iran, Uzbekistan and Sri Lanka also gave their impressions. All the six speakers commended the time management and other arrangements relating to the Conference and stated that its deliberations were extremely useful.

4.1.3. In conclusion, Mr. J.L.Kaul, Secretary General, All India Confederation of the Blind, thanked all the participants from India and outside for joining the Conference and making useful interventions. He also thanked the Chairpersons of different sessions and all paper-presenters. Mr. Kaul expressed the Confederation's sincere gratitude to all of the international organizations which sponsored the Conference and thus made

the event possible. In this connection he stated that the Confederation is particularly grateful to Norwegian Association of the Blind and Partially Sighted (NABP), Christoffel Blindenmission (CBM), Danish Association of the Blind (DAB), European Blind Union (EBU) and Braille Mainichi Newspaper Ltd. (Japan) for their valued support.

Representative from Jordan participating in

He also placed on record his deep appreciation for the staff of the Confederation for the hard work put in by them in making necessary arrangements. He then, declared the Conference closed.

4.2. Plan of Action:

The finalized Plan of Action is presented below:

Saluting the memory of the emancipator of the blind, Louis Braille, whose 200th birth anniversary is being celebrated throughout the world; acknowledging the fact that his invaluable contribution, Braille, has and will continue to have a pivotal role in the empowerment of the blind, especially. in developing countries, noting with some concern that we have still a long way to go to ensure a place of prime importance for Braille in all our programmes; delegates to the Con ference on the Status

Braille Authority to oversee Braille development, supervise and coordinate production of Braille books and regulate standards of teaching Braille. If required, such a Braille Authority may be set up at the sub-regional level also for the Central Asian countries in view of their special and unique requirements. A suitably empowered Regional Braille Council should also be made operational at the ABU level.

2. Braille Contractions and Abbreviations must be simple and easy to learn for blind children and adults of different intellectual attainments. This may be one of the additional areas to be covered by National Braille Authorities.

3. A uniform Braille Mathematics and Science Code may be accepted for the region. Nemeth Code could serve as an important frame of reference for the purpose. Similarly, there should be an acceptable system of Braille Computer symbols. This aspect, too, may be addressed by the proposed Braille Authorities.

4. All visually challenged children in the participating countries should be provided textbooks in Braille for the elementary and secondary stages of school education within the next 5 years. The use of audio material to substitute Braille textbooks must be totally shunned at the school stage. The special requirements of the production of Braille textbooks for the North-Eastern States of India and Central Asian countries need to be suitably addressed.

5. The working of the Braille printing presses should be suitably strengthened and coordinated. As far as possible, data-entry units may be set up on a larger scale with the facilities of Braille production and duplication to be made available at selected centres.

6. There should be closer net-working among data entry units and Braille production centres within the country, so that information about material available in Braille could be centrally located through a repository system and duplication avoided.

7. Braille production centres must ensure that they utilize cost-effective and proven printing technologies, so that these are not left un-operational for extended periods of time. These centres must also ensure that:

   a. The books produced are totally error-free through a system of appropriate editing and proof-reading;

   b. Their installed data entry and Braille printing capacity is fully utilized;

   c. Uniform guidelines are worked out to ensure that visual/pictorial materials involving activity-based learning, so widely used in children's textbooks, today, are suitably converted and presented in comprehensible tactile/descriptive formats.

8. Textbooks in Braille should be made available to school children either free of cost or be heavily subsidized, in view of the extremely vulnerable economic status of families of visually challenged children and their Institutions. The national governments and the State Bureaus of Textbooks should take the lead

and provide Braille textbooks free as is being done in the case of print textbooks.

9. In order to provide easy and ready access to the plethora of books coming out in print these days, it is necessary that printers and book-publishing houses are persuaded to adopt an e-printing format compatible with the requirements of Braille conversion. The objective is that as soon as a book appears in print, it should be possible to bring out its Braille edition through suitable Braille conversion of e-text format.
10. The demands and requirements of college-going visually impaired students in respect of books in Braille at affordable costs, should also be addressed. For this purpose, it is essential that such books are produced in Braille and libraries of colleges and universities be persuaded and motivated to procure copies for visually challenged students enrolled with them. Braille printing presses must pay attention to this vital sector as well.

Representative from Sri Lanka participating in the discussion

11. Public libraries functioning at the level of districts should be helped to run a Braille section for the benefit of blind readers in the given area. Such Braille sections, it should be ensured, are suitably updated and are really accessible to users and are really used by readers.
12. All programmes of inclusive education in the participating countries must give special importance to teaching visually challenged children Braille and related plus curriculum skills. No visually challenged child should be placed in an inclusive setting unless arrangements for such crucial teaching of Braille and related skills are in place. For this purpose, organizations of the blind and other professionals must undertake advocacy and lobbying on a large-scale so that inclusive education becomes really meaningful and is not confined to mere placement of the visually challenged child in the class-room.
13. The global campaign of Education For All Visually Impaired Children (EFAVIC) launched by ICEVI and WBU as also WBU's "Right to Read" campaign must focus on providing easy access to Braille and arrangement for teaching of Braille, in all their services and activities.
14. Reading and writing Braille should be made a compulsory subject for all mainstream teacher-training courses (B. Ed., Diploma in Elementary Education etc.).
15. Teaching of Braille should be given much greater importance and weightage in all distance education B. Ed. (Special Education, Visual Impairment) courses. For this purpose a minimum of two months' face-to-face programme of teaching

Braille skills may be included in the curriculum.

16. As regards regular courses of B. Ed. (Special Education Visual Impairment), reading and writing of Braille must receive due focus in terms of curriculum-transaction and total weightage of marks. Upto 20% of the total marks may be allocated for the subject.
17. Efficient Braille reading and writing skills must be accepted as an essential qualification for recruitment of a teacher of visually challenged children. There should be a provision for periodic tests/evaluation of Braille proficiency for persons working as teachers of visually challenged children. Every blind child must, as a matter of right, be provided with basic Braille writing devices appropriate to the situation and requirements of the concerned country.
18. New and more challenging techniques and methods of teaching Braille should be introduced for blind children.
19. and suitable orientation courses be organized for Braille teachers, on a regular basis. General classroom teachers should also be provided basic sensitization/orientation to Braille skills.
20. Braille reading readiness and pre-Braille training must form an integral part of all programmes of early intervention for blind children and their families. A specific curriculum - what to teach and how to teach - should be worked out with regard to Braille-education at the elementary school stage.
21. In order to increase the visibility and functional relevance of Braille:
    a. Public utilities and consumer products of day-to-day use may carry Braille labels/markings;
    b. Telephone/electricity bills, telephone directories, bus/rail time-tables, hotel menus etc. may also be made available in Braille;
    c. Braille should be accepted as an important optional subject for study for interested students at school and under-graduate stages.
22. Greater awareness may be generated about Braille among parents of blind children and sighted volunteers in rural and urban settings by conducting short duration training programmes.
23. Braille reading competitions may be organized more frequently in State and regional languages.
24. Project officers and a few field workers employed in CBR projects, must have proficiency in Braille reading and writing, so that they could provide necessary basic training in Braille to visually challenged clients in rural areas.
25. Asian Blind Union should undertake the responsibility of monitoring progress on the implementation of the Plan of Action proposed hereinabove, with the help of its national affiliates. These affiliates should strive for ensuring that the Plan is properly implemented in their respective countries and should submit periodic reports to ABU Secretariat.

ANNEXURES

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KEYNOTE ADDRESS

Perceiving Light Through Touch

By : **Dr. Ved Prakash Varma**
Retired Professor and Former Head,
Department of Philosophy, University of Delhi

First of all, I take this opportunity to thank the All India Confederation of the Blind for giving me the privilege to deliver the Keynote address in the Conference on the Status of Braille in the ABU region. I also congratulate the A.I.C.B. for organizing this Conference to commemorate the forthcoming 200th birth anniversary of Louis Braille who opened for us the doors to Knowledge closed for ages. The title of my keynote address is "Perceiving Light Through Touch".

Yes, friends, like hundreds and thousands of blind persons across the world, I also perceive light through touch - the light of literacy, the light of Knowledge and the light of culture through raised Braille dots which provide us independence, dignity and privacy. The present age, as you all know, is "an era of knowledge" and our society is rapidly becoming "a Knowledge-based society", which attaches the highest importance to knowledge - specially the knowledge pertaining to science and technology. We have now realised the great fundamental truth that it is knowledge, and knowledge alone, which can lead us to the path of development and progress and thus can enable us to attain remarkable achievements in all spheres of li lc.

If you look at the miserable plight of blind people during the past ages throughout the world, you would realise that it was mainly the result of their inability to acquire Knowledge by reading books and other educational material. This inability of the blind to receive normal education deprived them not only of their dignity and independence in life, but also forced them to earn their livelihood through the most humiliating way of begging on the streets. But, fortunately, in the 18th and 19th centuries, there were some thoughtful and Kind-hearted people who honestly endeavoured to ameliorate this deplorable situation of the blind by finding an effective method to make them 'literate' in the real sense of the term. Among these benevolent people, Louis Braille was the most prominent person who ultimately invented a revolutionary system or script through which the blind could read

systems made it possible for them to achieve a notable success in literacy. Finally, it was Louis Braille who achieved a significant and real breakthrough in the field of their education by inventing a script of raised dots which ultimately enabled them to have an easy access to knowledge ofall sorts. Thus, his unique Braille code led the visually handicapped to the path of knowledge which they were so desperately looking for. and this Knowledge provided them not only with the road to literacy, but also to their well-deserved personal dignity, social independence and self-confidence.

It is worth mentioning here that even in his early years, Louis Braille had made it a "mission of his life" to help the visually handicapped become literate by giving them a perfect script for reading and writing; and, despite his poor health, he continued to work hard to fulfill this mission. After working continuously for about 15 years, he finally succeeded in achieving his laudable goal in 1837 when he published his modified and perfected Braille code which contained alphabet, punctuation marks, numbers, music-notation, contractions and abbreviations for saving space and time. The Braille code, now being used in English-speaking countries all over the world, is not very much different from his modified code mentioned above. This only shows Louis Braille's great genius in perfecting his Braille script.

It is now well-known that this Braille script has completely trans tivined the lives of the millions of visually handicapped persons across the world. They are using it for their successful academic career, professional advancement and many other functions of their personal life. By the help of this Braille script, they are attaining such commendable achievements and are pursuing such prestigious professions that were considered to be completely out of their reach just a few decades ago. They are now working as teachers, administrators, lawyers, judges, journalists, musicians, businessmen, chartered accountants, bank managers, etc. with a commendable success.

The credit for all these remarkable professional achievements of the blind mainly goes to the Braille script, since without its help it would have been virtually impossible for them even to enter these respectable professions, not to speak of achieving any success in them.

If you permit me to be a little bit personal to illustrate the tremendous significance of Braille for the life ofa blind individual. I would like to say that whatever I have been able to achieve so far in my life, it is mainly because of this Braille script. After learning Braille in

1t is a matter of pleasure for me to know that so many distinguished delegates from various countries have gathered here to consider the role and significance of Braille for the visually handicapped. 1 am sure that this Conference on the Status of Braille in the Asian Region would discuss at some length all important issues pertaining to the development, production and teaching of Braille in the participating countries. I would like to make here briefly a few suggestions regarding some of these issues for the consideration of the delegates present in this Conference.

I. All the organizations of and for the blind working in these countries should endeavour to provide Braille textbooks to visually impaired children in schools. These organizations should also ensure that at least school level education is imparted to these children only through Braille so that they may be able to learn the proper use of punctuation marks, correct spellings and pronunciation of all the words they read. Cassette recorders or any other such devices should not be used for this purpose.

2. If we want to teach visually impaired children the correct and effective use of Braille for their education, the teachers of these children should be properly trained to read and write Braille efficiently. I suggest that the national Braille competency test should be devised for this purpose and only deserving candidates should be declared successful in this test.

The production of Braille textbooks and other literature for the visually handicapped should he increased to the maximum possible extent through the latest technology, and this Braille reading material should be provided to them at an affordable low cost.

4. The widespread use of contractions and abbreviations should be encouraged to increase the speed of Braille reading and writing and also to save costly paper.

5. The general public should be made aware of the great significance of Braille for the education of the blind through mass media and through the stories of some successful blind persons in order to improve their image in society.

I earnestly hope that the learned delegates and Braille experts present in this Conference would seriously discuss these suggestions in the forthcoming several sessions and would strive to implement them in their own countries as far as possible.

I am thankful to you all for listening to me patiently and with rapt attention.

