Partnerships in EARLY INTERVENTION
CONTENTS

1. Message from the President 02
2. Message from the Editor 04
3. New Officers of ICEVI 05
4. ICEVI General Assembly - Minutes 07
5. Partnerships in Early Intervention: The SVRC Dot Power Program Debra Lewis 13
6. Partnerships in Early Intervention Services for Children with Deafblindness in India Atul Jaiswal & Sachin Rizwal 19
7. Intervention in Visual Impairment: Partnerships among the medical area, the rehabilitation area, family and brazilian public policies: Experience report Maria Elisabete Rodrigues Freire Gasparetto 26
8. First Steps in Communication with a Congenitally Deafblind Child: A Joint Attention Approach María del Mar Martín de Frutos 33
9. Teaching Young Children To “See More“: Increased Functional Vision Krister Inde 37
10. Partnership in the Early Intervention Programme at Prof. Dr. Ivan Shishmanov School for Visually Impaired Children in Varna, Bulgaria Julieta Petkova & Yana Raeva 38
12. ICEVI Promotes Inclusive Education in Tajikistan Bhushan Punani 49
13. ICEVI Fact Sheet 52
Message from The President

Welcome to the first volume of The Educator for 2017. This volume reflects the global nature of our organization’s membership, with articles and reports on the theme of Partnerships in Early Intervention from Australia, Brazil, Bulgaria, India, Nigeria, Spain, Sweden and Tajikistan. While reading the articles and reports, please take a moment to consider the contributions of our Editor, Marianne Riggio, and the authors who have shared their research, programs and experiences.

This volume heralds the 2017-20 ICEVI quadrennium and change of leadership at global and regional levels – see http://icevi.org/. ICEVI’s substantial achievements during the previous quadrennium reflect the strong leadership of Lord Colin Low, President (2010-2016), and M.N.G. Mani, our Chief Executive Officer. The Quadrennial Report for 2012-2016 which was released at the WBU-ICEVI General Assembly in Orlando in August 2016 (also available on ICEVI website www.icevi.org) showcases the programs and activities undertaken by ICEVI’s Principal Officers, Regional Committees, and international partner members. The Report includes a progress report on our global campaign, Education for All Children with Visual Impairment (EFA-VI), which was launched jointly by ICEVI and the World Blind Union (WBU) at the ICEVI World Conference in Kuala Lumpur in August 2006. Between 2007 and 2015, the campaign was implemented in 31 countries and included the establishment of national EFA-VI task forces and provision of over 670 capacity building programs. As a result, an additional 110,000 children with visual impairment were enrolled in education. This is a remarkable achievement, and there is much more to be done to reach the millions of out-of-school children with visual impairment and other disabilities.

ICEVI’s strong commitment to promoting education for children with visual impairment will continue to be the foundation of our mission, goals and priorities in the 2017-20 quadrennium. ICEVI is uniquely suited to provide the global education community with technical expertise in the field of education for children with visual impairment, and to foster global cooperation and innovation in teacher training and curriculum design. The United Nations adoption in 2015 of the Sustainable Development Goals and the Education 2030 Framework for Action has highlighted the importance of global financing if the SDG goals and targets for education are to be achieved by 2030. The International Disability and Development Consortium (IDDC) highlighted the declining levels of bilateral and multilateral aid for disability-responsive education in their #Costing Equity Report that was released in 2016 at the United Nations in New York – see https://www.iddcconsortium.net/. The report sets out a range of recommendations for education of persons with disabilities, including increases in national government financing and international donor support. My attendance at the Report’s launch on behalf of ICEVI offered an
opportunity to meet with Aubrey Webson, the newly appointed President of the UNICEF Executive Board; and Gopal Mitra, the UNICEF Program Specialist for Children with Disabilities. Our discussions centred on the number of out-of-school children in vision impairment in under resourced countries, and the need for quality education data and innovative approaches to teacher training and support in rural and remote communities.

In the coming months, the ICEVI Executive Committee will be finalising our Strategic Plan for the 2017-20 quadrennium. The Plan will focus on the following three strategic goals:

Goal 1: Promoting access to quality education for people with vision impairment including those with blindness, low vision, deafblindness and additional disabilities;

Goal 2: Influencing governments’ and relevant stakeholders’ implementation of the United Nations Sustainable Development Goals and Convention on the Rights of Persons with Disabilities, in the area of education for people with vision impairment; and

Goal 3: Improving networking, information sharing and collaboration at national, regional and global levels.

The priority activities for the quadrennium will include the “EFA-VI 2030” campaign, and an expansion of the mathematics, technology, and higher education initiatives. To gain an insight into the ICEVI-Nippon Foundation higher education project, I refer you to our website, http://icevi.org/Projects.htm, and to an online interview with Mr Dang Hoai Phuc, who was blinded by a landmine when a young boy in Vietnam. Mr Phuc is now the Nippon Foundation higher education project coordinator for Vietnam, and Director of the Sao Mai Centre - see https://youtu.be/ZW4EdPme5z0. The ICEVI higher education project has resulted in over 200 universities and higher education institutions in Cambodia, Indonesia, Lao PDR, Myanmar, Philippines and Vietnam offering enrolment to 2000 young blind adults. The Project was recognised in the 2016 Zero Project Austria award ceremony for “innovative solutions concerning employment, work and vocational education and training” – see https://zeroproject.org/.

With the release of this January 2017 Volume of the Educator, I take the opportunity to welcome the incoming Executive Committee (EXCO) and to acknowledge with thanks the contributions of outgoing EXCO members. It is a great honor to work with many of the world’s leaders in the field of education for children with vision impairment – I am in the company of giants.

Frances Gentle
President, ICEVI
Dear colleagues and friends,

I am pleased to share with you the latest edition of The Educator. Because of the overwhelming response we received to our call for articles on the topic of Partnerships in Early Intervention, we are continuing this very important theme in this edition. It is always inspiring to read about the work being done in every continent that are reflected in the articles contained in the two issues.

In reading the message from our new President, Frances Gentle, that ICEVI is very fortunate to have someone at the helm with a deep understanding of the work we are all committed to and has her finger on the pulse of global initiatives.

As we continue to keep the UN Sustainable Development Goal of creating opportunities lifelong learning, we look forward to our next issue on the timely theme of Transition to Adult Life. I hope that all of you, who are doing pioneering work in this area, will share your accomplishment with our field.

I hope that you will be enriched as you read.

With gratitude and best wishes,

Marianne Riggio
Editor
ICEVI conducted its General Assembly on 25th August 2016 at the Rosen Centre Hotel, Orlando and we are happy that Dr. Frances Gentle has been elected as the new President of ICEVI for the Quadrennium 2016-20. Dr. Gentle is a lecturer in vision impairment at the Royal Institute for Deaf and Blind Children (RIDBC) in Australia. She served as the Regional Chair of the ICEVI Pacific Region (2006-12) and 2nd Vice President of ICEVI (2012-16) and her experience will certainly guide the organisation in various dimensions of development. The newly elected Principal Officers are as follows:

- **Dr. Frances Gentle**, President
- **Dr. Praveena Sukhraj**, First Vice President
- **Ms. Rima Canawati**, Second Vice President
- **Mrs. Nandini Rawal**, Treasurer
- **Lord Colin Low**, Immediate Past President

The Principal Officers of ICEVI bring a lot of goodwill to the organisation. ICEVI Constituency congratulates Dr. Frances Gentle and the other Principal Officers for a successful Quadrennium.

The regional chairs were also elected at the General Assembly and the new regional chairs are as follows:

- **Gertrude Fefoame**, Regional Chair, ICEVI Africa Region
- **Aria Indrawati**, Regional Chair, ICEVI East Asia Region
- **Panagiota (Betty) Leotsakou**, Regional Chair, ICEVI Europe Region
- **Maria Cristina Sanz**, Regional Chair, ICEVI Latin America Region
- **Kay Ferrell**, Regional Chair, ICEVI North America and Caribbean Region
- **Ben Clare**, Regional Chair, ICEVI Pacific Region
- **Bhushan Punani**, Regional Chair, ICEVI West Asia Region

The full contact details of the officers can be found from ICEVI’s official website www.icevi.org
**President**
Frances Gentle
frances.gentle@ridbc.org.au

**First Vice President**
Praveena Sukhraj
psukhraj@justice.gov.za

**Second Vice President**
Rima Canawati
rima.qanawati@gmail.com

**Treasurer**
Nandini Rawal
bpaiceviad1@bsnl.in

**Immediate Past President**
Lord Low of Dalston
colin.low@rnib.org.uk

**REGIONAL CHAIRS**

**Africa**
Gertrude Oforiwa Fefoame
gofefoame@sightsavers.org

**East Asia**
Aria Indrawati
aria.indrawati@gmail.com

**Europe**
Panagiota (Betty) Leotsakou
bl@icevi-europe.org

**Latin America**
María Cristina Sanz
latinoamericacievi@gmail.com

**North America / Caribbean**
Kay Alicyn Ferrell
kay.ferrell@unco.edu

**Pacific**
Ben Calre
bwclare@gmail.com

**West Asia**
Bhushan Punani
blinabad1@bsnl.in
1. The General Assembly was chaired by Lord Colin Low, President ICEVI, who extended a warm welcome to the delegates of the General Assembly.

2. The President placed on record the appreciation of ICEVI to the National Federation of the Blind for the successful conduct of the WBU-ICEVI Joint Assembly in Orlando.

3. Frances Gentle, the Second Vice-President of ICEVI, read brief histories of the following connected with ICEVI who lost their lives during 2012-16.

**AFRICA REGION**
Solomon Januário Olivera Kaligwele
Afonso Luis Mutisse
Frances Candiru

**EAST ASIA**
Mavis Campos, 2015
Kirk Horton

**EUROPE REGION**
Dr Lilli Nielsen, June 2013
Alan Suttie, 7 September, 2014
Sir Duncan Watson, 21 April, 2015

**NORTH AMERICA AND CARIBBEAN REGION**
Natalie Barraga, USA, 2014
Jules Cote, USA, 2014
John DeWitt, USA, 2014
Fred Gissoni, USA, 2014
Philip Hatlen, USA, 2016
Carson Y. Nolan, USA, 2014
Ralph Peabody, USA, 2016
Veronica Gilligan, USA, 2015, Educator
Jean Ann Vogelman, USA, 2015
Richard “Rick” Welsh, USA, 2014

**PACIFIC REGION**
Mr John W Wilson, January 2013
M Paul Manning, May 2014
Frederick Max Miller, August 2014
Members of the General Assembly observed a moment of silence.

4. The audited accounts of ICEVI for the years 2012-2015 were presented before the General Assembly for adoption. The members reviewed the statements made by M/s. Lubbock Fine about the accuracy of the accounts of ICEVI and endorsed the audited accounts.

5. Mani, CEO presented a summary of the activities undertaken by ICEVI in the last Quadrennium and tabled the Quadrennial Report of ICEVI, which was approved. Members placed on record the significant work done by ICEVI in the Quadrennium 2012-16.

6. Mani, CEO introduced the following who were elected as the Regional Chairs of the respective regions for the quadrennium 2016-20.
   - Africa – Gertrude Fefoame
   - East Asia – Aria Indrawati
   - Europe – Betty Leotsakou (Note: Betty passed away on 6th January 2017 and elections will be conducted during the ICEVI Europe Regional Assembly in July 2017)
   - Latin America – María Cristina Sanz
   - North America and Caribbean – Kay Ferrell
   - Pacific – Ben Clare
   - West Asia – Bhushan Punani

7. Bhushan Punani, the Chairperson of the Nominations Committee presented the following slate of Principal Officers for the quadrennium 2016-20.
   - President – Frances Gentle
   - First Vice President – Praveena Sukhraj-Ely
   - Second Vice President – Rima Canawati
   - Treasurer – Nandini Rawal.

    The President ICEVI invited nominations, if any, from the floor. There were no nominations other than the slate of Principal Officers proposed by the nominations committee. The General Assembly approved the proposed nominations by acclamation to serve as the Principal Officers for the Quadrennium 2016-20.

8. The newly elected principal officers and the regional chairs were invited to address the general assembly and all assured their best services for the growth of ICEVI in the future.

9. The resolutions committee chaired by Praveena Sukhraj-Ely presented the following resolutions which were adopted by the General Assembly.
We, the participants of the ICEVI General Assembly, 2016 adopt the following RESOLUTIONS:

Resolution 1. *Appreciating* the importance of human rights for Persons who are blind or have low vision or those with additional disabilities, we shall put our best efforts:

- To ensure that persons with visual impairments are inducted as Members of all UN Committees, especially those concerning protection of human rights and ensuring inclusive development;
- To get the UNCRPD and other UN declarations and conventions that our National Governments have ratified or signed domesticated in the form of national legislation or policies and ensure their effective implementation;
- To ensure government review all legislation, policies, programs and initiatives at the national level to ensure inclusion of persons with visual impairment and protection of their rights;
- To prepare an inclusive plan of action for implementation of Agenda 2030 in the respective countries reflecting aspirations, expectations, and specific needs of persons with visual impairment;
- To use the UNCRPD and its Optional Protocols tools for ensuring the protection of rights of persons with visual impairment, and for making national instruments inclusive.
- To ensure alignment of national plans with the Sustainable Development Goals to ensure inclusive implementation of such plans and to pursue the status of their implementation.
- To create awareness of the Marrakesh Treaty and to ensure the implementation and promises of Marrakesh and related Treaties become a reality.
- To encourage corporate entities to develop, manufacture, and provide devices and educational material for persons with visual impairment at affordable cost; and to support technology and the development of products that conform to universal designs, and support innovative initiatives on inclusive development as a part of Corporate Social Responsibility or technology philanthropy.

Resolution 2. *Understanding* the importance of technology in education, employment, accessibility, and inclusion of persons with blindness and low vision, we shall ensure:

- Understanding the importance of digital technology in education, employment and inclusion; we should:
- Work to secure the availability of assistive technology and appropriate adjustments to generic technologies at reasonable prices in the language of the end user's choice.
• Require all public sector goods and services to be accessible; and campaign for all other goods and services to be accessible.
• Design and promote courses and course modules to equip teachers and others who work with blind and visually impaired people, and the people themselves, to take advantage of existing and emerging digital technology.
• Track emerging technologies with particular reference to generic consumer electronics.
• Request the World Braille Council to prepare a paper on the respective roles of hard copy and refreshable braille.
• Promote the teaching of STEM and geography at both school and college and develop strategies for the use of digitally driven graphics and 3D realisation.
• Discuss with WBU the opportunity to combine its work with ICEVI in this area.

Resolution 3. Recognizing the importance of social inclusion of persons with visual impairment in all spheres of human life and progress, we shall put our best efforts:

• To achieve coverage of persons with visual impairment in programs and initiatives of all Ministries, Departments and developmental programs to ensure their inclusive access and development.
• To establish, support and promote parents' organizations (POs) as well as Disabled People's Organizations (DPOs), extend to them technical and financial support and guidance, and ensure their growth and sustainability.
• To encourage, as equal partners, the active involvement and participation of parents, family members, parents' organizations, Disabled People's Organizations (DPOs), and international organizations at all levels, to ensure the protection of rights and the implementation of ICEVI policies, advocacy initiatives, campaigns, and programs.
• To seek the active involvement and participation of parents, family members, members of community and other stake-holders and encourage the use of community resources to expand the scope of provision of sustainable services and initiatives.
• To encourage National Governments and Corporate entities to offer suitable employment opportunities for persons with blindness and low vision under existing job reservation or quota systems and equal employment policies.
• To advocate for National Governments to evolve schemes on subsidizing suitable and accessible assistive and educational devices and technology related products or providing the same free of cost or at reduced cost to non-affording persons with visual impairment.
• To establish an ICEVI Special Committee for promotion of higher education and to convene an international conference, especially on theme on the theme of "Right to Higher Education".

• To share with members from different countries, information regarding successful outcomes of initiatives relating to advocacy, social communication, awareness creation, innovative practices; and legislative initiatives relating to promoting inclusive education, curriculum development, early intervention, personnel preparation, E-learning models, vocational education, rehabilitation, independent living, low vision assessment, teacher training, human resources development and intervention; so that such initiatives may serve as tools for convincing National Governments and Service Providers to adopt the same in their respective countries.

• To ensure the development of new and more effective strategies for training of Special Education and Regular/general Teachers and other service providers, in respect of new developments, rights based initiatives, technology oriented strategies and services relating to quality of education.

• To promote sports among children and youth with visual impairment, in cooperation with the International Blind Sports Association (IBSA).

• To developing an ICEVI position paper on inclusion and development of persons with visual impairment who are gay, lesbian or transgender.

Resolution 4. Realizing that girls and women with visual impairment, especially in developing countries face gender discrimination and are most marginalized, we need to ensure:

• That a specific and earmarked budget allocation should be made to ensure equal coverage of girls and women with blindness in all programs and initiatives;

• That National Governments and International Non-Government Organizations should issue guidelines regarding equal treatment and coverage of girls and women.

Resolution 5. Recognizing that disease epidemics are a cause for humanitarian concern that uniquely impact the disability community, as both a risk to individuals and a cause of disability;

Understanding that the experiences of children and families impacted by epidemic diseases are diverse;

Recognizing that individuals serving children and youth with visual impairment have specialized knowledge and expertise in the developmental impact of vision loss;

Understanding that infants impacted by the Zika virus and other epidemics are known to experience a variety of health conditions, including visual and neurological impairments;
Believing that, in accordance with the United Nations Convention on the Rights of Persons with Disabilities and the Declaration of the Rights of the Child, all children should enjoy the right to healthcare, equality, special protections, and “the right to be brought up in a spirit of understanding, tolerance, friendship among people, and universal brotherhood” (DRC#10); AND

Reaffirming that ICEVI endorses national and international prevention, awareness, and education efforts that provide clear, accessible, frequent, and accurate information about epidemics such as the Zika virus for all persons living in impacted regions;

i. ICEVI expresses its intent to collaborate with the World Health Organization and the Pan-American Health Organization to actively disseminate information about the impact of the Zika virus and other epidemic on visual functioning and early childhood development, and to assure that information is provided in accessible formats to persons who are visually impaired themselves; and

ii. ICEVI requests that popular messaging disseminated to families and healthcare professionals include greater emphasis on the visual correlates of Zika infections and other health epidemics.

In adopting the above five resolutions, ICEVI should

a. Synchronize the resolutions with those adopted by WBU with the aim of rationalizing the resolutions to ensure alignment between the two organizations; and

b. Review implementation of the resolutions every six months and release report progress on implementation via the ICEVI website and through the systems of regular communication with its Regional Structures, members, funding organizations, founder members and other concerned organizations.

10. The members of the General Assembly were informed that the ICEVI Secretariat will be sending out a feedback questionnaire to all participants inviting their impressions about the WBU-ICEVI Joint event and the ICEVI Day. ICEVI will also request its members and delegates to provide feedback on the format of the event, adequacy of content, logistics etc. The questionnaire responses and feedback will be discussed with the WBU Executive and ICEVI Principal Officers, and will inform decisions about future events.

*The meeting ended with thanks to the Chair.*
Partnerships in Early Intervention: The SVRC Dot Power Program

Debra Lewis, Statewide Vision Resource Centre, Australia
E-mail: lewis.debra.d@edumail.vic.gov.au

Introduction
In the Australian state of Victoria, there are over 900,000 school-aged children and young people enrolled in government, Catholic and independent schools (Department of Education and Training, 2016). Of these, 540, or less than 0.06%, have been identified as having a vision impairment (low vision or blindness). Of these, 60, or approximately 0.01% of the total student population, are braille readers (Educational Vision Assessment Clinic, 2016).