CONFERENCE PROGRAMME

DAY-1

9.30 a.m. to 10.30 a.m.	Inauguration and Keynote address
10.30 a.m.	**Tea/Coffee break**
11 .00 a.m. to 1.00 p.m.	**SESSION-1**
	"Status of Braille in Different Regions of India and Participating Countries".
	Chairperson: Dr. Anita Julka, Professor, Department of Education ofGroups with Special Needs, NCERT, New Delhi;
	i) "Status of Braille in India"- Dr. S.R. Mittal, Professor, Special Education, Department of Teacher-Training and Non-Formal Education, Jamia Milia Islamia, New Delhi;
	ii) "Status of Braille in Other Participating Countries" - Representatives from outside India.
	iii) Discussion.
1.00 p.m.	**Lunch Break**
2.00 p.m. to 3.30 p.m.	**SESSION-2**
	"Providing Textbooks and Reading Material in Braille - The Need of the Hour".
	Chairperson: Mr. S.K. Rungta, General Secretary, National Federation of the Blind, New Delhi;
	Principal Speaker: Dr. M.N.G. Mani, Secretary General, ICEVI.
3.30 p.m.	**Tea/Coffee break**
4.00 p.m. to 5.00 p.m.	**SESSION-3**
	"Critical Issues Relating to Braille Codes in Participating Countries".
	Chairperson: Mr. Amer Y. Makarem, Immediate Past President, Asian Blind Union;
	Principal Speaker: Mr. A.K. Mittal, President, AICB **and** Treasurer, WBU.

DAY-2

9.30 a.m. to 11.00 a.m.	**SESSION-4**
	"Different Codes - Mathematics, Science, Music, Computer -Symbols".
	Chairperson: Professor B.Y. Mehta, Ex-Commissioner (Disability), Gujarat;
	Principal Speakers: Mr. K. Raman Shankar, Director, NAB, Department of Education, Braille Press & Talking-book Studio and Mr. Jagdish Chauhan, Lecturer-in-Charge, NAB, Training Centre for the Teachers of the Visually Handicapped, Mumbai.
11.00 a.m. to 11.30 a.m.	**Tea/coffee break**
11.30 a.m. to 1.00 p.m.	**SESSION-5**
	"Creating Awareness about Braille as an Essential Education and Communication Tool for the Blind in Developing Countries".
	Chairperson: Dr. S.R. Mittal, Professor, Special Education, Department of Teacher-Training and Non-Formal Education, Jamia M ilia Islamia, New Delhi:
	Principal Speaker: Dr. Bhushan Punani, Executive Director, Blind People's Association, Ahmedabad, Chairperson, West Asia Chapter, ICEV1.
1.00 p.m. to 2.00 p.m.	**Lunch break**
2.00 p.m. to 3.00 p.m.	**SESSION-6**
	"Teaching of Braille to Children and Recently Blinded Adults".
	Chairperson: Dr. Shushama Sharma. Dean Faculty of Education and Chairperson, Department of Education, Kurushetra University;
	Principal Speaker: Mrs. Swaran Ahuja, noted veteran teacher -educator.
3.00 p.m. to 4.00 p.m.	**Presentation of Plan of Action and Conference closing**
	Chairperson: Mr. Terje Iversen, International Director, NABP, Norway.
4.00 p.m.	**Tea/Coffee**

Status of Braille in India

By : **Prof.** S.R. Mittal,
Department of Teachers Training and Non-Formal Education,
Faculty of Education, Jamia Milia Islamia, New Delhi

Braille is a tactile script used by blind persons for written communication. We are here to celebrate the 200th birth year of the great man Louis Braille, the inventor of this tactile script which opened the gateway of knowledge and information for persons with blindness. Let me begin with my utmost sincere tributes to such a pioneer and genius personality who showed the path of progress to us. I would like to submit that our true tributes to Louis would be the honest and sincere pledge to do everything that we can to promote the use of Braille in our country.

Many people have begun to say in the recent past that Braille has by and large lost its utility for children and youth for their education due to emergence of modern technologies like computers with screen reading softwares etc. This is not true. The following views of a few blind youth who themselves are very good users of modern technology are the testimony of the fact that Braille is not only useful but essential despite the development and availability of modem electronic devices.

A very good user of computer with screen reader software feels that Braille is as good for a blind person as print script for his seeing counterpart. There is no substitute for Braille like there is no substitute for print. He can not make use of computer for everything. For example, if one has to read something which requires serious concentration then listening to the audio material (whether through cassette recorder or computer) will not help.

Similarly, another blind computer user feels that even though some may say that the excessive use of computers and mobile phones brought Braille onto the back foot.

There was a time, when it was nearly impossible to step towards success without Braille. Even now, when lots of technology is available, it is strongly believed that every visually impaired person should learn Braille. Braille books give you the real taste of reading which can not be found in talking or e-books. The benefit of carrying them anywhere is also there. Moreover, it would be incorrect to differentiate Braille from modern, and 'cutting edge' technology, as both have helped till now and will continue to make a front-foot contribution to our growth in the days to follow. Let us remember that Braille printers, refreshable Braille displays, or whatever, have the inherited properties of Braille, cannot be discarded so easily. Braille is not in conflict with any new technology. It increases imagination. Moreover, the knowledge of spelling, grammar and semantics can only be increased by reading Braille. Moreover, letter-writing is not really that easy with the use of e-mai I and mobile phones. Those who work as telephone operators use Braille daily for search and noting numbers in Braille for later reference. One can search numbers very quickly in

Braille book. Braille script is a boon to the blind person without which he or she is illiterate.

Braille is, therefore, presently necessary and must be promoted at all costs.

Another blind person opined that Braille can never be replaced with any technology. Braille can be read even in the dark, lying on the bed and reading, rather, enjoying a Braille book page by page comfortably. Even today with almost 7 years of computer use, which has increased tremendously for last 2 years or so, his passion for reading Braille has never decreased. He admits, though, that he could not use Braille as frequently as before, in his school and college years.

He, even then, feels that if pen and paper can survive amidst all the technological growth, why not Braille? No audio medium which is certainly passive can be compared with Braille. Hours of audio and visual reading may strain your ears and eyes. But, hours of Braille reading will never make your hands feel strain nor will have any adverse effect on the reader. Braille is the simplest and most affordable tool of a blind person. This is just a glimpse of our dear glorious Braille which has educated and enlightened millions of blind people in the world. Thus, the foregoing views are enough to testify the importance of Braille and also the need of promoting it.

PREVALENCE OF BLINDNESS IN INDIA

There are several estimates/projections about the number of persons or children with blindness. But, none of them is exact or accurate as each of them can be challenged. For instance according to NSSO 2002, the total number of persons with blindness is about 2.7 million. According to this survey there were about 6,33,000 children with blindness of the age 5 plus to 19 years.

Another survey puts the number of persons with blindness at 28,26,700.

The Institute of Applied Manpower Research (IAM PR) under Planning Commission has estimated that there are about 8.50 lakh Visually Impaired children of school going age (5-14 years of age) approximately. We add another at least one lakh children of the age 15-19. Thus there are about 9.5 lakh children with blindness.

The number of children with low vision of this age range was 4,32,400. As per a report of NUEPA published sometime back there were 2,49,200 blind students enrolled in regular schools. Further, out of the total blind students enrolled, there were 1,56,155 studying in classes Ito V whereas the rest were in classes VI to VII. In addition to these visually impaired children, another 33,000 children were receiving some form of education in the special schools run by Governmental and Non-Governmental organizations. Thus, a total of 2,83,000 (approx) children with visual impairment are enrolled in schools.

A casual observation of the programmes of education of these children shows that a large majority of them do not have any Braille textbook. The National Institute for the Visually Handicapped, Dehra Dun while planning their Braille production estimated as per the following table the number of children who need to be provided Braille textbooks.

S. No.	Stage of education	No. of visually impaired children (country-wide)
1.	Primary	1,11,827
2.	Upper Primary	57,491

3.	Secondary	31,408
4.	Higher Secondary	6,776
5.	Classes XI & XII (Attached to Degree Colleges)	2.605
	Total	**2,10,107**

STATUS OF THE EDUCATION OF THE: BLIND - PRESENT SCENARIO

Inclusive Education in DPEP:

This policy dictated the philosophy of inclusive education in DPEP. Moreover, DPEP also addressed core issues related to curriculum such as what factors limit the access of certain children to curriculum: what modifications are necessary to ensure fuller curriculum access. Thus, with its child-centered pedagogy, DPEP set a stage where children with special needs could be provided learning opportunities tailored to their needs.

Integrated education for the blind was formally added in DPEP in 1997. By 1998, many DPEP states had conducted surveys, assessment camps and evolved strategies to provide resource support to those children with special needs who were enrolled in DPEP schools.

The IED guidelines in DPEP clearly mention that. "DPEP will fund interventions for IED of primary school going children with integrable and mild to moderate disabilities". Towards this end DPEP supported:

- Community mobilization and early detection
- In - service teacher training
- Provision o fresource support
- Provision of educational aids and appliances
- Removal olarchitectural barriers

IED was initially introduced in the states in a small way by taking one block/cluster as a pilot project in each DPEP district. From a few hundred blocks in 1998, IED later extended this and implemented in 2014 blocks of 18 DPEP states. Ten states of Gujarat, Haryana, Himachal Pradesh, Karnataka, Kerala. Madhya Pradesh. Maharashtra, Orissa, Tamil Nadu and Uttaranchal have upscaled the IED programme to all the blocks.

DPEP estimates clearly showed that there were a large number of disabled children in the relevant age group. Gradually realization dawned that UPE could not be achieved unless children with special needs were also brought under the ambit of primary education. This led to more concrete planning and strategisation of providing resource support and remedial assistance to children with special needs.

As the programme progressed many models of service delivery evolved with the sole aim of providing supportive learning environment to children with special needs. The thrust was on imparting quality education to all disabled children.

The DPEP has had a powerful impact on integrating disabled children. The scheme was initially launched in select clusters and blocks. It was later expanded to more blocks and districts in the country. The advantage of this scheme was that it took care of all areas from identification, assessment, enrolment and provision of appliances to total integration of

disabled children in schools with resource support. teacher training and parental counseling.

Sarva Shiksha Abhiyan:

Based on the experience of DPEP, the education of CWSN was included in the scheme of Sarva Shiksha Abhiyan (SSA). This Scheme was evolved from the recommendations of the State Education Ministers' Conference held in October 1998 to pursue universal elementary education in a mission mode. The scheme of Sarva Shiksha Abhiyan was launched by the Government of India in 2001. The assistance under the programme of Sarva Shiksha Abhiyan was on an 85:15 sharing arrangement between the Central Government and the State Government during the Ninth Plan, at 75:25 during the Tenth Plan, and at 50:50 thereafter.

SSA aims to ensure that every Child with Special Needs (CWSN), irrespective of the kind, category and degree of disability, is provided education in an appropriate environment and envisages adoption of zero rejection policy so that no child is left out of the education system. SSA's thrust is on providing integrated and inclusive education to all children with special needs in general schools, as far as possible - with adoption of suitable alternative approaches in special cases. SSA Framework mentions that a child with special needs should he taught in an environment which is best suited to his/her learning needs.

In 2004-05, 18.53 lakh Children with Special Needs were identified in the age group 6-14 years.

In the year 2005-06, the Project Approval Board allocated an amount of Rs. 186.79 crores for a total of 20.14 lakh CWSN identified. Convergence has been established with Ministry of Social Justice and Empowerment to provide aids and appliances to CWSN under SSA. Steps are being taken to make all new school buildings and the existing schools barrier free.

According to a survey conducted by All India Confederation of the Blind (AICB), there arc 5846 children enrolled in 70 special schools. It is believed that there are about 400 special schools functioning in the country. If we apply simple mathematics based on this survey then there are about 33000 children receiving education in special schools. Thus, there are about 282000 children receiving education both in regular and special schools together.

AVAILABILITY OFTEXTBOOKS IN BRAILLE

It is desirable as well as necessary to know as to how many children in schools (both in special and regular) have access to textbooks in Braille. A questionnaire was designed to collect information about the number of children enrolled in special schools stage-wise. Further, the number of these children having full access to textbooks and also the number of those children having partial access was also studied. This questionnaire was sent to all the 125 schools, whose addresses were available with AICB.

Seventy schools responded. The Analysis of the responses received showed that there are 5,846 children enrolled in these seventy special schools. 287 of these have full access to textbooks while another 312 children have partial access. Thus, only 599 (10.25%) have some access to textbooks in Braille. Uwe take this as sample, (though in strictest sense it can not be accepted a representative sample), then, the picture of those children having Braille textbooks will be somewhat like this. The total number of children receiving education is

about 2,82,000. Available empirical evidence indicates that 599 out of 5,846 identified children have Braille textbooks. Simple mathematics application would suggest that about 29,000 children might be having some reading material. This figure is to a large extent closer to the figure worked out by National Institute for the Visually Handicapped (NIVH), Dehra Dun while planning their Braille production programme based on the estimates of 7th All India Education Survey of NCERT. NIVH estimated that about 2,10,107 blind children have no access to Braille textbooks and efforts will need to be made to provide the required reading material to these children.

In the past 15 years, the facilities of producing Braille material have increased substantially. While in early 90's there was hardly any computerized Braille production facility available in the country, now there are more than 250 small Braille printing units and about 15 large Braille presses available in this country having the speed of producing 200 characters per second to about 400 characters per second. A small Braille printing unit can print about 1,500 pages per day. A large Braille press can produce about 6,000 pages per day. If all the presses are fully utilized then based on these figures the country can produce about 13,00,00,000 pages per annum if these machines function on an average for 250 days per year. If the country has such a large production facility then why the number of children with blindness do not have access to Braille textbooks?