Whilst the majority of Victorian students who are blind attend their local mainstream school where they learn alongside their sighted peers, there is wide acceptance that students with vision impairments should be taught relevant blindness-specific skills, identified as the Expanded Core Curriculum (ECC). The ECC provides a framework for assessing, planning, and providing instruction which addresses the additional skills and knowledge required by students with vision impairments in order achieve success in their educational setting (Texas School for the Blind and Visually Impaired, 2014).

Braille, a skill identified as part of the ECC, is the most efficient and effective literacy medium for students who are blind. The staff of the Statewide Vision Resource Centre (SVRC) is committed to encouraging and supporting students who are blind to develop braille literacy. Through its Dot Power Program, the SVRC provides support to beginning braille readers – and to their families, specialist educators and members of the education community.

Statewide Vision Resource Centre
The SVRC, a Victorian Department of Education & Training facility, comprises a qualified, experienced and committed staff, many of whom have dedicated their working lives to the education of students with vision impairments.

Support and services are available from the SVRC to specialist vision educators, schools, students and their families, along with the wider education community (government, Catholic and independent) and include:

- Assessment to establish eligibility for additional support due to vision impairment by a multi-disciplinary team – paediatric ophthalmologist, orthoptist, specialist vision educators, and psychologist;
- Professional development and consultancy focusing on support to
students with vision impairments – hands-on workshops in access technology and the ECC, training videos, web-conferencing and other on- and off-campus options;

- Dot Power Program – intensive instruction in braille and tactual graphicacy for children from pre-school to year 3;
- Support Skills Program – intensive instruction in the ECC for students in years 3 to 10;
- Camps and activities – educational and social activities for students and families;
- Production of student learning materials in alternative formats – braille, electronic text, audio, large print;
- Development of curriculum materials focusing on the nine areas of the ECC – assistive technology, career education, compensatory access, independent living, orientation and mobility, recreation and leisure, self-determination, sensory efficiency, and social interaction.

**SVRC Dot Power Program**

Established in 2008, Dot Power is a unique approach to providing additional support for students whose primary learning medium is braille. Dot Power offers intensive instruction delivered by specialist vision educators for children from pre-school to year 3 (ages 4 to 10 years). Conducted four times each year at the SVRC, students participate in structured learning activities designed to encourage braille reading, braille writing and the acquisition of tactual graphicacy skills in a positive social learning environment where braille is fully supported. Dot Power offers an environment for children to experience success, alongside their braille-reading peers, through expert teaching in a braille-rich environment.

The aims of Dot Power are to:

- Promote braille literacy and numeracy, tactual graphicacy and concept development for beginning braille readers;
- Teach blindness-specific skills in a positive social learning environment;
- Present best practice in braille teaching along with high quality tactile learning resources to blind children, their families, specialist vision educators (e.g. early childhood educators, visiting/itinerant teachers) and other members of their educational community (e.g. aides/assistants, therapists, school leadership) from government, Catholic and independent schools;
- Provide opportunities for social connection between blind children, their families and members of their educational team.

**Building Connections**

Victorian pre-school students with vision impairments (0 to 6 years of age) are generally supported by early childhood educators from organisations such as Vision Australia. Eligibility for additional educational support at school (5 to 18+ years of age) is generally established during the 6 to 12 months prior
to school enrolment through the SVR’s Educational Vision Assessment Clinic.

The smooth transition from early childhood services to ongoing support at the school level is achieved through close collaboration between families and relevant staff from the organisations involved. Dot Power offers a valuable avenue to support the transition process by encouraging attendance by staff of the child’s pre-school and school community members along with students and their families.

**Peers and Mentors**

As vision impairment is a low-incidence disability, it is likely that blind children, their parents/carers and their mainstream educators have not met others who are blind – children or adults – prior to their involvement in the Dot Power Program. However, as highlighted by researchers such as Doepel (2014, p18), “peer support for blind students (is an important) mechanism to support inclusion in mainstream schools”.

Dot Power allows blind students the rare opportunity to work alongside their braille-reading peers in an active, student-centred, social context. Students clearly enjoy interacting with others who are blind or have very low vision; during break times students can be found, for example, comparing their level of vision, discussing their favourite technology or exclaiming, “You’ve got a cane? I’ve got a cane, too!”

Within the group, there may be an age range of up to 6 years. Whilst instruction and learning materials are provided at individual students’ learning levels, the structure of the programme encourages older or more able students to mentor and support younger participants.

Attendance at Dot Power over a number of years allows relationships between students and parents/carers to develop. Students look forward to seeing their peers at Dot Power and to graduating together to the Support Skills Program when they reach Grade 3 or 4.

The Dot Power Program offers blind children, their families, and their mainstream educators the opportunity to meet successful, employed blind adults. Each programme is staffed by at least one “touch reader” who models reading and writing with speed and confidence, both incidentally and intentionally during the day. Such mentoring for students, particularly in their early years, has been identified, by accomplished blind adults, as a powerful, positive influence for skill acquisition and success (Doepel, 2014).

**High Expectations**

Learning to read is a complex process for both sighted and blind learners. It is important that teachers have high expectations for their blind students to be “on grade level” for reading and writing (D’Andrea, 2013).

This principle is applied to the teaching of braille skills and more broadly to all learning opportunities within the programme. Assistance is available as required, however students are expected to demonstrate independence; for example, to put away
their bag in their locker upon arrival, to find their desk, to fold and stow their cane, to load the paper into their brailler and to begin their work without repeated prompting.

Further, students are encouraged to be independent thinkers and to see themselves as future successful adults through the activities and discussions that make up each day.

**Professional Learning**

Dot Power offers a rare opportunity to observe a group of up to 15 students who are blind working together with a qualified and experienced vision educator, using high quality braille and tactile learning materials, on carefully planned learning activities. Those who are supporting students who are blind in their pre-school or school setting are welcome to observe the programme from the point of view of their professional learning. The invitation to attend the programme is open to family members, educators (teachers, assistants and school leadership), and para-professionals / therapists. This allows observation of best practice in the teaching and learning of braille in an environment where all staff involved are braille literate.

Observers attend a briefing at the beginning of the day and are provided with a copy of the programme outlining overall aims, along with the learning intentions for particular sessions. Observers are invited to complete prepared checklists, which draw their attention to best practice in teaching and learning, and the encouragement of independence, curiosity, social awareness, and resilience. Observers are encouraged to discuss, seek clarification and reflect on their observations, using this information to inform their future teaching practice.

**Supporting Inclusion**

As Australia’s former Disability Discrimination Commissioner Graeme Innes (2016) recently commented, “All the research indicates that kids with disabilities are better served, both in terms of education outcomes and life outcomes, by being included in ordinary schools”. However, in a national study, Australian people with disabilities and their families reported high levels of isolation and marginalisation as common (Deane, 2009). Being the only blind student in a class of sighted children may exacerbate feelings of isolation and “difference” for the child and their family.

In contrast, the SVRC offers a vision impairment-positive setting; staff have a comprehensive understanding of the implications of blindness and low vision, and make every effort to be inclusive at all times; for example:

- Staff identify themselves to people with vision impairments individually or as a group “roll-call”;
- Staff indicate when they are leaving a room and when furniture or other items have been moved;
- Assistance is respectful;
- Materials are provided in accessible format;
- Tactile and high contrast navigation features have been installed.

These simple accommodations allow children who are blind or have low vision,
and their families, to feel comfortable and understood – as one parent of a child who is blind stated, “this is the only place I come where I am not explaining something about my son to someone.”

Dot Power offers blind students the opportunity to be together in a high-quality social learning environment to focus, with their blind peers, on the specific skills required by braille-reading students. This skill acquisition supports participation in the mainstream school learning environment and provides opportunities for the development of long-term relationships for the students and their families.

Planning
Planning each Dot Power programme is a collaborative process involving teaching staff and braille transcribers of the SVRC who meet to develop and refine the learning intentions, the theme, activities, timetable and tactile resources required for the day. Dot Power does not seek to replace the role of the student’s mainstream school and the supports available there, but rather to work in partnership to enhance and build on the specific needs of students who are blind.

Themes have been as diverse as a postman delivering letters, a mother bird feeding its babies, pizza-making, the braille music code, and the Paralympics. This approach allows for variety in each programme. Along with encouraging students to get as much braille under their fingers as is possible in one day, the focus may also include kinaesthetic awareness, social conventions, echolocation, or mapping.

Experienced vision educators who conduct the activities on the day, model inclusive teaching practice. The programme includes sessions which focus on braille writing, braille reading, group reading, tactile graphicity, organisational skills and, importantly, time for students to interact with each other without input from adults.

Group singing is frequently used to introduce or revise a theme. Songs are often written or arranged especially for Dot Power and feature a particular braille contraction or the theme for the day.

Tactile resources are designed and developed by educators in collaboration with braille transcribers. Depending on the child’s level of literacy, resources are produced as single- or double-line spaced braille, uncontracted or contracted braille. For young readers, the material may be simplified with leader dots or tactile graphics only. These resources are available for the children to take home at the end of the day, and often students are able to take home extension activities for additional experience or practice.

The importance of real objects for students who are blind is a feature of the day. When working on kinaesthetic awareness and movement, for example, a hula-hoop provides a simple method to assist each child to identify their physical space. When focusing on “body in space”, resources may include three-dimensional wooden artists' models, two-dimensional magnetic models – such as Fleximan (Marek, n.d.) – followed by collage, tactile representations and embossed tactile diagrams.
To finalise each programme, staff meet to evaluate the activities, discuss feedback from children and adults, note student progress, and begin to plan the next Dot Power day.

In Conclusion
Dot Power began as an innovative approach to teaching braille, but it quickly developed into a means to connect blind children, their families, staff from government, Catholic and independent pre-schools and schools, staff from other vision support agencies, and staff of the Statewide Vision Resource Centre, in a social learning partnership.

The world-wide trend of educating blind students in their local mainstream school derives greatest success by ensuring that students are provided with intensive instruction by passionate and skilled teachers in the additional skill areas required to achieve success in a mainstream school – the Expanded Core Curriculum, including braille.

An immersion programme, such as the SVRC Support Skills Program, provides a successful model for supporting the blind child's learning. As professional learning, participants have the chance to develop their practice through guided observation.

Providing opportunities for social connectedness further supports the child and their family towards each student's mastery of the braille code.

References


Partnerships in Early Intervention Services for Children with Deafblindness in India

Atul Jaiswal, Senior Programmes Officer & Sachin Rizwal, Head of Training and Research, Sense International (India)
E-mail: atul.jaiswal@queensu.ca / sachin@senseintindia.org

Sense International (India), also known as Sense India, is the first and only national-level organisation working in 23 states. Through a network of 57 partner organisations, Sense India has supported over 71,500 persons with deafblindness and multi-sensory impairment in the last nineteen years. This paper examines the strengths and challenges of the agency’s partnerships model for developing deafblind-specific early intervention (EI) services in India. It draws upon literature reviews, project reports, as well as insights developed in working with families, medical professionals, and government and non-governmental organisations (NGOs).

Introduction
The story of Helen Keller and her teacher Anne Sullivan is well known worldwide, introducing many generations to the unique condition of deafblindness and its challenges. Deafblindness is a “combined sight and hearing impairment [that] cause[s] difficulties with communication, access to information and mobility”. (Dept. of Health, 1995) Estimates suggest that there are more than 500,000 persons with deafblindness in India (Sense International [India], n.d.). However, research on this disability and early intervention programmes for children who are deafblind is very limited in India and worldwide.

Because deafblindness is a low-incidence disability, it has not been recognised as a separate category in “The Persons with Disabilities Act, 1995”. As a result, children who are deafblind are not able to benefit fully from social security benefits. They face challenges qualifying for disability certificates, need-specific education, and rehabilitation services (Paul, Mathew, Kumar, Rizal, and Jaiswal, 2016). Recently, “The Rights of Persons with Disabilities Bill, 2014”, was proposed in the parliament of India; it would replace the current disability act, and cover 19 specific disabilities, including deafblindness (PRS, 2015).

Deafblindness causes extreme developmental disadvantages that affects all areas of development and the formation of very early parent-child relationships (Murdoch 2004). Because of challenges in communication, accessing information, and in mobility, deafblindness is one of the most isolating disabilities. It significantly hinders daily activities and participation in society (Hersh, 2013; Moller, 2003). The developmental consequences of deafblindness require timely, coordinated, and specialised early intervention involving
different stakeholders such as families, professionals, and organisations (Southern and Drescher, 2005).

Paul et al (2016) state that timely identification of deafblindness in young children (aged 0-6 years) and provision of early intervention (EI) services can minimise the negative impact of the disability in their lives. Appropriate early intervention services include clinical and functional screening of hearing and vision, multisensory stimulation, and developmental therapeutic interventions such as occupational therapy and speech therapy. These services significantly help the child to attain maximum potential (Sense International [India], n.d.). Sadly, as important as these interventions are, the special educational needs of children with deafblindness are often not met (Miles, 1995).

Sense India was established in 1997 to support the development of comprehensive services for deafblind people throughout India. It works with local, regional and national organisations to develop sustainable services for deafblind children and adults. In 2012, the organisation developed its early intervention model for early screening of at-risk new-born children with deafblindness, in partnership with hospitals and other NGOs.

Research Questions
This paper is guided by these research questions, “What is the partnership model of Sense India for EI services for children with deafblindness? What are the strengths and challenges associated with it?

The literature review was conducted using online database sources such as CINAHL, MEDLINE, and Google Scholar. The keywords used to retrieve the relevant articles included deafblindness, early intervention, children, India, strengths, and challenges.

The article is divided into three main sections. The first section introduces the development of Sense India's partnership model for early intervention services. The second section highlights the process and salient features of the partnership model. The third section reviews the challenges faced in this partnership model, and offers suggestions on further developing partnerships with stakeholders such as families, professionals, hospitals, and NGOs.

Results and Discussion
The Government of India in 2013 initiated a National Child Health Programme, aimed at early identification and intervention for children with various disabilities (Ministry of Health and Family Welfare, 2013). However, the programme is not designed to serve the needs of children with deafblindness. While there are hospital-based screening programmes for children with deafness and blindness separately, these programmes may overlook children with deafblindness. A major reason for this is a lack of reliable screening tools for children who have multiple disabilities.

Research indicates that for early intervention to be most effective, it must
begin in the first months of life. EI needs to be intensive and individualised, and target developmental areas impacted by the dual sensory loss condition. However, in many areas of India, EI services are practically non-existent, with the result that critical development periods, when maximum learning and development takes place, are missed. (Paul et al, 2016). Sense India developed its deafblind-specific services to fill the need.

**Sense India Develops Its Partnership Model for Early Intervention**

Paul et al (2016) state that Sense India has been involved in early identification and intervention since 1998, and has used community-based rehabilitation (CBR) approaches to provide these services. In Patna, Bihar, Sense India piloted a focussed early intervention programme for young children with deafblindness in 2011. The programme was in partnership with an NGO and the local hospital, and included screening and multi-disciplinary intervention services. Screening in newborn children was conducted using Otoacoustic Emission (OAE) equipment and observational visual behaviour.

Using the experiences from the Patna pilot programme, Sense India developed its partnership model of early intervention service delivery. Drawing upon Paul et al (2016, p.6), its main objectives are:

- Identifying children at a high risk of deafblindness in the age group of 0-6 years; Providing necessary support and intervention as early as possible;
- Assisting in the provision of comprehensive home-based and/or center-based services, including assessment, clinical, and therapeutic services, including necessary aids and appliances;
- Providing support and counselling to the families, reducing feelings of isolation, stress, and frustration;
- Providing training in motor, communication, sensory, oro-motor, cognitive, and social development, as well as activities of daily living.

In order to achieve these objectives, the early intervention partnership undertakes these activities:

- Providing training for educators and field workers in early intervention for young infants with deafblindness;
- Developing an individualised education plan (IEP) for each child;
- Training and counselling of family members/caregivers;
- Producing information materials in local languages;
- Offering awareness and sensitisation activities at regional and state level, including training of medical and paraprofessional staff.

After testing and validation, this early intervention partnership programme is currently operating in eight additional Indian states (Andhra Pradesh, Goa, Gujarat, Karnataka, Kerala, Madhya Pradesh, Maharashtra, and Tamil Nadu). The programmes are managed with the help of Sense India's partner NGOs. A total
of 5433 new-born infants (2939 males and 2494 females) were screened using the Otoacoustic Emission (OAE) technique and 331 children (200 males and 131 females) were enrolled into the EI programme between 2012 and 2015. (Sense International [India], 2015).

**Process and Salient Features of Sense India Partnership Model**

Sense India works in two ways to help people who are deafblind and their families. In the public realm, the organisation raises awareness and campaigns for rights, opportunities, and services for this population. Sense India also provides technical assistance and staff training to its partner organisations, supporting services that bring meaningful change to these families. This work is supplemented by collaboration with the government to ensure that deafblindness and multiple disabilities are included in policies and capacity building.

Sense India's organisational theory relies primarily on the partnership approach. We identify local community-based organisations, hospitals, and institutions, and train them to initiate deafblind-specific programmes in their region. The most salient feature of this approach is that it does not create new institutions or infrastructure. Rather, this model facilitates and enables the stakeholders to learn from each other, and work together to develop services without duplication of efforts. This model helps each of the stakeholders to take on part of the responsibility, spreading the work among the partners.

This approach ensures that parents identify themselves as equal responsible partners in the EI programme. They become informed about the impact of deafblindness on their child, and the importance of their part in the intervention process. The parents' participation is not limited to “development of a particular skill or shaping behaviour but to encourage an increased level of engagement with the world in general through exploring, imitating, turn taking, anticipation, mutual acceptance and role modelling for the child” (Paul et al, 2016, p.7).

Sense India facilitates local partnerships with state agencies and local hospitals. Through the programme, OAE equipment was installed at the partnering local hospital, allowing for screening of all babies born in the hospital. We trained the medical and para-medical staff on early identification, and they informed project staff when they encountered an at-risk child. The staff contacted the families, performed further assessment, enrolled children when IE services were needed, and provided training and mentoring to educators.

The range of EI services under this model include audiology, family training, physiotherapy, occupational therapy, clinical psychologist services, nutrition services, counselling, home visits, assistive technology, speech language therapy, adaptive aids and appliances, environment modification, continued medical support and special education training for the child. In addition, we provide family counselling.
and needs-based training support. In this model, the service caters to the specific need of each child, and individualised plans and goals are revisited periodically, to ensure the intervention plan is still appropriate.

The partners document the process and maintain data on the OAE screenings, the numbers of children of identified at risk, EI programme referrals, assessments, referrals to other NGOs, and appointments with EI specialists. Staff also track the confidence level of parents and EI specialists as they work with the individualised programmes, and the progress and milestones of each child. The partners provide this data quarterly, and the Sense India team verify it during their monitoring and evaluation visits.

Because some newborns may not be screened at the hospital, Sense India also trains project staff in the field survey method for identifying children in need of EI services. With the help of special educators and community-based rehabilitation (CBR) workers, families and staff use early screening and identification checklists to identify vision and hearing impairments. At-risk children are referred to the partner hospital, where medical staff assess them for deafblindness, then refer them to educators for early intervention services. All the stakeholders participate in annual workshops, where they review the programme and plan for improvements.

**Challenges of the Partnership Model**

Sense India's partnership model presents challenges at the macro and micro level. We describe them below, along with the strategies we devised to overcome them.