The reasons can be many. These may include: Lack of demand due to lack of interest in reading Braille books due to improper and inadequate facility of teaching-learning Braille both in special and regular schools and under-utilization of Braille production facilities.

WHO IS RESPONSIBLE FOR THIS SITUATION?

The responsibility of teaching to children with blindness enrolled both in special and regular schools lies with teachers. There are courses in operation in this country to prepare teachers to teach children with blindness. They are of two levels - one at under-graduate level and the other at degree level. The strategies used for teaching Braille to prospective teachers are faulty due to which those coming out of these courses are not well equipped with Braille skills. As a result, when they get employed as educators they do not pay adequate attention to teaching of Braille while teaching language and other subjects. This leads them to advocate the use of audio material to supplement the lack of Braille textbooks. This has adverse effects on the blind children's interest in learning Braille. It is obvious that when one gets used to avoiding or not learning a subject, he/she would like to ignore the same even if there are opportunities for learning it. No doubt that there are some institutions that have very good special educators with adequate Braille teaching skills, but, in this case the lack of textbooks in Braille forces them to make use of audio material. Further, as mentioned earlier, the notion that audio textbooks can substitute Braille books is also responsible for demotivating the blind children from learning Braille.

There are several national and international instruments which make it obligatory for different countries to make all possible efforts to facilitate the total rehabilitation of persons with different disabilities. The Persons With Disabilities Act of 1995 (which came into force on 7th February, 1996) commits to provide all educational material needed by children with disability up to the age of 18 in this country. It also talks of providing adequate training to teachers to teach children with disabilities. The National Policy on Disability also echoes

this statutory commitment.

Guiding document for all activities for persons with disabilities is the UN Convention On Rights of Persons With Disabilities (UNCRPD) after its adoption and ratification. It has very clearly and categorically been stated in the Convention that States parties shall enable persons with disabilities to learn life and social development skills to facilitate their full and equal participation in education. To this end States Parties shall take appropriate measures including facilitating the learning of Braille etc. The Convention has also made it incumbent upon the States parties to take every possible step to make primary and secondary education inclusive in all respects. This means that children with blindness get all kinds of printed material in to Braille as do their seeing counterparts. Not only this, they should get all opportunities to learn Braille in an appropriate manner.

Keeping in view the foregoing pathetic scenario of availability of books to enrolled children with blindness and also the legislative commitment to facilitate the education of children with disabilities including the blind, it is imperative that urgent steps are taken to ensure that every child who is in any educational programme is provided all needed textbooks in Braille. The suggested measures are as follows:

- Teaching of Braille to prospective teachers needs to be improved significantly. For this purpose the Rehabilitation Council of India (RCI) must strictly monitor this very closely. In-service teachers need to be given intensive enrichment training in teaching-learning Braille.
- Available Braille production facilities are fully utilized to produce more number of books. The Government and the non-governmental organizations should seriously work together towards developing an effective Braille production coordination mechanism.
- All those involved in implementing educational programs make an honest commitment to avoid giving audio textbooks to their pupils at least upto class lO th.
- The teachers to be reregistered with the RCI which is a statutory requirement in this country are objectively assessed in terms of their Braille teaching-learning skills periodically.
- Braille reading and writing competitions need to be organized at regular intervals to motivate and encourage children with blindness to take interest in learning Braille.
- Lack of authentic data on the number of children with blindness enrolled in educational programs of different kinds and also the number of children who still need to be brought within the ambit of education particularly UEE is a major hurdle in planning need-based strategies for Braille production. It is, therefore, essential to regularly maintain a register of children enrolled in schools. It is suggested that a mechanism may be evolved for this purpose.
- Steps need to be initiated by the State and Non-Governmental Organizations of and for the blind to ensure that Braille gets adequate publicity. For this purpose, we must try to make arrangements of providing menus in Braille in hotels, Braille labels be placed on the doors of all public utility buildings, bus stands, stations etc. This will have motivating effect on children and adults with blindness.

- Teachers performing appreciably well in teaching Braille to children with blindness should be suitably encouraged by giving appropriate incentives.
- Learned participants present in the august gathering can add many more innovative measures towards this end.

CONCLUSION

Education is a birth right of every child regardless ofcaste, creed, ability/disability. It is our pious duty to do everything that we can at our end to help our children with blindness to get appropriate education. This can only be done if we can ensure that every child gets what he/she needs to promote his/her learning in true sense. Ensuring enrollment and retention will not help to realize the goal of true education. It is, therefore, earnestly appealed through this conference to take all measures for ensuring Braille books and other tactile material to our children with blindness to mark the 206 birth year of Louis Braille to whom all of us salute.

I thank you all for your patient hearing.

Providing Textbooks and Reading Material in Braille - The Need of the Hour

By : Dr. M.N.G. Mani
Secretary General, ICEVI

First of all I thank the All India Confederation of the Blind (AICB) for giving me an opportunity to deliberate on the topic "Providing Textbooks and Reading Material in Braille - The Need of the Hour." The AICB has also made my work simple by collecting required information on this subject from most of the countries in Asia.

1. PRESENT STATUS

The analysis of the data provides insights into this issue and I am sure the conference would take note of the observations made by the member countries with regard to the present status of Braille development and Braille book production. The responses are summarized under the following broad headings:

a. Celebration of the 200" Birth Anniversary of Louis Braille

With regard to initiatives taken by countries in Asia to commemorate the 200 th Birth anniversary of Louis Braille, most of the countries have plans for grand celebrations and activities. Some are planning to start teacher preparation programmes with a special focus on learning Braille. Braille development committees have been constituted in many countries to provide a special fillip to the popularization of Braille learning. Releasing of special stamps in memory of Louis Braille also features the celebration. It is gratifying that the 200 th birthday anniversary will be remembered all over the world in general and in the Asia region in particular for a person who revolutionized the learning of visually impaired persons by the introduction of the magic dots.

b. Local Production of Braillers and Inter-point Braille Writing Frames

Most countries in the region do not produce Braillers and Inter-point Braille writing frames but it is good that such devices are produced in the region itself. India is the supplier of these items to many countries as it is affordable compared to the ones available from the West. In this connection, I am happy to inform you that the International Council for Education of People with Visual Impairment (ICEVI) is in the process of facilitating a Resource Centre at the Hong Kong Society for the Blind to procure and distribute low-cost high quality assistive devices to developing countries for promoting education for all children with visual impairment. Before procuring, producers of assistive devices will be contacted to supply sample devices useful for primary and secondary level education of children with visual impairment and a team of experts will make an evaluation of the quality of selected devices.

Provision of such quality devices would make education of our children effective.

c. National Braille Authorities

It is a matter of concern that in many countries in the region, there is no apex body such as the National Braille Authority to monitor and coordinate matters related to Braille development. It is high time to set up such authorities to carry out developmental work on Braille. The issue of contractions for regional languages in the country is also another concern to reduce the voluminous nature of Braille books. Establishing National level Braille Authorities would address these issues and I hope the countries which do not have such a body at present would swift into action as soon as possible. This will be a fitting tribute to Louis Braille himself

d. Special Devices to Teach Braille

Most countries participated in the survey indicated that there is no special device available to teach Braille, meaning that the Braille script is taught in the conventional method. There are low cost teaching devices but lack of data on appropriate tactile teaching devices is also a concern. The Braille Authorities at the country level, when established, may gather information on such matters too, which will be of use for teachers and parents.

e. Inclusive Education

Most countries indicate that the Ciovemments arc implementing inclusive education for children with visual impairment. However, they have mentioned that the quality of services may be a concern. Inclusion is vital to provide access to more than 4.5 millions of children with visual impairment who do not have access to education at present. At the same time, we should ensure that children with visual impairment receive adequate support services to succeed in inclusion. The Global Campaign on Education for All Children with Visual Impairment (EFA-VI) implemented by the ICEVI acting in partnership with the World Blind Union (WBU) stresses the provision of support services as one of its four principles of the campaign and this lobby should percolate into nations to make inclusion successful in the case of children with visual impairment. We need to impress upon governments that mere creation of inclusive climate in schools does not ensure inclusive education and therefore, we should urge them to create facilities to provide necessary support services that includes special teacher support, Braille materials, assistive devices, etc. I appeal to the member countries to take active part in the promotion of the EFA-VI campaign.

f. Braille Codes for Languages Spoken Locally

countries around the world teaching of Mathematics and Science to children with visual impairment is not finding its due place as lack of expertise in Mathematical and Science notations is expressed as one of the major concerns. Most countries do not have Braille codes for Music. With regard to computer software, most countries use what is available from the West.

g. Availability of Braille Presses

Most countries have multiple Braille presses for production of Braille materials for children with visual impairment. Braillo 200 and Braillo 400 are the mostly used printers whereas Index 4x4 and Everest are also put into use. Majority of the countries indicated that more than 80% of children with visual impairment receive Braille books, which is a good sign for their empowerment through education. With regard to provision of non-text material in Braille format, most countries indicated that only 25 to 50% materials are provided. This is a clear indication that children with visual impairment do not have access to all materials that are available for sighted children. The cost towards the preparation and supply of Braille books is met by the respective Governments in most cases and the contribution of international agencies is also evident in this work. Majority of countries have Braille translation software to convert Braille materials into local language. Delay in funding is considered to be a major difficulty in the steady production and supply of Braille books to children with visual impairment in most countries. Obsolete Braille printing system is also mentioned as a problem in the Braille book production process. In some countries, shortage of Braille papers is evident.

h. Suggestions to Improve Braille Book Production and Supply

The following suggestions emerged from various countries for the promotion of Braille 1 iteracy, production and steady supply of Braille books to children with visual impairment.

Establishment of Braille Authority at the national and regional levels.

Introducing Braille as an optional subject in school curriculum in order to encourage sighted students learn Braille.

Steady supply of papers for printing Braille books.

Application of latest technology in Braille book production work.

Putting pressure on Governments to provide education for all children with visual impairment.

Development of unified codes especially for Arab speaking countries that would enable exchange of Braille text materials.

2. SUPPLY OF BRAILLE BOOKS - ROLE OF GOVERNMENTS

As per the Dakar Declaration, the Governments have committed to provide education for all children I EFA) by 2015 but EFA without the inclusion of children with visual impairment is not a reality. Production of Braille books may be costly but it is the responsibility of the country to make necessary Braille books available for children with visual impairment too to fulfill their rights to learn. Besides providing sufficient funding to Braille presses for the production of Braille books, Governments may also initiate the following measures for the smooth production and supply of Braille books.

- As frequent production of Braille books is a time consuming process and costly too, Governments may retain the school curricula at least for 5 years.
- As many computerized Braille presses are coming up, the Government may coordinate with them in such a way that all presses do not get involved in preparing all text materials. Specific texts may be assigned to Braille presses and then the softcopies may be shared in order to reduce the preparation time for master copies.

  Governments may also make arrangement for central supply of Braille papers in order to reduce the cost.

The above list is not exhaustive. Braille book is not a luxury but a necessity to empower persons with visual impairment and therefore, coordinated efforts of Governments and voluntary organisations are imperative to supply Braille books.

3. UN STANDARD RULES WITH REFERENCE TO READING MATERIAL IN BRAILLE

Rule 5 of the UN Standard Rules on the Equalization of Opportunities for Persons with Disabilities deals with Accessibility. The clause 6 under section (b) - Access to information and communication - of the Rule 5 indicates that the "States should develop strategies to make information services and documentation accessible for different groups of persons with disabilities. Braille, tape services, large print and other appropriate technologies should be used to provide access to written intormation and documentation for persons with visual impairments. Similarly, appropriate technologies should be used to provide access to spoken information for persons with auditory impairments or comprehension difficulties. Clause 10 mentions that the "States should ensure that new computerized information and service systems offered to the general public are either made initially accessible or are adapted to be made accessible to persons with disabilities." We need to make effective use of the clauses of the Rule 5 to ensure provision of literature in Braille format to enrich the learning opportunities of children with visual impairment.

4. REFERENCES TO BRAILLE IN THE UN CONVENTION ON TFAL RIGHTS Of pptsoNs WITH DISABILITIEk (IJNCRPD)

Clause 3 of th4Article 24 (Education) of the UNCRPD states as follows:

"States Parties shall enable persons with disabilities to learn life and social development skills to facilitate their full and equal participation in education and as members of the community. To this end, States Parties shall take appropriate measures, including:

"Facilitating the learning of Braille, alternative script. augmentative and alternative modes. means and formats of communication and orientation and mobility skills. andfiwilitating peer support and mentoring".

The clauses of the UN Standard Rules and UNCRPD serve as effective weapons to impress upon national governments to provide appropriate learning materials in accessible format to children with visual impairment. We are happy that a Committee consisting of 12 persons has been appointed to monitor the implementation of the UNCRPD and we hope the environment for effective education for children with visual impairment would emerge in all countries of the world in general and developing countries in particular where more than 80% of children with visual impairment live.