**Challenges at the Macro Level:**

The lack of recognition of deafblindness in current disability law prevents children with deafblindness from getting appropriate services. The funds allocated for this population are limited, and NGOs working with them cannot get government grants to initiate needs-based services. In addition, lack of awareness about deafblindness among the general public, policy makers, development planners, and NGOs limits the number of organisations working for this population across the nation. In response, Sense India, along with its 57 partners across 23 states, works to foster awareness about deafblindness. The agency has succeeded in getting deafblindness included in the 'Rights of Persons with Disability Bill 2012', and has influenced policies in the states of Rajasthan, Chhattisgarh, Bihar and Meghalaya. Sense India also disseminates information, education, and communication (IEC) materials on early signs of deafblindness through community level programs round the year.

Sense India's partnership model requires a substantial investment of effort, time, and resources. However, it's difficult to raise resources for a very low-incidence disability like deafblindness. In response, Sense India works not only to raise awareness about deafblindness among service agencies, but also to develop cost-effective models of service delivery. The partnership approach enhances the
capacities of partner organisations, spreading responsibility throughout multiple agencies, and empowering them to continue the deafblind services.

Public health programmes are not equipped to screen and diagnose children at risk of deafblindness at an early age. Although the Government of India initiated a National Child Health Programme aimed at identifying newborns with special needs (Ministry of Health and Family Welfare 2013), the programme does not accommodate babies who are deafblind. This results in a lack of services during the crucial early years of development. In response, Sense India has a campaign for sensitising medical professionals and government officials. The agency advocates for deafblind-specific EI services, and Rubella vaccination in the national immunisation programme.

Many of the families of children who are deafblind struggle with poverty and lack of knowledge about deafblindness. This often leads to poor compliance with the intervention. In response, Sense India provides proper counselling and training to parents, transforming them from passive recipients of services into active partners in the child's intervention.

Challenges at the Micro Level
Developing successful partnerships between partner organisations and local hospitals is essential for the long-term sustainability of the programme, and also one of its greatest challenges. Sense India takes an active role in facilitating the partnership between these two institutions and creates a win-win situation for all.

Another major challenge in the field is lack of trained staff in hospitals and partner organisations. In response, Sense India trains project staff in OAE screening, early identification, EI services, and mentoring skills. This support helps to maintain the quality of services across the projects.

Conclusions
Sense India's partnership model facilitates the sharing of learning and experiences among staff, partner organisations, and the families of children who are deafblind. This model develops early intervention services in different parts of the country very cost-effectively, because it doesn't require new infrastructure. While Sense India's multi-pronged approach delivers much-needed services to children who are deafblind, the development and delivery of these services is complex and presents many challenges. Further research to develop in-depth understanding of the deafblindness and EI services specific to the needs of this unique population is warranted to help practitioners in improving the quality of services.

Acknowledgements
The authors are grateful to Sense International (UK) for their support and guidance as Sense International (India) developed the model of early intervention for the deafblind population in India. The authors would also like to acknowledge the support received from the Sense India team, Deepak Krishna Sharma, Akhil Paul,
Uttam Kumar, Parag Namdeo, Srinivasan Prasannan, and Rashmikant Mishra.

References


http://doi.org/10.3109/14992020309074635


In order to meet the worldwide prevalence of visual impairment, surveys were conducted in 55 countries. Brazil is in the group America B, in which the prevalence of blindness in the population was 0.3%, and low vision was 1.7% (Resnikoff et al., 2004).

The 2010 Demographic Census found that 45.6 million Brazilians had some form of disability. The number corresponded to 23.91% of the population. From this total number, 12.7 million (6.7% of the world population) had at least one kind of severe disability; the severe visual impairment has the prevalence, affecting 3.5% of the population (IBGE, 2010).

Visual impairment includes blindness and low vision. Blindness is understood as values of visual acuity in the better eye with the best correction are 0.05, or visual field smaller than 10°. Low vision is considered when the value of corrected visual acuity in the best eye is lower than 0.3 and equal or higher than 0.05, or visual field smaller than 20° in the better eye with the best optical correction (OMS, 1993).

In Brazil, the Specialized Ophthalmology Care Policy (PNAEO, in Portuguese) established the creation of networks to provide the Brazilian population better attention to visual health. The Federal Rehabilitation Services of the Healthcare Network for the Visually Impaired Person aim to ensure: the diagnosis and functional evaluation, early intervention, guidance to family and/or caregivers, care in habilitation/rehabilitation, selection of assistive technology resources to improve the quality of life and prescription of these resources according to the needs of those people (Brasil, 2008).

Assistant Technology is an area of knowledge, with an interdisciplinary character, that encompasses products, resources, methodologies strategies, practices and services that aim to promote the functionality of activity and participation of people with disabilities, incapacities or
reduced mobility. It seeks their autonomy, independence, quality of life and social inclusion (Brasil, 2009). Assistive Technology for low vision is any resource that promotes the best performance of individuals in their daily activities. The resources are classified as optical, non-optical, electronic and computerized.

The Specialized Ophthalmology Care Policy affirms that the Federal Rehabilitation Services of the Healthcare Network for the Visually Impaired Person should participate and/or promote, in partnership with educational and research institutions, studies and researches in the area of visual impairment, especially regarding the use of therapeutic methods and production of clinical evidence in the field of this deficiency, of innovation and in the use of resources of assistive technology (Brasil, 2008).

According to this orientation, we emphasize that the Department of Human Development and Rehabilitation, the Center for Studies and Researches in Rehabilitation “Prof. Dr. Gabriel de O. S. Porto”, and the Low Vision Service of Ophthalmology at the Department of Ophthalmology and Otorhinolaryngology, Faculty of Medical Sciences at the State University of Campinas, develop a multidisciplinary work in the improvement of rehabilitation. These programs include actions planned by the health policies, funded by the country’s National Health System. Therefore, an investment has been made in education and research, so that the results can be applied and directed to the assistance for people with visual impairment.

The Low vision Service operates within the Clinical Hospital of Unicamp. The team works with an interdisciplinary approach, with the following professionals: ophthalmologists, ophthalmology residents, orthoptists, and pedagogues. The team aims to encourage the visually impaired person, the development of the ability to solve problems, face new situations and recognize limitations. The objective is contained in a dynamic process, considering the visually impaired person’s relationship with themselves, with their families and with society (Carvalho, 1993).

It is up to the ophthalmologist and residents in ophthalmology to establish the diagnosis, the selection, evaluation and prescription of resources. The ophthalmologist guides the visually impaired people and provides documentation for them to obtain social insurance and bus passes. Patients are also helped to acquire the prescribed aids (Carvalho, 1993).

The orthoptist acts in the evaluation of visual performance and in the tests of assistive technology resources. The pedagogue acts in the evaluation of functional vision of the visually impaired person (Carvalho, 1993).

The assessment of functional vision describes the disabled person’s functionality in carrying out activities related to the use of vision and can be used
to complement clinical results and perform useful estimates of the impaired person's visual performance. It is done through informal observation of the person performing daily activities. Because of this evaluation, it is possible to know the conditions that favor the functional ability of vision, as well as the other sensorial resources (Carvalho, 1993).

After the diagnosis, the selection and the prescription of resources, the pedagogue guides the visually impaired persons, their families, schools and companies where they work. The orientation to the school is performed through an instructional booklet containing general and specific guidelines for better academic performance (Carvalho, 1993).

The whole team (ophthalmologist, resident in ophthalmology, orthoptist, and pedagogue) performs guidance on diagnosis and prognosis; keeps an attitude of support, understanding, and encouragement with the family; work with the community in training professionals and conducting community projects to prevent blindness (Carvalho, 1993).

People with visual disabilities are referred to the Center for Studies and Researches in Rehabilitation “Prof. Dr. Gabriel de O. S. Porto” for the training of prescribed resources and rehabilitation process. The center is located at Unicamp’s health area, in a building next to the Low Vision Service (Carvalho, 1993).

The Center for Rehabilitation Studies and Researches “Prof. Dr. Gabriel de O. S. Porto” was founded in 1973 and since the creation it develops works dedicated to deaf and visually impaired people. It aims at the rehabilitation and education of these people and their families, within an interdisciplinary approach.

The area of visually impaired people targets to offer quality assistance to the community, provide training for the professionals who work in the habilitation/rehabilitation, developing studies in prevention, treatment, and rehabilitation in the disability. Services are offered to people with congenital or acquired blindness and low vision, living in Campinas, in the region, or in other States of the country (Montilha, 1997).

The assistance to people with visual impairments is divided into two programs that correlate through common goals:

1. Children's Program: serves children from their birth until they are 11 years old, and its general objectives are: to intervene and facilitate the overall development process of the visually impaired children, preparing them to start school life; identifying problems and looking for solutions; orienting parents and caretakers about the overall development of the children, their limitations and capabilities.

2. The Program of Visually Impaired Adolescents, Adults, and Elderly People serves people from 12 years old up, and aims to provide them tools through activities in the different service sectors,
so they become more aware and seek the highest level of autonomy.

The intervention is carried out by an interdisciplinary team, with an interdisciplinary approach, formed by professionals from the areas of Social Service, Pedagogy, Psychology Occupational Therapy, Orientation and Mobility, and Nutrition.

The team offers resources for visually impaired people to seek their own interests, their possibilities, in order to reach the independence level they desire. The team also provides the development of skills, the ability to solve problems, the strength to cope with new situations, and the recognition of limits.

People with visual impairment are referred to the Center for Rehabilitation Studies and Researches, by the Low Vision Service and other community services. These people join the Rehabilitation Program for Visually Impaired Adolescents, Adults, and Elderly People through a screening conducted by the social worker, and through a complementary interview made by a professional from the interdisciplinary team, in which they collect all information related to the needs of these people, their expectations and difficulties encountered in carrying out daily activities.

In the Children Program, children are eligible for individual assistance or in pairs, and the developed actions aim at minimizing the impacts of the visual impairment during their critical period of development. The intervention happens weekly and takes place as a process that establishes a partnership between the medical area, the habilitation and/or the rehabilitation area, and the family. The trust established since the first contacts firms the basis for the intervention of children with visual impairment. Alongside the interventions, the team provides guidance for the family and the school. The participation of the school community (teachers, teachers specialized in visual impairments, advisors, and directors) is frequent in the evaluation of the children, to understand the specificities of the visual impairment and to apply their knowledge acquired during the evaluation in the classroom and at school.

After the evaluation of the visually impaired child, the Center routes a report about the evaluation results to school, alongside a copy of the book *Visão Subnormal: Orientações a Professores do Ensino Regular* (Carvalho et al., 2003).
Through interdisciplinary actions, the Rehabilitation Program for Visually Impaired Adolescents, Adults and Elderly People aims at improving the quality of life of these people by reestablishing their partial or total capabilities, facilitating family, school, social and work inclusion (Bittencourt et al., 2011).

In order to achieve this goal, the Rehabilitation Program conducts individual and group visits to blind/low vision people who have been received and evaluated. The people are considered eligible for the group rehabilitation program are those whose necessities may be worked on within the group's proposal. The group rehabilitation aims to serve the visually impaired person in their basic needs, enabling the training in assistive technology resources to facilitate daily life, bringing them knowledge about laws and rights, besides assisting in the process of elaborating and accepting the visual condition. The group also enables the identification of problems and experiences among participants, creating a space in which they exchange information, feelings, and experiences (Bittencourt et al., 2011).

The interdisciplinary team works with different groups of blind people and low vision people. In the groups of people with blindness, the initial intervention aims to help them cope with the grieving process for the vision loss. The disabled people have their sensory abilities, such as touch, smell, hearing, taste, and proprioception, dealt with, to help them relearning, interacting and involving with the surrounding environment. The blind people perform activities aimed at developing tactile discernment, using the Braille system, promoting communication by reading and writing. The group also works with their gestural communication. As for the accessibility, blind people also receive information and training for the computer software for screen reading, for the abilities of orientation and mobility in the use of the cane and guide dogs (Bittencourt et al., 2011).

Here we present the activities conducted in the rehabilitation group with blind people and the respective professionals who perform them (Bittencourt et al., 2011):

**Social Worker**
Performs the reception and provides the support for the blind person and their family to continue developing their life projects. They provide guidance on social security, social assistance and other social benefits/rights, the right to work; the rights of people with disabilities, social cooperatives, internships, apprenticeship, temporary work, employment and experience contracts. They aim to help the patients with social problems that affect rehabilitation.

**Psychologist**
Helps blind people to go through the grieving process due to loss of vision. They help patients to build their blind person's identity; they offer help so patients can deal with their limitations and frustrations.

**Specialized Pedagogue**
Introduces the Braille system and helps people to learn it; teaches patients to use
information technology in software (screen readers, for example), facilitating digital inclusion.

**Occupational Therapist**
Encourages patients and family to express feelings to facilitate the grieving process for the loss of vision; promotes the development of skills and awareness actions to the development of daily activities; creates situational activities according to the patient's needs; organizes professional and self-expression, drama, crafts, recreation and leisure activities.

**Daily life activities**
Offers training for the acquisition of independence in daily life activities, such as eating, hygiene, clothing, and household cleaning.

**Orientation and Mobility**
Provides orientations about the use of a cane to ensure their right to mobility.

**Nutrition**
Provides orientation about the importance of healthy eating; a snack is offered in each session, as a reinforcement of the orientation.

The process of composing the low vision patients group is similar to the process carried out with the blind patients, and it aims to encourage them to use the residual vision with optical aids prescribed by the ophthalmologist, with non-optical aids, such as materials adaptations and environmental modifications. Although the approach is done in a group, low vision patients are individually evaluated as to their abilities, strengths and needs arising from low vision or the daily tasks they perform (Bittencourt, et al., 2011).

The following are the activities in the low vision rehabilitation group and the respective professionals who perform them (Bittencourt, et al., 2011):

**Social worker**
Performs the hosting and provides support for people with low vision and their families to continue developing their life projects. They provide guidance on social security, social assistance and other social benefits/rights, the right to work; the rights of people with disabilities, social cooperatives, internship, apprenticeship, work and experience contracts. Their work aims at helping the patients with the social problems that affect the rehabilitation process.

**Psychology**
Helps in confronting the grieving process of the loss of vision: it provides tools for people to build a new identity of the person with low vision; it helps the patients to deal with limitations and frustrations, and the desire to recover the vision to acquire a new perspective.

**Specialized Pedagogy**
It teaches patients to use resources of assistive technology prescribed by the ophthalmologist; It encourages the use of residual vision in everyday activities, such as reading and writing; it teaches patients to use information technologies, such as computer sound software, improving digital inclusion.
Occupational Therapy
Focusing on the grieving process of the person who acquired low vision, it helps them to develop abilities, in order to improve their self-confidence and self-esteem, and to use their residual vision; it creates situational activities according to the patient's needs; it organizes the activities of self-expression, drama, professional, crafts, recreation, and leisure.

Daily life activities
It focuses on the residual vision, offering training for the acquisition of independence in management and daily life activities, such as eating, hygiene, clothing, and household cleaning.

Orientation and Mobility
It provides orientations on the use of a cane, to ensure the right to mobility.

Nutrition
It provides orientation on the importance of healthy eating; a snack is offered in each session, as a reinforcement of the orientation.

BIBLIOGRAPHIC REFERENCES
First Steps in Communication with a Congenitally Deafblind Child: A Joint Attention Approach

María del Mar Martín de Frutos, ONCE Educational Resource Center, Seville, Spain

Introduction

This article relates an experience regarding first steps in communication by creating joint attention situations. The experience involves a child with congenital deafblindness and our work in early intervention.

Our intervention is based on the theoretical reasoning published by the ONCE Deafblindness Unit, *Deafblindness: A Multidisciplinary Approach*, (Gómez, et al., 2004). The authors define deafblindness in this way:

A person is deafblind when two sensory impairments (visual and hearing), which may be more or less severe, are present and cause particular communication problems and special needs due to the difficulty to perceive globally, gain knowledge and, therefore, demonstrate an interest, and function in his or her environment.

As a result of a lack of communication and a disconnect with the world in deafblind people caused by sensory deprivation, they experience a range of difficulties which manifest themselves in different degrees depending on characteristics, access to information, to education, to professional training, to employment, to social life and to cultural activities.

In this article, we describe our work with J, a child with congenital deafblindness. He is currently classified in the medium performance level group, which means he has these capacities (Gómez):

- Exhibiting cognitive interest in the world (in people and things);
- Generating more or less elementary strategies to resolve problems;
- Living a semi-independent life;
- Imitating at least conventional signs related to basic needs.

Our intervention goals with J included “developing a communication system, developing useful skills for daily living, social skills and strategies to enable the individual to work in a sheltered environment if the person's characteristics allow” (Gómez).
**J’s Clinical History**

J was born 24 weeks into gestation and weighed 765 grams at birth. He was diagnosed as extremely premature and received numerous medical treatments in hospital to address his digestive health and breathing. He also received rehabilitation and neuropediatric services, etc.

Following an ophthalmological diagnosis of retinopathy of prematurity, he underwent an operation in both eyes. This proved to be unsuccessful, and he is totally blind.

A diagnosis of his hearing showed bilateral hypoacusis. Initially he used hearing aids before undergoing cochlear implant surgery in his right ear when he was 18 months old. The implant was activated when he was 20 months old and the initial reaction was very positive.

J is now five years old and he has adapted extremely well to the implant in the right ear and hearing aid in the left ear.

**Developing Interaction**

In J’s case we first established a positive relationship using games involving movement, balancing and song. Then, starting from a situation which is gratifying for him – blowing raspberries and kissing hands – we initiated a dialogue/game which went as follows: I kiss his hand and wait for him to respond. He blows a kiss and I respond again with a stronger kiss and movement.

This game was combined with blowing raspberries in his hand so that at the end J could choose what he wanted me to do – blow kisses or raspberries.

In this interaction phase, we were guided by Gómez, et al, in observing J’s behaviour to see what interested him, using details that we could use to communicate; structuring his activities; reacting to him to show that he had some control over his environment.

**Developing Communication**

J has discovered the people and things around him. He shows interest in them and he has realised that we hear him and he can provoke gratifying responses. This is why he tries to communicate, because he knows his requests will obtain a response. To achieve this, we used songs along with gestures which he learnt gradually and, once we had secured shared attention, we began to work on areas of communication other than making requests, such as taking turns to communicate during conversations.

We continued to be guided by Gómez et al., by sharing attention, facilitating J’s natural expressions, encouraging turn-taking and imitating his behaviours.

**Developing Language**

J currently uses Spanish Sign Language signs. He began to use them individually to make requests. He uses the signs for “more”, “finished”, “water”, and some signs related to specific activities. Presently he uses two or three signs together, for example: “I want water”, “I want to hear [song title]”, etc.

Frequently he does this along with vocal emissions akin to words.
We continued to use the framework of Gómez et al., by increasing our shared vocabulary and building upon J's natural signs to introduce conventional signs.

Methodology
From the beginning we established a close personal relationship with J, which encourages him to trust us. From the outset we established a routine and kept to it at all times. We always greeted him upon entering the room, made sure to include activities that included his mother, had other activities that included his therapist, and always engaged in a goodbye ritual.

Subsequently, and as J began to understand the routine for each session, we decided to introduce an agenda to anticipate events using three activities, each with one object for reference.

The session routine was unchanged. We exchanged greetings when J entered the room. We went over the activities to be performed and then carried them out:

- One song- and play-based activity to encourage communication and language development;
- One activity involving manipulating and recognising different objects;
- A final activity that he finds fun and shows a keen interest in. At the beginning this was a rhythm game with a drum, and we are now using relief storybooks.