5. APPLICATION OF VARIOUS TECHNOLOGIES - SOFTWARE AND HARDWARE

The relevance of technology in special education is more than that of general education. The capability of technology is that (1) it makes the complex simple; and (2) it addresses the individual needs of the learner. Technology has multifarious applications in education of persons with visual impairment. Firstly, use of appropriate technology reduces the handicapping conditions of the individual in the study and work environment and secondly, application of the enabling technology enhances the learning potential of persons with visual impairment. Technology can also be used to reach out to the large number of persons with visual impairment who are currently deprived of any educational and vocational opportunities. For printing Braille books, efficient Braille translation and editing software are available. Some of the commonly used software are as follows:

a. Braille2000

b. BrailleMaster Braille Publishing Software

c. Duxbury Braille Translator

d. MegaDots

e. WIMATS

f. Win Vision

One has to confirm whether translation programmes can handle special notations, especially in mathematics and science. Most translation programmes have difficulty translating into correct Braille version, when multiple languages are used in the text. Use of Braille contractions is also another issue that should be looked into when selecting the software. Special mention is needed about the WIMATS (Webel - ICEVI Mathematics Transcription Software) which enables transcription of

mathematics text into Braille format. As most Braille presses are not producing mathematics Braille books due to lack of proper software, Webel Mediatronics Kolkata and the International Council for Education of People with Visual Impairment worked on this initiative for more than 2 years and came out with this software, which is found to he effective by Braille printing presses. At present this software is available only for countries which use Nemeth Code. Depending on the response, there is a proposal to adopt this software for other codes too.

In selecting the Braille printer, one has to see the volume of printing and also the availability of local maintenance services. Fluctuations in electricity should also be avoided for the smooth functioning of the Braille press. Therefore, setting up of a Braille book production system should be viewed as a highly professional work and not as a routine affair. Training of the right persons for typing, editing, formatting printing, etc., is of vital importance to make the Braille book production system successful. The AICB has demonstrated how Braille books could be produced effectively - both in terms of quality and cost-effectiveness and this example may be emulated by those who want to set-up new Braille presses.

6. ROLES OF PRINTING PRESSES

In Braille book printing, clear task analysis is necessary to make the production work effective. The following description may be helpful for those who want to make the work professional. Based on interviews, observation and review of related literature, the following sequence is suggested in Braille book production (Khoa and Mani, 2005). It also helps in defining tasks for various personnel involved with the Braille book production work.

a. Editing Stage: (Works done before the book is translated into Braille)

- Look at the content of the book which should be translated.
- See for visual and non-visual ideas.
- Look over the pictures and diagrams available in the book.
- Estimate the number of pages to be translated.
- Seleet the pictures to be converted into tactile form.
- Look for ways to transcribe special signs.
- Assess the human resources for translating the book into Braille.
- Estimate the time needed for translating the book into Braille.

b. Transcription Stage

- Knowledge of Software available for transcription.
- Knowledge of Computer configuration.
- Assessment of human resource for doing transcription.
- Knowledge of the method of typing.
- Skills in transcribing special signs.

- Fixing the speed in typing for calculating workload.
- Assessing time requirement for doing transcription.

c. **Proof-Reading Stage**

- Assessing the human resource for doing proof-reading.
- Deciding method to make correction .
- Knowledge of visually impaired persons in proofreading the content.
- Assessing self correction possibility.
- Knowing methods of the proof-reading done by sighted person.
- Knowledge of methods which sighted persons use for doing correction.
- Using sighted and visually impaired persons together for proofreading.
- The method of making correction after proof-reading is completed.
- Estimating the time needed for proof-reading.

d. Teaching Material Preparation Stage

- The pictures, diagrams need to be converted into tactile pictures, diagrams.
- Knowing ideas for converting the visual pictures, diagrams, etc., into tactile forms.
- Procuring materials for converting the pictures, diagrams into tactile ones.
- The method of preparing tactile pictures, diagrams.
- Assessing human resources for preparing tactile pictures, diagrams.
- Checking the tactile pictures, diagrams by persons with visual impairment for clarity.
- Calculating the time needed for preparing tactile pictures, diagrams.

e. **Printing Stage**

- The Braille Embosser specifications.
- Knowledge of Computer configuration.
- Software specifications.
- Knowledge of Speed of Braille Embosser.
- Knowledge about Braille paper specifications.
- Printing in single side or double side.
- knowledge about uses.
- Time needed for doing printing.

f. Binding and Dispatch Stage

- Cutting the printed papers.
- Preparing cover sheets.
- Arranging the tactile pictures, diagrams into the book.

- The method ofhinding done by the visually impaired and sighted person.
- Time needed for doing binding.
- Dispatch or delivery.

The above procedures may make any Braille book production unit effective and professional.

In addition to ensuring quality in production of Braille books, the Braille presses in the country may share soft materials to avoid duplication. Considering the fact that children with visual impairment have only limited access to non-text materials. this sharing will do a lot of good for information exchange. The Braille presses may also exchange expertise available for specific areas such as mathematics and science Braille book printing process.

In many Braille presses, preparation of master tactile diagrams consumes a lot of time and therefore, these may be shared for the purposes of ensuring uniformity and also for reducing the cost.

In summary, the exchange of ideas, materials, and expertise amongst the Braille presses would facilitate reaching out to more children with visual impairment.

7. COST OF SUBSIDY

In India, cost of Braille printing paper is approximately 1 Rupee per sheet and the total cost of production of Braille materials per page ranges somewhere between Rs. 2 to 4. On an average, each child at the secondary level requires textbooks which run into more than 3000 Braille pages and therefore, the minimum cost comes to Rs. 6,000/- The child cannot afford Braille books unless it is subsidized. Either the Government or Philanthropists or Voluntary Organisations or International Developmental Organisations should come forward to provide appropriate subsidy so that the Braille books can be made available at a price the child or educational institution can afford. Subsidy towards production should not be treated as an act of charity but an investment towards the empowerment of persons with visual impairment.

I hope the paper provided you with some insights in the Braille book production process and I urge one and all to see that children with visual impairment have steady supply of Braille books to make their education more effective.

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Critical Issues Relating to Braille Codes in Participating Countries

By : A.K. Mittal
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Treasurer, World Blind Union

INTRODUCTION:

Through this presentation, we seek to analyze the situation of literary Braille in the member-countries of Asian Blind Union. The term 'Literary Braille' is significant in our context, since we are not concerned, here, with either Braille mathematics and science codes or music notations or computer symbols, which form the subject-matter of discussion in another of our sessions.

Our objective in this presentation is rather specific. We wish to disseminate and analyze information on various aspects of the development of literary Braille in our countries. The issues we are focussing on relate to such questions as:

a. Whether all of the countries and languages in the ABU region have their own literary Braille Codes or whether any of them have revised the existing Code;

b. Whether the concerned languages have their own sets of Braille contractions and abbreviations and what is the frequency of their use;

c. Whether these languages have been able to develop their own Braille translation softwares.

The ABU region, as is well-known, consists of countries of West Asia (Middle East and Iran); South Asia and Central Asia. While Arabic is the main language of communication in the Middle East. Persian is the language used in Iran. In Central Asian countries, Russian as well as local national languages (e.g. Kyrgyz, Uzbek, Tajik) are widely used. South Asian countries, on the other hand have more or less separate languages.

QUESTIONNAIRE APPROACH:

We decided to approach the National affiliates to obtain information on the above-mentioned issues relating to the situation of literary Braille in their respective countries. We designed a detailed questionnaire part of which dealt with items relating to literary Braille. Thus, our questionnaire, inter-alia, had five specific items on the subject under discussion at this session. These were:

1. Does your country have a Braille code for the language spoken there? If yes, the name of language for which such code exists.

2. Does your country have a code of Braille contractions and abbreviations for your language? I f Yes,

a. How many contractions and abbreviations the code has?

b. When was it introduced?

c. flow much is it accepted and used by children and adults - fully. partly, very little.

3. Has your country introduced a new or revised Braille code for your language recently? If yes.

a. Why the code was introduced?

b. When was it introduced?

c. Any salient features of the new/revised code.

4. Do you follow the same code for your language as is used for that language in some other country e.g. Arabic language, Bangla, Russian? --- Yes/NO

5. Do you have a Braille translation software for the language/(s) spoken in your country? ---Yes/No.

COLLECTION OF DATA:

The above five questions, which formed part of a broader and more comprehensive questionnaire, were circulated among various affiliates of ABU member-countries by email and/or by post, as required. These were also made available in Arabic and Russian translations. The intent and purpose of the questions was also explained personally by the Secretary General and President, ABU in a face-to-face situation, to representatives of affiliates at ABU meetings. Necessary clarifications were also provided on phone. Additional information was sought and obtained from answering affiliates, if the response was found on examination, to be vague or unclear.

A total of sixteen countries responded to the questions. Subregion-wise break-up of responding countries is as follows:

a. Middle East and West Asia: Jordan, Lebanon, Syria, UAE, Yemen, Iran, Oman.

b. South Asia: Bangla Desh, India, Nepal, Pakistan, Sri Lanka.

c. Central Asia: Afghanistan, Kyrgyzstan, Uzbekistan, Tajikistan.

Some of the responses were quite clear-cut and complete, while a few were not, despite our best efforts. This was, presumably, due to communication difficulties.

DATA ANALYSIS:

On analysis of the information received, it was found that:

a. Almost all of the concerned countries had Braille Codes for their respective languages - Arabic, Persian, Hindi and Indian languages, Bangla, Nepali, Sinhalese, Urdu, Pashto, Dari, Uzbek and Tajik. However, the situation is not too clear about languages spoken in Central Asian countries.

b. Many of the languages have developed their own set of Braille contractions and abbreviations. The number of • 'tractions and abbreviations ranged from 70

(Yemen) to 280 (Urdu, Pakistan). These are being used 'fully' in Lebanon and Pakistan: 'partly' in UAE and Yemen and 'Very little' in Syria and India. Nepal is still in the process of firming up Braille contractions and abbreviations. According to available information, the following languages do not have Braille contractions and abbreviations: Persian, Sinhalese, Uzbek, Tajik, Pashto and Dari.

c. UAE has stated that Unified Arabic Code has been revised some what in 2005 to provide, primarily, for Braille equivalents of computer symbols. We believe, a few minor additions have also been incorporated in Nepali Braille recently. India is contemplating a review of its Braille system known as' Bharati Braille', which was introduced in April, 195 I .

Uzbekistan have introduced a new Braille Code for 'Uzbek Latin' in the year 2005, consequent upon the change in the language policy of their national government. Similarly, Tajikistan have also brought about some change in respect of the code for their language since 1993.

d. The following languages arc reported to have their own Braille translation softwares: Arabic - Lebanon, Jordan, UAE, Oman - Urdu (Pakistan), Persian (Iran), Sinhalese (Sri Lanka). Uzbekistan, Kyrgyzstan and Tajikistan have also reported that they have Braille translation softwares, which would, presumably, be referring to Russian language Braille conversion. India is in the process of developing and standardizing a Braille translation software for its languages. Syria and Yemen report that they do not have such softwares, while Nepal, too, does not have the same.

RESULTS AND DISCUSSIONS:

There has been some degree of ambiguity and lack of clarity in respect of some responses from a few answering countries. Information received from Bangladesh has, regrettably, been very limited, almost nominal. The following results emerge from the above analysis of the data collected:

a. All of the responding countries have a literary Braille Code for their respective languages, though the situation is not very clear with regard to Kyrgyzstan. That almost all countries have their own Braille Codes, is a most welcome development. This is indicative of the initiatives taken by blind persons and professionals and speaks highly of the importance attached in these countries to Louis Braille's embossed system. It is for them, now, to provide maximum reading material in the concerned Codes.

b. Braille contractions and abbreviations are available in Arabic, Urdu, Hindi and Indian languages and are being standardised in Nepali. However, their use is not very widespread, excepting for a couple of instances. In India and elsewhere, the controversy has been raging for some time, now, whether Braille contractions and abbreviations should be used at all in respect of the concerned national languages. The irony is that Standard English Braille Grade II (contractions and abbreviations) is widely accepted and followed in these countries. Why the same is not the case for the national languages is a matter requiring careful and objective consideration. Is there something radically wrong or missing about these contractions in national

languages, or is it just the usual initial hesitance, even resistance, to leaning something new? We need to evolve a uniform policy in the matter. Perhaps, this important conference could show the way ahead by coming up with definitive conclusions.

c. Not many languages have undertaken an extensive review of the on-going Braille Code. This is so, perhaps, because not much research has gone into the development of Braille in our countries or, may be, production of reading material has not taken place on a large scale in some countries. The Central Asian countries call for special treatment in respect of development of Braille Codes for their own languages. Information received from them in this regard has been rather sketchy and there is no response at all from one of the live countries of the sub-region viz. Turkmenistan.

d. There is urgent need for proper development, standardization and use of Braille translation softwares. It is rather surprising that even where such software is stated to he available (Arabic, for instance), it is not being used in two responding countries of the sub-region -Yemen and Syria. This calls for urgent analysis and suggestions by our present conference.

e. Our region has the unique situation of one language being spoken /used in more than one country, even beyond our region. Thus, Tamil is used in parts of Sri Lanka and India, Bangla in Bangla Desh and parts of India and Arabic in the Middle East and some countries of Africa. We wanted to find out whether a common code is used for producing Braille material in the concerned languages - Tamil, Bangla and Arabic. If the same code were used, production of reading material and its use could become so much easier across countries. We believe, the Arabic Braille Code is now used in Africa also, though this is subject to verification. Owing to very nominal response from Bangladesh, we could not get any reliable information about Bangla. Situation about Tamil Braille use in Sri Lanka seems quite close to Bharati Braille. This conference needs to look into this aspect carefully and give a clear policy guideline.

CONCLUSION:

We have used a set of questions to obtain information on the status of literary Braille in our ABU region. Sixteen countries have sent in information, though some of it is not very pointed and specific. We would request the participants from different countries to tell us if the information presented here conforms to the actual situation or whether they could further enrich these responses and make them more meaningful. We solicit your valued inputs on the subject of literary Braille in your countries, availability and use of Braille contractions and abbreviations as well as translation softwares as also review of existing Codes, if needed. We would also need to deliberate upon the issue of the same Code to be used for languages spoken in two or more countries. The situation of the emerging Central Asian States with regard to Braille also calls for our urgent attention. We look forward to a session of enlightened and cooperative thinking with all of you.

Different Codes - Mathematics, Science, Music, Computer-Symbols

By : **K. Raman Shankar**
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and
Jagdish Chauhan
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Braille is the script which is based on 63 different combinations made of six dots. It is widely used by the visually challenged people throughout the world for reading and writing purposes. This script follows the principle of phonetic similarity. That is the reason why each and every language of the world can be written in Braille, and though the blind person doesn't know to speak a particular language, if he has command over Braille, he can read that language through this script, no matter whether he will get the meaning of the document or not. Thus we can say that the Braille script is an universal script which is able to serve all the languages existing in the world.

THE NEEDS OF DEVELOPING DIFFERENT CODES IN BRAILLE

Other than languages, there are some other fields also which the scripts are supposed to serve or cater to their needs. Some of these fields are Mathematics, Science, Music etc.

Now, the question is, whether the Braille script is able to cater to the needs of such various fields? Answer to this question is that the Braille script cannot serve all the fields including languages, with its very pure form, because the scripts used by normal people are usually based on lines, circles etc. which can make endless symbols, whereas the Braille script is totally based on six dots, which give maximum 63 different dot combinations (with blank space 64).

Second limitation of Braille in this connection is that, symbols in print script can be shifted anywhere vertically or horizontally but this is not the case with Braille, because the positions of the Braille dots are fixed and they can't be shifted at all, e.g. in Mathematics we write 2^1 or in Science $u_{„}$. This can't be written in Braille. This is to say, that no single additional combination of dots can be made apart from the 63 combinations already mentioned.

One thing to be noticed here is that, the need of any professional field may be vast and ever changing.

These are the two main reasons, why many codes have been developed in Braille to cater to the needs of different professional fields apart from languages.

BRAILLE CODES FOR MATHEMATICS AND SCIENCE

With the invention of Braille script, learning and teaching of Mathematics and Science

by visually challenged people along with the other subjects, in formal education, became possible for the first lime. In the last decades of the 19 th century, due to the invention of Braille, writing and reading of Mathematics and Science, by visually challenged people became easy but in the absence of a proper Braille code for these subjects, visually challenged people had to Ike many problems in reading and writing of Mathematics and Science. Mr. Taylor prepared Mathematical Braille code for the first time in 1917. It was accepted by the Standard English Braille in those days.

Soon after, Japanese Mathematical Braille code was also being prepared on the basis of Taylor's Mathematical Braille code.

In 1929, Marburg system was developed; all the contemporary Mathematical Braille codes in different European countries were coordinated in the Marburg system.

The World Council for Welfare of the Blind tried to think over the possibility of uniformity of the Mathematical Braille codes available in different countries, but its efforts were in vain, because it did not receive worldwide support at all.

In the 60s of the last century, many people tried to make Japanese Mathematical Braille Code as the world Mathematical Braille code, but they could not succeed.

In 1963, the Soviet Blind Association decided to develop an uniform Mathematical Braille code based on Marburg system. This new code was prepared and published in 1973 and its English version was published in 1975.

Prof. Abraham Nemeth's Contribution in Developing Mathematical and Science Braille Code

Prof. Nemeth (Ph.D.) of United States of America who himself was a blind person prepared a well-structured, well organized and extensive Braille Science and Mathematical code in 1955. This Braille Science and Mathematical code was quite different from the other Braille codes, which were popular for the same purposes in other European countries, those days. After many experiments, this Nemeth Braille Science and Mathematical Code was given its final shape in 1973.

Nemeth Code for Mathematics and Science Notation

Prof. Abraham Nemeth was born congenitally blind, and always had a fascination for Mathematics. As he progressed from one Maths course to the next in each of the eight semesters of high school, he found that the Standard Mathematics Braille Code of the time was interestingly inadequate. When he attempted Maths courses at the college level that code was found to be useless.

His counselors persuaded him that his dream of becoming a Mathematician was entirely unrealistic. They strongly suggested that he should switch over to a more attainable major, which he did, and eventually he earned an M.A. degree in psychology from Columbia University. In doing so however, he lost about six valuable years in the profession of his choice.

But he never really abandoned his first love. He began improvising a private Braille code and he returned with it to his local college as an un-matriculated student and took all the undergraduate Maths courses in the catalogue through a combination of networking and good fortune. His private code was brought to the attention of the Joint Uniform Type Committee, a cooperative effort between The United States and Great Britain to resolve the disparities between their two Braille codes. This committee adopted his code as the national standard on the same day that he presented it. Over time, the code called the Nemeth Code, went through three revisions: in 1956, in 1965 and in 1972; the last revision is today the official standard.

When he first devised the Nemeth Code, it was his intention that it should be used primarily for Mathematics and other Natural Sciences; in fact, its official name is the Nemeth Braille Code for Mathematics and Science Notation. He found however, that he was using it for every writing activity. Dozens of transcribers had told him that except for the dropped numbers, the Nemeth Code was already the uniform Braille code for which the Braille using community had been striving. There was nothing that could not be transcribed in the Nemeth Code.

A Nemeth Code transcriber need not be proficient in Mathematics; all that is required is to look up the symbols and follow the rules. That is what has attracted so many transcribers and what accounts for such a large collection of Braille books in Maths and other natural sciences.

If anybody desires to know about its operation, print and Braille codebooks containing the official version of the Nemeth Code are available from the American Printing House for the Blind.

Basic Philosophy and Principles of Nemeth Code

In creating the Nemeth Code, Prof. Abraham Nemeth just formulated a set of principles to which the code should adhere. Many of these principles were motivated by his use of other Mathematics Codes in which these principles were observed mostly in breach, making those codes unusable for his purpose. Here in no particular order, are what he found to be the most important principles he employed in creating the Nemeth Code.

1. **The Prefix - Root Principle**

   Each symbol in the code is either a one-cell root, a one-cell or multi-cell prefix, or a one-cell or multi-cell prefix followed by a one-cell root. No symbol in a multi-cell root. The problem with a multi-cell root is the difficulty in determining where one symbol ends and the next begins. Adherence to this principle makes the parsing of a Braille expression into its component symbols unambiguous, which was not the case in previous codes. The 1972 official code does not strictly adhere to this principle, but the one that Abraham Nemeth had enhanced and expanded and which he now uses privately does.

2. The Principle ofJust-in-Time Information

When the Braille, one is reading represents a fraction, one wants to know that one is dealing with a fraction from the very outset. One would not like to read an expression that requires thirty six cells for its representation only to find from the last two or three cells that it is a fraction with a denominator of two. Similarly, if it is a complex fraction, one wants to know from the very outset about the degree of its complexity. The Nemeth Code provides a set of symmetrically shaped fraction indicators, the first of which tells the reader that a fraction is about to begin and the second of which tells the reader that the fraction has ended. In addition, a prefix which precedes these indicators and also precedes the fraction bar indicates the level of complexity of the fraction at hand. The same is true about radicals. One does not want to be surprised to find that there is an inner radical lurking in the notation associated with the one already being read.

3. The Preservation - of-Orthography Principle

In Standard English Braille, there are rules that require the transcriber to replace a slash with a hyphen when writing a date. Other rules in Braille require the insertion of an apostrophe where none exists in print or, conversely, the omission of an apostrophe where one is present in print. He regards this as unnecessary tampering with the orthography of the English language. The Nemeth Code, accordingly does not include any such tampering. For example, in the older Taylor code, there were symbols for squared, cubed, and fourth power but no symbols existed for higher powers.

4. The Non-Enclosure Principle

As a major corollary to the preceding principle, the Nemeth Code does not supply enclosure symbols (such as parentheses or brackets) in Braille where none are present in print. Other codes employ such enclosure symbols for various purposes, which he found to he completely unnecessary. In some codes, these enclosures are necessary for accurate interpretation in the absence of just-in time indicators. He refers to these as "phantom enclosures"

5. The Principle of Good Mnemonics

A code that undertakes to represent dozens and even hundreds of symbols must be based on good mnemonics or it becomes too unwieldy to use efficiently. The Nemeth Code, therefore, groups related symbols into families, and the assigned Braille representations of these symbols are related in such a way as to be easily memorized. As a corollary to this principle, symbols that are symmetric in print are also symmetric in the Nemeth Code.

6. The Spacing-Is-Irrelevant Principle

The meaning of a Braille symbol should be independent of the spaces or lack of spaces that surround it. In the Nemeth Code, spaces may be inserted or omitted to

improve readability, or to imitate print practice, but not to alter the meaning of any Braille symbol.

7. The Continuous Notation Principle

Once the reader is processing notation, his attention should not be diverted by Braille indicators (the number sign and the letter sign) that tell him how to interpret the Braille. That is why the Nemeth Code is based on the dropped-number system. In that system, i fa number sign or a letter sign is required at all (frequently it is not), it occurs only at the beginning of a word or phrase and never in its interior. Thus, once the reader begins to read notation, he is not distracted from that task by intervening Braille indicators.

8. The Principle of Meaning Versus Notation

In the view of Prof. Abraham Nemeth, it is the transcriber's function to supply only notation, not meaning, in an accessible form (speech or Braille). It is the reader's function to extract the meaning from the notation the transcriber supplies. Consider the common notation: (x, y). That notation can mean many things: the ordered pair whose first component is x and whose second component is y; the point in the cartesian plane with abscissa x and ordinate y; the open interval on the real line with left endpoint x and right endpoint y; or the greatest common divisor of x and y. The transcriber's function, however, is only to convey this five-symbol expression to the reader. It is the reader's function to extract whatever meaning his experience and the context of the text permit. To this end, the Nemeth Code does not require the transcriber to be concerned with meaning.

The cumulative effect of applying these principles is that when a Braille notational expression is translated into print, the print that results, apart from format and spacing, coincides exactly with the print from which the Braille was produced.

STATUS OF BRAILLE MATHEMATICS CODE IN INDIA

Under the sponsorship of UNICEF, NIVH in collaboration with "National Association for the Blind, India" conducted a National Workshop on "Adoption and Introduction of an Appropriate Mathematical Braille Code for India" in September, 1988. Scholars studied three Mathematical Braille Codes, namely, (I) RNIB Braille Mathematics Code (2) Russian Braille Mathematic Code (3) Nemeth Braille Code for Mathematics and Science Notation, (revised in 1972) to select the best one for India. After thorough comparative study of these three Braille codes, "Nemeth Braille Code for Mathematic and Science Notation" was adopted by the workshop as Braille Mathematics Code for India. The workshop also prepared a manual containing equivalent Braille signs for the Mathematical symbols which normally appear in the text books up to Standard X of the different States of the country.

All the Braille signs in this manual are taken from "Nemeth Braille Code for Mathematics and Science Notation" only. This manual does not cover the entire text of

Nemeth Braille code, but is restricted to the study of Mathematics up to high school level.

The manual contains 30 chapters which include 183 Braille signs in all; it also consists of an appendix which gives a list of all Braille signs with their ink print equivalent and Hindi terms.

Nowadays, all the hooks related to Science and Mathematics are transcribed in Braille with the help of Nemeth Code or "Braille Mathematics Code for India" in all the Braille Presses in the country.

THE BRAILLE CODE FOR WESTERN MUSIC

Braille Music Code has become the worldwide code for blind and low vision musicians. It evolved to what it is today through the work and imagination of many musicians and educators, both blind and sighted, interested in assisting the blind student in learning music. It is surprising to many people that blind musicians actually have a system of reading music and are not forced to rely on learning music orally. While a good ear is important and improvisation is an excellent talent, a printed score is crucial if a musician, blind or sighted, wishes to adhere strictly to what a composer has written. Obviously, if any musician also wishes to compose music, the ability to create a written score is necessary. In schools of music the ability to read music is a required skill. The answer to this need for music literacy for the blind musician is a score written in a form that can be felt by the fingertips rather than seen by the eyes. The person responsible for creating a viable method whereby blind musicians are able to read and write music independently was Louis Braille, who was at an early age also an accomplished musician and teacher.