Afterward, we reviewed everything we did, and then made our goodbyes.

By cultivating attention toward his world, our goal is for J is to learn to be independent. We hope to teach him to be capable of acting upon his surroundings and to make connections with other people.

Use of Oral and Sign Language
From the very outset we worked a lot with J on auditory stimulation, first with his hearing aids. Following the implant he underwent rehabilitation involving a speech-therapy programme at the hospital, while continuing to prioritise auditory aspects and oral comprehension.

We believe that the implant was performed at the right time for J, and it has enabled him to make progress in auditory and language development. However, there came a moment when J’s comprehension was developing at a good pace but he was finding it difficult to express himself. At that time we decided to start using tactile-based sign language using the hands more systematically. This gave J a more achievable means to express himself. However, we never neglected oral language work, and we always looked to consolidate any attempt he made at oral communication.

This means that J is now using two systems to express himself; he uses the oral method for those things he is more familiar with and which are easier for him to emit. He uses some gestures and basic signs for other requests he finds difficult to express orally. For example, to express “at home”, “in the car”, “call mum”, or “call my
sisters”, he uses onomatopoeias for animal noises. However, when he wants to say his implant isn't working properly, he points to it or the hearing aid. He uses the sign for “finished” when he has had enough to eat, or in situations he finds unpleasing. Now he is beginning to ask to go the bathroom using both oral language and signs.

The Role of J’s Family
The support and interaction of all of J’s family - his mother, father, sisters and grandmother – has been vital to his overall development, and in particular for his development in communication skills. They have made it possible for J to have different interlocutors who, at different times and in different circumstances, interacted and communicated with him in a manner he could understand.

In addition, since he has started attending school, J has also enjoyed specialist support from an educator of the deafblind. This teacher focuses on developing communication skills, establishing routines, and anticipation.

Lessons for Working With Other Children With Severe Difficulties in Developing Communication Skills
We believe some parts of this methodology can be extrapolated for use with other boys and girls who encounter communication difficulties:

• The starting point should be the child's interests, creating gratifying interactive situations and facilitating situations for joint or shared attention.

• Set contingencies: establish in-session routines and encourage anticipation of activities to help the child better understand what is about to happen.

• Use gestures or basic signs for communication. This facilitates an understanding of oral language and encourages expression, until such time as oral language is consolidated.

• Use “baby talk”, characterised by speaking slowly and constantly repeating the key message, during the intervention.

• Wait for the child to react, give him or her time to express a response, and repeat the information back so that he or she feels heard and knows we have understood.

References
Deafblind Technical Unit, ONCE. (2010). Training Material for the Course in “Education for Deafblind Students”. Madrid: ONCE.


Teaching Young Children To “See More”: Increased Functional Vision

Krister Inde, Low Vision Specialist / Indenova i Karlstad, Sweden

The See More Project at Lund University, Sweden was conducted some 10 years ago, and involved 17 children with low vision, from the ages of 18 months to 7 years. The purpose was to increase or expand their visual reach. We worked in close collaboration with the team in Nashville's Vanderbilt University, associated with Dr. Anne Corn.

The children received vision training using telescopes, based upon the assessment of a highly skilled optometrist, Dr. Jörgen Gustafsson. Training started in the home and went on for a year and a half. We trained the children to use telescopes for scanning, focusing, searching, tracing, and following moving objects. Most of the kids preferred 4 or 6X in monocular models of short focus telescopes.

The therapeutic rule is to not cover one eye in nystagmus children, and this worked in this training, since we never covered one eye. We used the child's dominant eye no matter what the best corrected visual acuity (BCVA) was.

We asked their parents about new dimensions of visual performance: vision desire, vision strategies, vision efficiency, vision memory and vision confidence. The confidence was the most significant difference but the desire was the most important. It is all about wanting and liking to use residual vision with optical devices. Motivation is the biggest issue, not the acuity.

After seven years we did a follow up study. We got hold of 12 of the original 17 students, and find that 9 of them were still using the same telescope. The other three had lost usable vision due to congenital glaucoma, or in one case did not want to reveal his low vision to others by using his telescope.

We find that in a developed society it is important that children from 2.5 to 3 years of age are able to use magnification in telescopes, or use the camera zoom in their smart phones. This allows them to see more, learn more, and be more independent. When someone says that they might need braille later, it might be true, but today is today and tomorrow is much later. Vision is always more useful than the sense of touch, and should be encouraged as much as it is possible. If low vision in children is not used at its utmost possibility, it is a sign of low or no development in the society of that country or region.

After 40 years I came to Amman in Jordan. At one time all children used braille in the school for the blind. They are now making great progress. At the Academy for children with visual impairment, a full-time optometrist and low vision teachers are currently full members of the team. Also, the Vision Training Center has developed a team to teach its low-vision clients how to make the best use of vision. Can that happen everywhere?
Partnership in the Early Intervention Programme at Prof. Dr. Ivan Shishmanov School for Visually Impaired Children in Varna, Bulgaria

Julieta Petkova, Director & Yana Raeva, Head teacher
Prof. Dr. Ivan Shishmanov School for Visually Impaired Children, Bulgaria
E-mail: udnz_100g@abv.bg

Not all children are typical in their development and training; some individuals at birth or in early childhood present anomalies in their cognitive development, requiring special educational skills from their educators. Young children need early intervention services, which in Bulgaria are provided by specialised programmes and centers.

The first early intervention programme in Bulgaria was opened in 1992 at the Prof. Dr. Ivan Shishmanov School for Visually Impaired Children in the town of Varna. The Shishmanov School has since been joined by a second school in Sofia, both administered by the Ministry of Education and Science. The schools educate and support students who are visually impaired students from the whole country.

Early intervention services support the education of children with special educational needs at home, as well as training for their parents. The children range in age from 0 to 6 years of age, when they begin attending school.

Children with special educational needs are integrated into regular kindergartens and schools in Bulgaria, with individual educational programmes. Thus, children with disabilities grow up and learn together with their peers, and at the same time get support from special educators.

**Early Services**

Prevention, early detection, and early intervention are foundations of special education services. Today the time between detection of the impairment and provision of assistance is reduced. Ideally, early intervention begins in the first months of the child’s life. While atypical psychophysical development can manifest at any stage, it most often appears during embryonic development, during childbirth, and the first few years after that.

When it seems likely that a child has special education needs, his or her intelligence is measured.

Indicators of possible learning disabilities include vocabulary deficit, inadequate knowledge, or memory problems. We also
check for anomalies and limitations in oral speech. Articulation problems in preschool children are often associated with problems in neuro-physiological development, and may cause the appearance of later problems with reading. This leads to learning delays, and requires special attention and individual work.

Early corrective work gives children the best chance to achieve their optimum level of development. Early intervention is of the greatest importance for the development of children with special educational needs. It is important to include specialists from various fields such as psychologists, special educators, medical doctors, speech therapists, and physiotherapists.

During this academic year the early intervention programme is serving 32 children with special educational needs, some with multiple disabilities. The students are drawn from family-type accommodation centers and homes for medical care in Varna.

The educational programme includes full use of the multisensory room, the psychomotor room, and the early intervention room. We introduce the children to a rich variety of experiences, including problem solving, surprises, a variety of lighting effects, shapes, sizes and textures of objects, and musical activities during acupuncture. This allows the professional to observe the reactions and emotions of the children. We include children of different ages and development levels in group activities. The students learn to communicate through objects they exchange, sound production, intonation imitations, and connecting voice with a particular person. This encourages them to gradually respond more fully. We work with object symbols, which mark the beginning and the end of activities. We enhance this with explanations, descriptions, and tactile stimulation.

As with all children, students with special educational needs begin to develop their self-image at a very young age. They begin to feel appreciated and loved, and learn to distinguish themselves from others. Music therapy is a powerful tool in this work. They learn patterns of movement with the methods of “hand in hand” and “body to body”.

Setting realistic goals for children is imperative. We work with parents to avoid favoritism, which can lead to dependence. Parents may also make the mistake of pressuring their children to achieve desired goals at any price, which can make them feel inadequate. We cultivate the self-knowledge of each child, which is crucial for creating a positive self-image. Knowing their names and their body parts avoids verbalism at a later stage of development. We practice in front of the mirror with the teacher, and then independently. This supports interactions with other people.

Developing social skills begins with recognising voices, sounds, shapes, sizes, and connecting them with people and objects. We show the children from an early age how to handle many objects, beginning with its investigation. They hold,
explore, and discover every detail that gives information. Completing the task builds self-esteem and confidence.

We conduct group counseling for parents and their children with a team of specialists from the school. These meetings mark each child's progress and identify the next steps in the development of the child-adult relationship. They also bolster parents’ confidence in what they do with their children.

Children with visual and multiple impairments must be instructed to use other senses – hearing, speech, and tactile skills.

It’s necessary for the teacher and student to have mutual trust and liking in order to achieve good results. The child must be motivated and stimulated emotionally, verbally or, in some cases, materially.

An important point in the work is to ensure a safe and permanent environment.

Learning acceptable conduct facilitates the early integration of children into regular kindergartens and centers for education and rehabilitation, leading to faster socialisation and formation of appropriate behavior in society.

Two of the children we work with are in the kindergarten and are achieving good results. They fit well into the children's team, and have developed habits of self-service, hygiene, and nutrition. They are becoming more independent.

The most effective way of training and education of young children with visual impairments is with games. In game situations, children recreate real life around them, encouraging them to expand and reinforce skills and daily habits. They receive additional information and knowledge and enhance communication with other people. It is important for the children to be encouraged, to participate with the team, try not to seek the help of an adult, but to participate actively in the games. They need to know who they are playing with and what is happening. This helps them form positive emotional behaviors through expressing themselves. Transferring the game from the small enclosed space to the out-of-doors encourages their mobility skills. It’s important that the teachers direct the activities properly when outside.