Since Louis Braille first published his music code in the 1830s, dedicated teachers have worked together to share and standardize this code for use throughout the world. The most up-to-date, universally accepted revision of the Braille music code is the 'New International Manual of Braille Music Notation (Krolick 1996).' This most recent international manual was published in 1996 in Zurich under the auspices of the Braille Music Subcommittee of the World Blind Union (WBU), which was chaired by Ulrich MayerUhma of Germany. This manual came about Mier years of work by the subcommittee and was a continuation of the work done on previous manuals of the Braille music code. According to the manual, it "summarizes the resolutions and decisions of the WBU subcommittee's conferences and workshops held between 1982 and 1994."

These meetings, conferences, and workshops, sponsored by the WBU, were first held in Moscow in 1982, where Dr. Jan Drtina was elected chairman of the subcommittee; and subsequently in Prague in 1985; in Marburg, Germany, in 1987; and in Saanen, Switzerland, in 1992. Their purpose was to create a unified Braille music code for all countries and blind musicians in the world. This manual was written not so much to revise the basic Braille music code as it appears in earlier manuals, but to work on and incorporate divergent ideas, rules, and symbols that recently had appeared in various countries and Braille music publications. As the preface states, "As with most agreements, results could not be reached without compromise... some traditional signs of one country or the other were not accepted in the voting." Unification was reached in regard to clef signs, figured bass, guitar music,

chord symbols, modern music, and many other single signs. The revised manual also added material from Eastern European countries.

The delegate from North America. Bettye Krolick, was active throughout this decade-long project and was instrumental in drawing together the many deliberations and agreements into its final form. The New International Manual of Braille Music Notation is available in Braille from the Braille Press in Zurich, in ink print from SVB Studie-Amsterdam and in a multimedia Windows CD- ROM version from Opus Technologies in San Diego. California. This is the first time a manual of this type has been available in an electronic format.

Mrs. Krolick is also the editor of an earlier publication, 'Dictionary of Braille Music Signs', which was produced and published in 1979 by the National Library Service for the Blind and Physically Handicapped of the Library of Congress (NLS). It has proven to be extremely valuable to students and teachers, and because it is published both in Braille and ink print, it is a practical working manual for use in the classroom or studio. Mrs. Krolick, most recently serving as chairman of the music subcommittee of the Braille Authority of North America (BAN A), has also worked on the revision of the North American Manual of Braille Music of 1988, to make sure it conforms with the New International Manual of Braille Music Notation. The title of this manual is Braille Music Code 1997 and it was published in September 1999 in Braille and ink print at the American Printing House for the Blind in Louisville, Kentucky.

THE BRAILLE MUSIC CODE FOR HINDUSTANI SANGEET

We already discussed about the Braille Music Code for western music, which is there in its existence in this or that form since the very first day of Braille script, invented by Louis Braille, the great. Let us have a few words about the status of music Braille code for Indian (Hindustani) music.

As we know Bharati Braille got its final shape in 1951 as the uniform Braille code to serve all Indian Languages. During those days only some blind musicians and scholars tried to develop the Braille music code for Indian classical music. However they could not succeed in it.

In 1954, for the first time, UNESCO tried to develop the uniform Braille music code, but unfortunately; this effort could not cover the needs ofeastern music.

National Centre for Blind developed an uniform Braille code for Hindustani music during the seventies, but this Braille code could not be used at wide spread level for music at all.

Similarly many blind musicians and music schools had developed their personal Braille codes for the said purpose for their own use, but the usage of such Braille codes was either limited to those persons or the institutes only. That is why, though blind musicians were utilizing the Braille script to take musical notation in their own ways in India, no other blind person was in a position to understand the notation taken by them.

In 1979 the National Institute for the Visually Handicapped invited some scholarly blind musicians and Braille experts to develop one uniform Braille code for Hindustani Music. The group developed uni form Braille music code under the leadership of Ramesh Chandra Nijhawan. This new system was presented in the workshop conducted in Ahmedabad in September 1981 for scholars' suggestions and views on it. 35 musicians from different parts of the country participated in the workshop. Though technically, the workshop approved this newly prepared Braille code for music, it had to be finalized yet.

The National Institute for the Visually Handicapped, Dehra Dun, worked further on the task tirelessly and finally prepared a well structured Braille code for Hindustani Music.

METHODS OF WRITING MUSICAL NOTATION IN BRAILLE

There arc two methods to take musical notation in Braille.

According to this first method, each part of the musical section is supported to be written in its real order continuously. In this method, firstly, musical notation of the particular section is supposed to he written. After a blank space, the number of some Tali or Khali is expected to he written. Once again, after a blank space the lyrics or the words of that particular section will he written. After this, with a blank space the notation of the further section will be written and this order will be continued till the end of the Avartan. The end of the Avartan will be shown by specific Ugrekha, which contains a blank space at both of its sides. The next Avartan will begin from same place in Braille line. if the Avartan doesn't complete in the Braille line, it will he divided by a specific Ugrekha and remaining portion of the Avartan will be written in the next Braille line. This method is the simplest style ()flaking musical notation in Braille with the help of 'Braille music code for India', prepared by N.I.V.H.

The other method of taking musical notation in Braille is just the duplication of style for musical notation used in ink print. This is a system of three lines pattern. According to this style in the very first line, the notations of the song are written. The words or the part of the words are written exactly below the notes meant for them in the second line. In the third line, Sama, Tali or Khali numbers are written exactly below the notations of the words to what they apply. This means that, one has to leave blank spaces accordingly in all Braille lines to match their contents with each other. The division of the sections will be shown with Braille symbol of dot numbers 1,2,3,4,5,6. A blank space will be at both of its sides. The end of Avartan will be shown by the Ugrekha containing a space on both of its sides.

There is a provision for Kan Swara which is expected to be used whenever it needs, but in the Ragas where Kan Swar is very clear, the symbol for Kan may not be used if Braille printer and Braille users have no difficulty in knowing Kan Swar due to its very clear existence in raga as mentioned above.

Avagrahas are shown by different symbols in between the words and Swaras in both Vishnu Digambar and Bhatkhande script. But in Braille Swar Lipi, Avagrahas are shown by the Braille symbol of dot numbers, 3,4,6 wherever it occurs.

To show the timings (Samayaman) of the Swaras, one uniform method will be used in

Braille music code for Indian Classical Music. Samayaman or timing are shown before the Swaras. In the series of swaras there is no need of showing symbol of Samayaman before each of the groups of Swaras whose timing or Samayaman is equal. But writing a symbol of Samayaman in the very beginning of the series of the groups of Swaras which arc to be performed in equal timing will he enough. Whenever the Swaras containing different timing arc to he written, a symbol of Samayaman will be written in the beginning of such Swaras to differentiate its timing from that ofprevious ones.

In normal cases, when all the books printed in Bhatkhande's Swar Lipi, to be transcribed in Braille, the rules mentioned above are expected to he followed. In rare cases Swaras in half circle shown in Bhatkhande style can he shown in quotation in Braille.

GENERAL RULES OFTHE CODE

I. The symbols for Tar Saptak and Mandra Saptak, i.e. dot no. 5 and 6 are to be written before the Swaras of these Saptakas.

2. There won't be any need of the symbol for Madhya Saptaka.

3. The symbol of Kan Swara i.e. dot no.4 will be written before such Swaras, in Tar and Mandra Saptakas.

4. The symbol for Meend, i.e. dot no.1,4 will be written after the Swar from which Meend gets started and it shall also be written before the Swara on which Meend gets ended; but if there won't be any Kan Swara in between the Swaras of Meend the same symbol also will be written in the middle of those Swaras.

5. There are specific provisions to show one matra, a1/2 matra, 1/4 matra and a i/s matra etc. in the code.

6. There is no special provision to show the Swaras of Khatkas like Bhatkhande system in this Braille Swar Script; but the symbol of Samayman will be shown before such Swaras.

7. The Tali numbers from I to 26 in Braille Swaras script will be shown by English alphabets.

The manual of the Braille Swar Script in ink print is available with National Institute for the Visually Handicapped, Dehra Dun.

Though NIVH developed this code in eighties, hardly any book on music could be transcribed in Braille with the help of the code up to 2004.

Credit of printing the book on music in Braille goes to Jitendra Mafatlal Mehta Computerized Braille Production Centre of National Association for the Blind, India which published 'Rag Bodha'. The book contains the syllabus up to Sangeet Visharad of Akhil Bharatiya Gandharva Mahavidylaya. To the best of our knowledge, efforts towards developing a similar Braille code for Karnatic music have not fructified into a systematic and structured code.

BRAILLE CODE FOR COMPUTER SYMBOLS

It wasn't until late 1979 that the first mention of a computer Braille code appeared in BANA's (Braille Authority of North America) minutes, and not until November 1982 that BANA's Mathematics Technical Committee was asked to report on the status of computer Braille encoding with recommendations for actions to be taken. In 1984, an adhoc committee was formed with the assignment of developing a Braille code for computer notation, with this author (K. Raman Shankar) as chairman.

EXTENDING THE BRAILLE CODE

The challenge was clear - Computer programming code was intolerant of ambiguity. Could a Braille code he created that would he precise enough to reproduce the exactness of language required'? The committee quickly accepted ASCII (American Standard Code for Information Interchange) or (MIT) as the foundation on which to build a computer braille code.

The committee began by determining which characters of the ASCII code had already been unambiguously represented in Braille, then moved on to the problem of creating a one-to-one Braille representation of the characters that remained. After letters and numbers, only a few symbols could ever have a single character to represent them, so a preferred list had to be agreed upon as well.

For those characters not on the preferred list, the committee had to design reasonable two-cell symbols. In addition, the committee had to work out a mechanism by which readers could know when they were reading computer text and when literary text was being used.

The 26 letters of the alphabet would be the same in the computer Braille code as in literary Braille, but the characters would stand only for the letters themselves. The letters would be used to spell words, not to represent entire words or parts of words, as they are in the literary Braille code. No contractions would be used - every letter, number, and punctuation mark would have its own separate meaning so that there would be no ambiguity, precisely as intended in ASCII.

The resulting computer Braille code uses all 64 combinations of dots that are possible in a standard six-dot Braille cell (64 with the blank space) and assigns the same meanings to them as in literary Braille, insofar as possible. All letters, numbers, and Common punctuation marks were assigned single-cell representations.

To represent the remaining character of the ASCII code and the additional symbols necessary for transcription, the committee assigned two meanings to a very few Braille symbols. This was accomplished by using a prefix of dots 4,5,6 which appears as the first cell in all of the computer Braille code's two-eel I symbols.

Finally, the committee had to devise techniques to show on paper what could be obvious on a computer screen. In addition, print formatting had to be accommodated in this code.

The solution worked. In November 1986, BANA approved the Code for Computer Braille Notation for publication, and it was officially adopted in 1987. The goal was to 'Make

the Code for Computer Braille Notation a realistic code, capable of unambiguous representation of current computer notation but flexible enough to respond to changing and demanding needs.' (Braille Authority of North America 1987). An addendum that delineated the representation of flowcharted materials was added in 1991.

THE CODE IS SUCCESSFUL

By the end of 1988, personal computers were being used extensively by producers and transcribers of Braille, and Braille computer - related materials were regularly being transcribed with the new code. Computer Braille had enhanced communication among operators, computers, and Braille output devices worldwide, and BANA was assured by Braille programmers that all the rules and formats it had developed and approved were being used.

For the broader market of blind consumers, today's English Braille publishing industry has successfully adopted the computer Braille code, incorporating it into publications that use the literary Braille code and switching to computer Braille whenever e-mail, web site address, or computer notations are encountered. To help Braille readers become familiar with the code, the National Braille Press has published simple training materials (Dixon and Gray1991). Computer Braille code is used when absolute precision is necessary: it is transcribed character for character, with no abbreviations or contractions. It is used interchangeably with English literary Braille, textbook format, the more complex Nemeth Code for Mathematical material, and Braille music code.

I f the unified Braille code that is under development is successful, perhaps one day there will be no need for separate Braille codes tbr literature, Maths, computers, and scientific disciplines. As things stand, the computer Braille code has at least contributed to meeting the needs of blind people in today's society, allowing documents that pass between them to be translated from print to Braille and back again with the ease and speed that only modern computers can provide.

CONCLUSION

A lot of effort as a world wide basis has gone into developing of a variety of Braille Codes for specialized subjects, such as Maths, Science, Music, Computers, etc. in the last 180 years since the advent of Braille. Presently N I VH has also taken an initiative to develop uniform Braille symbols for Social Studies especially during tactile representation of geographical maps, historical charts and so on. We understand that Zonal Workshops are being organized whose recommendations will serve as the basis for developing an uniform Braille code for Social Studies in India. Possibly the representative from NIVH can throw more light on the present status of this initiative during the discussion. NIVH has also being responsible for creation of the Braille Council of India which will review the different Braille codes from the point of view of bringing about revisions, modifications, additions and so on in keeping with the needs and demands of present day education especially higher education. We are beginning to have spray examples of blind students venturing into Science, even after Standard X which calls for expansion of the Braille Mathematics Code for India to cover symbols at least up to intermediate level. In all likelihood the Nemeth Code itself can meet

this requirement but the same has to be formalized. Similarly we in India need to become more familiar with the Computer Code which seems well structured and can enable blind students to do advance courses. There is need to conduct training programmes for popularizing this code with regard to the Hindustani Music Code. It seems that transcribers or proof readers without the knowledge of Music do not feel very comfortable in producing Music related books in Braille. This problem needs to be addressed, besides developing a similar code for Kamatic Music as well.

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Creating Awareness about Braille as an Essential Education & Communication Tool for the Blind in Developing Countries

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Lowenfeld (1975) very appropriately explains importance of Braille as "The significance of Braille's contribution is critical: 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"

I am confident, all the participants of this conference will unanimously agree with me, that along with the importance of teaching Braille to blind students, providing access to Braille books, Braille writing devices and developing Braille codes and taking measures to promote Braille as an effective tool of education and communication among all the blind persons in the developing countries is equally important.

The most befitting tribute to Louis Braille would have been making Braille accessible and providing at least Braille Writing Frames to each and every child with blindness. This will also need the setting up of an effective network of Braille production, Braille libraries and educational equipment. Unfortunately, that is not true. Many research studies have established a sharp decline in the use of Braille, deterioration in the quality of Braille teaching and negligible use of Braille libraries. Many Braille production centers have reduced production and many Braille libraries have closed down.

It is very rare that you see blind students carrying Braille books and what is worrying is that most teachers of the blind are losing touch with Braille.

I shall make an attempt to identify the areas of concern in respect of promoting Braille as a tool for promoting education and communication among blind persons, especially students.

1. THE REDUCED IMPORTANCE OF BRAILLE:

What strikes me most today, more than the non-availability of resources which I describe in the points that follow, is that Braille is losing pride of place as the valued and trusted script of the blind. As a sighted person uses a paper and pen to pen his inner thoughts, so did the blind persons once. At any conference, you would hear the tac-a-tac of a stylus being used. This use of Braille for personal notes and memos is now almost gone. Technology cannot be blamed for this it is the mindset of blind

people that has undergone change.

2. LACK OF BRAILLE PRODUCTION FACILITIES:

Many countries in the developing world still have very outdated technology for Braille production, machines are beyond repair and availability of Braille paper is a limiting factor. Recently, during a visit to a country in West Asia, I observed the following:

- The Braille production technology, using Braille stereotyping machines and Braille embossing machines, is completely outdated.
- The machines are beyond repair as spare parts are not available.
- The slow speed of Braille production and using of Zinc sheets makes production very expensive.
- The Braille production center is expected to provide all the books free of cost even to a Government-run blind school.
- There is no scope for getting Braille paper within that country and the import of the same is very expensive.

The Braille production center is in total shambles. The center looks like a graveyard of machinery. As the existing machinery is not fit for undertaking production, it needs to he dismantled or find a place in a museum only.

I am sure even if the organizations in that country take up the challenge of providing Braille books to all children; it will never be possible in that current Braille Press! There could be a similar situation in many developing countries.

3. DECLINING USE OF BRAILLE LIBRARIES:

In many countries in the developing world, the Braille libraries are either non-existent or in a pathetic condition. A number of emails from many countries are making rounds offering Braille library books free of cost as these libraries are closing down. In our library, which has 15,000 books, there used to be at least 50 visitors every day and a few hundred books used to be dispatched through post during early eighties. At present, on an average there are 2 visitors per day and dispatch of books through post is done only once in a fortnight. I am sure you have such a condition with other Braille libraries, which is very alarming. Most of these libraries are now becoming financially non-viable and expensive to maintain.

You will appreciate that the Braille libraries are still relevant for enhancing knowledge level for blind persons and serve as a reference point for research. The educators in the field must analyze the performance to understand the causes for the decline of such libraries. Even the libraries providing the print and electronic books have taken a variety of measures like establishing INFLIBNET, provision of recreational material, satellite based access, inter-library sharing of books,

digitization of books, incentives to members. It is unfortunate that most of the Braille libraries have not adopted such marketing and promotional strategies. Once such innovative approaches are adopted and plenty of reading and referral material is made available in a variety of accessible formats, establishing and expansion of Braille libraries would be justified and desirable. The AICB and NFB have demonstrated the successful expansion of library network by establishing I 1 such libraries across the country. Unless we promote use of Braille books, make them available in a variety of accessible formats and make these active once again, spread of Braille would never be possible.

4. LIMITED ACCESS TO EDUCATION:

While we are celebrating bicentenary of birth of Louis Braille, almost 90 percent blind children in the developing world do not have access to appropriate education. Even the children who have access to education, the quality of Braille teaching is a matter of concern. The new approaches of integrated education as well as inclusive education have further deteriorated quality of Braille teaching.

EFAV1 Campaign: To ensure access to education, the ICEVI and the WBU along with other international organizations working for children with blindness have launched the campaign "Education for All Children with Visual Impairment (EFAVI). Provision of appropriate support in educational settings and creation of alternative settings to reach out to the un-reached will also become the key aspects of the campaign. This campaign and programme primarily focus on children in the developing world.

The campaign will work within the framework of the general and special education system of countries and will create a demand for education of children with visual impairment. In this campaign, capacity building of teachers and other professionals, development of literature, production of assistive devices, research, etc., are some important tasks that will be undertaken through identified centers of excellence.

The success of campaign will be measured against the enrolment rates of children with visual impairment, reduction of dropouts, creating access to support services including Braille, and ensuring performance on par with non-disabled children. The campaign will serve as a vehicle to increase educational opportunities for children with visual impairment throughout the world.

5. QUALITY OF' BRAILLE TEACHING:

One of the most alarming factors is non-availability of courses for Braille teachers, declining interest of blind students in accessing Braille books and very poor quality of teaching Braille. The distance mode of teacher education is further deteriorating the quality of Braille teaching. It is pathetic situation that majority of teacher and resource teachers of the blind who are expected to teach Braille to blind children themselves have very poor understanding of Braille. It is astonishing that the

distance mode of education has not laid appropriate emphasis on practicals in Braille. Even in the internal evaluation, no major focus has been laid on Braille. The concept of "Continuing Education in Teaching of Braille" is not much prevalent. A system of compulsorily conducting of examination in reading and writing of Braille in case of teacher training and taking Braille test at the time of appointment of such teachers should be introduced. The concept of "No Braille - No job as a Teacher of the Blind" should he introduced.

6. ORIENTATION OF CLASS TEACHERS:

Many developing countries have initiated enrollment of blind children in the regular schools. However, a very few attempts have been made in teaching basic understanding of Braille and educational aspects to regular class teachers. All the class teachers in all the developing countries where blind children have been enrolled should be imparted appropriate orientation in understanding of Braille and use of Braille writing devices.

7. CHILD ASSESSMENT SERVICES:

Many developing countries have yet not introduced the system of appropriate assessment of vision, functional abilities and vision stimulation of visually impaired children. It is essential to introduce the system of medical and functional assessment of children, provision of appropriate assistive devices, planning mode of access of information & communication, preparation of Individual Education Plan and imparting child preparatory services accordingly. Similarly introduction of Pre-Braille services for children who cannot access information through use of sight with or without appropriate devices should be introduced. Let us not treat all the children with varying levels of visual acuity and field of vision in equal manner and provide them training in Braille. The teaching of Braille would be effective when training is imparted in pre-Braille to such children who truly need to use Braille as the means of reading, writing and communication.

8. CHILD PREPARATORY SERVICES:

W. Stein defined integrated education as "Hold the child by hand and lead her into life". Most planners and administrators of integrated and inclusive education generally promote identification of children and their enrollment in the schools right away. Such planners miss out on a very important aspect of preparing such children in pre-Braille. Orientation & Mobility and other coping mechanisms. The procedure of enrolling children straight away into regular classes should be reviewed. The blind children must be provided adequate child preparatory services in these areas with focus on Pre-Braille and Braille reading before they are enrolled into the regular schools. The dictum proposed by W. Stein "No enrollment in regular school unless child is able to cope-up (including reading of Braille)" must be followed by all promoters and proponents of integrated and inclusive education.

9. MORE EMPHASIS ON AUDIO MATERIAL:

Many organizations and schools for the blind have started providing audio material from primary level of education itself. The audio material is emerging as low cost and convenient alternative to Braille material. Too much emphasis on this mode of material has played a crucial role in weaning students away from Braille format of textbooks. While audio books are useful as reference material for education at higher classes, these should not be used as a replacement for Braille books. Braille has its own distinct advantage, which other speakers will explain in other sessions. I propose that blind children, specially Braille readers must be provided all textbooks in Braille, completely free of cost. up to Higher Secondary level of education, eschewing the use of audio textbooks.

10. PROVISION OF DEVICES FOR WRITING & READING OF BRAILLE:

Many developing countries are not in a position to provide such devices to schools where blind children are enrolled. Either such devices are not locally available or are very expensive. In many countries, these devices have not been included in the list of approved items of expenditure. The National Governments and the organizations promoting such education must ensure that every child has access to appro riate educational devices including early learning kit, Braille kit and the geometry device etc.

11. IDENTIFYING SPECIFIC NEEDS OF LOW VISION CHILDREN:

An alarming trend, which is visible in most developing countries, is treating low vision children as blind, enrolling them in the schools for the blind, teaching them Braille and giving them Braille writing devices. Lot of efforts are being made for teaching Braille to such children who generally read Braille through sight and generally do not pick tactile system of Braille. Most of time, these efforts of teaching Braille to low vision children are waste of resources and time as such children do not need Braille but low vision devices. Many other blind children who truly need learning of reading and writing of Braille remain bereft of such services. Covering low vision children in Braille classes is loss of opportunity for blind children who do not have access to such schools, such classes or such programmes. Let us teach Braille only to such children who need Braille as means of communication. Let us not just complete our targets by teaching Braille to such children who can access alternative modes of communication. Only exception however should be that yet low vision children, who have been diagnosed as having progressive loss of sight, must be provided all encouragement and support to learn Braille as an alternative mode of access to textbooks and other such material.

12. USE OF BRAILLE IN NEW PROFESSIONS:

Very few blind people are venturing into new professions like voice training, Radio jockeying, working in BPOs. These professions need blind people to read scripts or

their notes proficiently. These professions will bring in the increased use of Braille. Even in case of number of other existing professions including lawyers, attorneys, solicitors, judges, legal officers, professional managers, marketing executives, computer programmers, software engineers, counselors and teachers in Law Universities and colleges, reading and writing of Braille is of utmost importance. In most of these professions, one is required to read the text directly and to write the points on-the-spot during the course of argument or performing of relevant duties, the reading and writing of Braille is almost mandatory. Recently, the system of answering entrance and competitive examinations in Braille is becoming popular. This would again require excellent speed in reading and responding in Braille. As the existing and emerging scenario in respect of higher education, competitive exams and job interviews, the importance of Braille is increasing. It is now becoming a mandatory condition and pre-requisite to read and write Braille, that too at good speed, if any person wants to pursue such professional careers.

To encourage use of Braille by such educated blind persons, the following measures must be taken:

- The schools and educational programmes for the blind must introduce the system of answering exams in Braille from primary classes itself.

  The concerned teachers must have proficiency in reading of Braille so that they may themselves correct the answer sheets.

  The Braille reading and writing competitions should be organized on regular intervals at different levels.

  The students having excellent proficiency in Braille should be awarded suitably.

  Along with regional Braille, the students should be encouraged to read and write English Braille as well.

  Students should be encouraged to practice reading and writing of Braille on day-to-day basis.

I also suggest that a list of such successful blind professionals and achievers who could break the barriers in respect of managing admission in prestigious management institutes (Mr. Amit Jain and Mr. Cagan Deep); getting selected in National Administrative Services (Mr. Ravi Arora); emerging as successful lawyers (Mr. Santosh Rungta and Ms. Kanchan Pamnani); practicing as Chartered Accountant (Mr. Ashish Mankad); becoming an Office Bearer of international organizations (Mr. A. K. Mittal); emerging as computer experts (Mr. Deependra Minocha, Mr. Harish Kotian); becoming a banking professionals (Mr. K. Ramakrishna); scaling the mountains (Ms. Gaba); and having the distinction as Commissioner of Persons with Disabilities (Prof Bhaskar Y. Mehta) should be compiled and a publication should be brought out. Such a publication should explain the role of Braille in their career progression and their outstanding achievements.

13. OTHER MEASURES:

To popularize use of Braille, we need to take other measures in terms of displaying Braille signs at all public places, putting Braille markings outside the classrooms and other utilities where blind children are studying, encouraging blind students to write letters in Braille, motivating teachers to check answer sheets in Braille, providing menus at restaurants in Braille, putting bus numbers at bus stations in Braille, producing railway time in Braille, providing telephone directory of public utilities in Braille. While all blind persons need to respect, accept and use Braille as a means of communication, we need to give more visibility to Braille as an effective means of communication to the seeing people as well. To begin with, let there be at least one lesson on basics of Braille in all textbooks of 5th standard.

The true tribute to Louis Braille would be ensuring more popularity of Braille among blind persons, using Braille as a medium of education, recognition of Braille as a script in all the countries and providing more visibility to the system of Braille to each and everyone.

Teaching of Braille to Children and Recently Blinded Adults

By : **Mrs. Swaran Ahuja**

Braille indeed has a very special place of importance in the life of a blind person. Not only for the fact that it has opened up the flood gates of knowledge for them but also it has helped change Society's perception of blindness. Braille has also thrown open new vistas for the visually impaired which were not imagined or thought of before. Today we meet highly tech-savvy, computer experts, smart young visually impaired persons doing super jobs professionally in various Government and non-Government organisations like RBI, IDBI, SEBI, Tatas, Mahindras etc. Credit for all this, no doubt goes to Braille.

But, unfortunately as observed recently "a trend emerging in some schools is a kind of tactile dyslexia which retards or impedes the learning of Braille". We need to look into the reasons for this. Why is this happening? Do we as teachers need to change our methods of teaching? Or, is it that the teachers and school administrators do not recognise the importance of Braille in the education of visually impaired children? We must acknowledge and accept that Braille for the visually impaired has the same value as literacy for the sighted. And therefore, as Late Lal Advani once said "Braille should be emphasised as a fundamental academic skill which needs to be learnt and perfected by every student with visual impairment."

For the blind 6 tiny dots of Braille are not only the medium of education and access to knowledge, they also spell self-reliance, self-respect, self-confidence and social integration for them. It is this aspect of Braille's effectiveness which compels us to lay more emphasis on Braille and its teaching.

I would like to draw the attention of all those teachers who are responsible for introducing Braille to young blind children to the fact that when we teach Braille, we are teaching children to read.

We are teaching them a language. This could be Hindi, Tamil, English, Urdu, Arabic or any other. Also, I would like to clarify that Braille and reading are not two different subjects. When children with sight are taught to read, do we say that they are learning Devnagri or Roman or Arabic script'? No. On the time-table is shown a period for reading/writing - not Devnagri or Roman. It should be the same for children without sight. Teaching them to read means teaching Braille. We cannot separate the two. This misconception about teaching of Braille needs to be corrected. Braille is not and should not be treated as a special subject because it is not a subject it is a medium for all subjects.

Yes, we teach Braille to those children who lose their sight later in school-going years and recently blinded young adults. These children and adults already know how to read and write. But now, are not able to do so because they cannot see. To them we teach Braille. We

assure them that they can once again read by learning Braille. Of course, the approach and methods of teaching Braille to this group differ somewhat as compared to the methods applied to young blind children.

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 *thefinindation ofall learning. TheIbundation must he very strong if* we really want to give free access to the reservoir of knowledge to our children.

GOALS:

Our efforts and 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 with comprehension and expression,
3. read with flow in speed - not necessarily fast -- but flowing,
4. develop interest in reading & read effortlessly,
5. develop fondness for books.

In other words Braille should become a very natural medium of reading for blind children. 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:

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 &
2. to get them interested in reading i.e. to kindle the desire for learning to read.

Here are some suggestions for this:

- *Increase children s vocabulary* by making them aware and urging them to explore their immediate environment, stories, anecdotes, visits to a garden/zoo etc., sharing 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 i.e. *recognition ofshape, size and texture.*
- Create an *atmosphere ofBraille/reading* by doing the following:
  - stick name labels on desks,
    stick Braille labels on all toys,
  - stick Braille labels on the door of the class rooms e.g. K.G. , Std. I etc.,

hang an Alphabet Board with corresponding 3D toys e.g. B for ball etc. ,

have a Board with "Touch and Tell' cut out figures of ditTerent shapes in 3-4 sizes e.g.

And other interesting items,

familiarize the children, with 'Touch and Tell' books,

give children 5-6 page books with Braille lines of different lengths interspersed with one letter of alphabet on each line to be called a dot picture. These books will give 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 with expression. 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/jokes to your class of young children. This can prove to be an effective reading readiness step.

Now the question will arise : *When to begin the actual teaching °treading? What is the right time to make a start?*

Answer is simple - *begin only when the child is ready.* Wait for the right moment. 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 everything aside - spare a few minutes - begin the first lesson. Always be prepared for this moment and have your first few lessons ready in advance.

The next important question is: *How to begin? What should he the First Lesson?*

It is i mportant to keep in mind the basic principles of teaching while making decision regarding the above:

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 taking the first step towards actual teaching of reading.

DO's

I. Make sure that child has a comfortable chair & desk according to his height..

2. Ask the child to wash his hands and dry them. Fingers should be clean and free of sweat.

3. Always use Braille paper freshly embossed-present the actual Braille letters.

4. Guide the child to use the top pad ofthe right hand index finger.

5. Encourage and expect the child to recognise the whole letter by its shape.

6. Encourage use of both hands as soon as possible though not on the first couple of days.

7. Make reading periods short and interesting.

DON'Ts

1. Don't teach recognition of letters by the number of dots it has. As then the linger starts to look for those numbered dots rather than the whole letter.

   Don't let the linger go up and clown on each dot separately as it retards speed in reading.

3. 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 in size to be recognised by single touch.

4. Don't let the fingers press hard on the dots as then recognition becomes difficult.

5. Don't let the child perceive the dots with his nails as this will damage the writing.

6. Don't use metal sheets with Braille letters/words. It is harmful for the sense of touch.

7. Don't force learning of reading.

METHODS OF INTRODUCTION TO READING:

And now begins the actual work. 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.

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 and learning goes from *letters 10 words to sentences.*

Word Method : In this method children are presented with meaningful words. Then they are expected to split the words into letters 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.*

Sentence Method : In this method the teacher starts by presenting a *complete sentence.* It is then broken up *into* words and *then letters.* In brief this method takes us on a journey towards reading on a path from *sentence-to-words-to-letters-to-woids-to-sen fence.*

*4,

CHOICE OF METHOD:

The choice of method depends on the teacher. What he/she thinks is right and an effective method. I myself have used a combination of the conventional 'letter method' with 'word method' leading to reading of sentences after a few lessons.

know that sentence and word methods have been quite effective with sighted children. But, let us not forget that our children 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 also realises 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 tine. 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. Also, I follow the principle of 'simple to the complex' and choose the first few letters which are easiest to recognise by touch. Gradually, children start to *read words* made up of these letters at the end ofthe first lesson itself.

FIRST LESSON:

a	h	l	k	.3;	9	9	--
b	l	a	k	9	9	3T	T
l	k	b	a	9	T	9	31
	all		ball	.3T	9		9
	alka		l a b		9		9

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 recognise 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.

Now go and play with your friend *Alka.* Take the *hall* and play with her. Engage the child for a couple of minutes in conversation. Expect answers in full sentences and correct them if necessary. This way he/she is not only learning to read but is also learning the use of correct language.

Give him/her the first lesson paper along with an extra sheet of paper which has two lines of single dots. Intersperse each line with one *alphabet picture* which can be used in the next lesson as, pre-preparation. Staple the two pages and ask the child to look after them and read whenever he feels like it. 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. The first important step has now been taken on a long path.

SECOND LESSON:

Start by having a short conversation using the words he has learnt to read e.g. How is your friend A Ika? Do you like playing with alka.

Revise by presenting the words ofthe first lesson on Flash Cards.

- Introduce the next three letters in the same manner as the first lesson
- Make words only with the new letters e.g.
- Make words using letters of both the lessons e.g.
- Talk about all the words and have a pleasant conversation.
- Add the new third page to the earlier two pages & attach an extra sheet which has 3 lines of dots - different in size and interspersed with new letter pictures which can be used in the next lesson.
- Staple a cover page to the above 4 pages with the child's name written in Braille. He/she now *has his/her first book* in his/her hands. This will make the child feel good.

Follow the earlier procedure of revision with conversation, Flash Cards and presentation of new letters of the alphabet. Continue attaching the new sheets of paper to his first book.

CHOICE OF LETTERS FOR EACH LESSON:

This depends on every teacher. New letters may be chosen by adding an extra dot to the previous letters *e.g. adding dot 4 to and then adding dot 5 and soon*

OR

Use the regular Primer being used with sighted children. This can be quite interesting and effective especially under the integrated set up in education. It may need some editing and adaptation though. It is certainly worth trying.

Carry on like this taking one step at a time. Start making very short sentences as soon as possible. This may happen in 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 for reading, it should be short (not more than 3 words), language-wise correct and meaningful. This would also mean that the child is introduced to his first punctuation sign - 'full stop'. 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 or better still use blank Playing Cards,
- about 4" x *3"* in size,
- embossed with a full Braille line above the words/sentences. The 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 INTERESTALIVE IN 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 SUSTAINING INTEREST IN READING:

- Use Flash Cards
- Play Reading Games e.g. Match the Cards
  Read and Do
  Passing the Parcel
  Solve the Riddle
  Fishing & constructing of short sentences.

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 hooks with only 5-6 lines written on each page. Use simple subjects like "My Toys", "My Mother", "My Friend" etc.

Simple story books fin. children available in the market. Make sure children comprehend what they read by having a couple of questions at the end of each story. Or ask the child to tell the story he has read to the class.

Double Vision Books i.e. It is easy to prepare these books. Buy a small story book used by sighted children. Transcribe the ink-print text in Braille on the same page. These books have a special advantage and that is the V.I. child can share the books with his sighted siblings and friends.

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,

class Time Table,

Calendar,

- Map of the class etc.

Library Corner in the class with very short books of interesting stories suitable for the class.

ATTENTION: Please ensure at this stage to use only interline Braille and not inter-point. Also, write only on one side of the paper in the first phase of reading. This helps 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. An atmosphere of learning can be created in the school by taking the following steps:

  have a Notice Board : for in tbrmation and announcements so that children realise that they need to read the Notice Board regularly to keep themselves up-to-date with the happenings in the school.

  - School news

    extra-curricular activities

  - headlines ofdaily news

    "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 Libra:v. 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 marked on it.

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

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

Gandhiji .....

Nehruji .....

By the time children reach Std. IV, they should be able to read correctly, with comprehension and 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 students 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 art of good reading, efforts should be made to bring in faster speed in reading. This will become important as children progress to senior

classes. One method which I believe is quite effective is called 'Rapid reading'. It simply means reading rapidly. I will not go into its techniques etc. Simplest way to achieve the same results is to provide plenty of interesting reading material. More the children read, speedier they will become in reading. A Iter al I *practice makes the than perfect*

leaching of Braille to late coming school children & Recently blinded young adults:

Methods of teaching Braille to these visually impaired persons will need to be somewhat changed and adapted to suit their needs. Also, the approach to teaching will need different as they already know how to read and write but cannot do so now because they are not able to see.

Reading readiness tier them will entail:

- **Acceptance of blindness**

  First and foremost we need to help them accept their blindness and develop positive attitude to he able to re-learn many things. This can best be achieved by giving them opportunities to meet and interact with other blind persons of their own age and abilities.

- **Development of the sense of touch**

  Can use the same method as mentioned earlier plus make use of every-day utility items for this purpose. This will help in leading him to independence in:

  the activities of daily living

  mobility

  gradual build-up olconfidence

- **Family Visits**

  to get to know the family background and his interests. This information will help in working out appropriate content of learning material.

- **Braille watch**

  Introduction to a Braille watch can be a good mood and moral booster. Use of Braille watch is a sure step towards independence. Also, it serves as an effective introduction to the system of dots.

- **Methods & Approaches**

  should basically be in-line with the *first* important principle of teaching i.e. 'from simple to the complex'. Accordingly one will need to work out the content of various teaching sessions keeping in mind the person's interests end ease of touch.

- **Louis Braille & his dots**

  Tell about Louis Braille and the tactile script he devised so that blind people could read. Describe the Braille script.

  Show the actual Braille Cell embossed on paper followed by a full line of Braille cells with double spacing.

  Show him his own name written in Braille as also the names of other family members and friends.

Introduce him to the complete Alphabet in its correct order so that he can decipher each letter himself and start recognising their Braille form.

Introduce words related to our daily life - gradually making them into sentences.

Give a really interesting short story book to keep him engrossed in reading.

PLEASE NOTE

1. that this group of Braille students are also taught to read - recognize the letters by their shape and form and not on the basis of number of dots.

2. School going children should be placed in the same class as they were in a sighted set-up before losing sight. The class teacher will need to give him extra time and attention to teach him Braille. In some cases it would be quite beneficial to introduce him to a senior student who is a good reader himsel Give him the responsibility to help him learn Braille in addition to the teacher teaching him.

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 flood gate of knowledge for blind children. To achieve this is in our hands and I believe we can do it.

Guests on the Dais.
From left to right - Dr. V.P. Varma, Mr. A.K. Mittal, Dr. Manoj Kumar, Mr. Terje B.Iversen, Mr. J.L.Kaul

Conference participants

Mr. Terje B. Iversen. Director, International Development Co-operations. Norwegian Association of the Blind and Partially Sighted (NABP), Oslo. Norway delivering Valedictory Address in the closing function of the Conference

Mr. J.L.Kaul, Secretary General, AICB. proposing a vote of thanks to the sponsors and participants