It’s crucial that students develop orientation and mobility skills as well as communication skills from a very early age. Including more interesting activities, such as music, dance, sports, art therapy, etc., encourages children to take initiative. They learn to control themselves, which contributes to their better emotional and physical development.

Our lives of full of technologies -- phone, computer, tablet, etc. They are a necessity these days, and children need to be aware of their proper use. They serve to expand access to information, and when used properly, stimulate sight, hearing, speech capabilities, motor skills, coordination, attention, and concentration.
At the Center for Early Intervention at the school for visually impaired children in Varna, an assessment of each child is performed by a multidisciplinary team: psychologist, speech therapist, physiotherapist and special educator. They design an individual programme to work with the child. It is important that parents and family are also sufficiently committed to the implementation of this programme. Early intervention allows combining activities in the school and home environment, making parents active partners in the process of development. They participate in implementation of the stages in the student's individual programme.

The child's participation in the early intervention activities in the special school stimulates communication with people other than family. Specialists are familiar with pedagogical methods to influence children, and with methods that enhance development in a family environment. Of paramount significance for the success of each child are the environments and adapted didactic materials used for training.

The great problem in early intervention work is families' lack of awareness about it. Many parents simply don't know that we are here to assist them. There is poor communication between the social agencies, health institutions, and educational. This is why many families do not take advantage of early intervention services.

Our programme uses both group and individual activities. Group activities are carried out by a special educator and assistant. Individual activities are conducted by physiotherapists, speech therapists, psychologists, and specialists in orientation and mobility, low vision, and useful skills. There are also sensory stimulation classes (Tacpac), music therapy, and art therapy, etc.

We maintain regular contact with children's families, to provide guidance on the activities and daily routines at home. Designing an individual programme requires clarifying the priority areas for each child. This allows for more efficient, individualised intervention. In the center of the programme is the child, with a strong emphasis on personality and interaction with the world. When designing an individual programme we take into account children's needs, which follow their nature.

The programme activities are aimed at easing adaptation to the new school environment for children with special educational needs. We work on concentration and attention, language development and alternative forms of communication, early math ideas, and knowledge about the environment. For many of these children, this is the first opportunity for socialisation in a setting other than family.

We create a Montessori environment to develop independence skills. We offer tools and educational materials that help to develop the capacities of the child based on his free choice. They learn self-reliance.
and practical skills in everyday life. Children feel safe and protected in Montessori classrooms, because the boundaries and rules established are always respected – both by children and by specialists. The students choose the materials they will work with, and determine the duration of the activity, as well as their partners. The activities focus on motor development, communication skills, self-service, social skills, orientation in the environment, cognitive development, emotional and the voluntary sphere, and music and arts.

Well designed early intervention can reduce and even overcome the effects of the child's disability. In the case of speech pathology and delayed speech development, therapeutic methods boost their capabilities in communication, eating, and game skills. It is very important to monitor and reevaluate the progress and development of each child. This happens in the beginning, middle and end of the academic year, using assessment tests. Each specialist notes the progress made by each student in his or her field.

Finally, we would like to emphasise the importance of on-going training and professional exchange for teachers and specialists. This professional development is particularly rich when it's international -- sharing through conferences and attendance at leading educational institutions in Europe and the US. Participation of the teachers from the school in European and world conferences has facilitated exchange of best practices and the sharing of innovative methods and techniques.
How an Applied Orientation & Mobility Programme Affects Geometry Learning for Students with Visual Impairment in Abuja and Gindiri, Nigeria

Isuwa Jikukka Jurmang, Faculty / Department of Special Education and Rehabilitation, University of Jos, Nigeria. E-mail : Jurmangi2002@yahoo.com

Background
In Nigeria, the teaching and learning of mathematics, including geometry, has been a great challenge for learners with visual impairments (LWVI). In a nationwide study, the Nigerian Educational and Research Development Council (2009) found that in twenty-four selected special residential schools, mathematics was not offered to learners with visual impairments. The main reason is that teachers lack training in the adapted strategy or methodology to use in teaching mathematics.

In its 2013 review of Nigerian school examination results, the West African Examination Council (WAEC) reported that learners with visual impairments had better results than their sighted peers in 2012 examinations. Of sighted candidates, 37.97% (150,615) passed with five credits, including English and mathematics. Their peers with visual impairment passed at a rate of 46.93%. However, these results did not include a comparison of mathematics results, because LWVIs were not tested on mathematics in the examination.

In a nationwide study, the Nigerian Education and Research Development Council (2009) found that in 24 selected special residential schools, mathematics was not offered to learners with visual impairments. One of these students was overheard to say that “blind boys’ brains can’t do mathematics, everyone knows that”. Sadly, many share this erroneous belief.

Descriptive geometry is a branch of mathematics which studies properties of figures and shapes, and the relationship between them. Basic geometry allows us to determine properties such as the areas and perimeters of two-dimensional shapes, and the surface areas and volumes of three-dimensional shapes.

The National Council for Teachers of Mathematics in the United States points out that the field of Orientation & Mobility (O&M) provides experiences that can help students with visual impairments and blindness to develop the conceptual framework for understanding mathematics (Smith, p.161). Specifically, O&M has basic concepts that map to concepts in descriptive geometry.

Among the concepts and skills of O&M that are also geometry related are:
• Maintaining directional orientation using perpendicular or parallel alignment for straight line travel;
• Executing 90° and or 180° turns;
• Recognising characteristics of objects around the space or landmarks, e.g., shapes, horizontal sides, vertical sides, parallel sides, etc.

Orientation & mobility training teaches LWVIs to conceptualise and interact with shapes and objects in space, their positions, quantity, distances, locations, angles, etc. The students learn to identify or locate them through the senses, and how to move around those structures in space safely and gracefully.

The Applied Orientation & Mobility Programme (APOMP) is an adapted teaching strategy full of geometry concepts. It can first be presented practically, giving the learner the skills to understand and access the environment and objects in it. The LWVI gets information about the characteristics of the environment through other sensory modalities. Once mastered, the learner can map this information to embossed images, or create mental imagery, enhancing understanding of geometry and mathematics.

Purpose of the Study
The objective of the study is to analyse the affect of the Applied Orientation & Mobility Programme on the geometry learning of learners with visual impairments.

Research Question
What is the nature of geometry task performance of LWVI?

Hypothesis
There is no significant difference in extent of geometry task performance of learners with visual impairment trained in the use of the Applied Orientation & Mobility Programme and those not trained.

Theoretical Framework
The theoretical framework for this study is derived from Piaget’s theory of cognitive development, in which there are four basic stages in the development of mental structures.

Sensorimotor Stage
The first stage is the sensorimotor stage. The child's experience centers on its body, e.g., sucking, looking, grasping, etc. The environment for the actions or activities is the child's own body and later the child extends the actions to the environment.

The Applied Orientation & Mobility Programme is concerned with the environment of the child both within its body and its surrounding environment. Body-centered activities of APOMP include identifying and naming the learner's different body parts, and using nonstandard means of measuring the body parts, such as arm span, finger pacing, waist height, leg pacing, etc. The nonstandard measurement starts from the different parts of the body and is extended to objects around the environment.

APOMP eventually introduces standard measurements of body parts, using adapted rulers, measuring tapes, and meter rules. APOMP activities within the environment involve the taking of measurements,
exploring lengths, distances, circumferences, and identifying lengths of various shapes.

**Preoperational Stage**
The second Piagetian developmental stage is the preoperational stage. This is the stage of representation or symbolism.

The Applied Orientation & Mobility Programme involves identification of landmarks within the environment. Landmarks are objects within the environment that the child can hold, feel, touch, grasp, or smell, identifying their features and characteristics by manipulation, weight, measuring, etc. Identification of shapes, sizes, and distances eventually constructs the mental images of the objects and their features or characteristics.

**Concrete Operational Stage**
The third Piagetian stage is the concrete operational stage, at which the child is operational in its thinking. The stage is designated concrete operational because the necessary logical thought is based on the physical manipulation of objects in the environment. Basic mathematics concepts are better introduced to children first through manipulating objects around the environment.

**Formal Operational Stage**
The fourth Piagetian stage is the Formal Operational Stage. The child hypothesises with symbols or ideas rather than needing objects in the physical world as a basis for his or her thinking.

The Applied Orientation & Mobility Programme, based on contact with the environment, encourages the child with visual impairment to engage practically and theoretically with geometry activities. The child identifies characteristics of objects within the environment such as shapes, then connects the environment to abstract representations, when he or she identifies embossed shapes in two dimensional forms. Further, the child draws embossed lines, quadrilaterals, polygons, angles, cardinal points, etc., reinforcing the concepts.

According to Advani (1992, pp. 22-43), Piaget's theory of cognition covers the whole complex system of human mental abilities. They include: perception, attention, learning, memory, and reasoning. Others are conception, imagery, assimilation and accommodation.

**Research Design**

**Table 1: Experimental Design**

<table>
<thead>
<tr>
<th>Design</th>
<th>Group(s)</th>
<th>Pre-test</th>
<th>Treatment</th>
<th>Post-test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test</td>
<td>RE</td>
<td>O₂</td>
<td>X</td>
<td>O₂</td>
</tr>
<tr>
<td>Post-test</td>
<td>RC</td>
<td>O₃</td>
<td>-</td>
<td>O₄</td>
</tr>
</tbody>
</table>

**Population**

**Table 2: The Population of Gindiri and Abuja Schools for Blind Children in Classes Four and Five**

<table>
<thead>
<tr>
<th>Institution</th>
<th>Congenitally Visually Impaired</th>
<th>Adventitiously Visually Impaired</th>
<th>Total Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abuja</td>
<td>10</td>
<td>9</td>
<td>19</td>
</tr>
<tr>
<td>Gindiri</td>
<td>7</td>
<td>9</td>
<td>16</td>
</tr>
<tr>
<td>Total</td>
<td>17</td>
<td>18</td>
<td>35</td>
</tr>
</tbody>
</table>

Source: Field Study 2013
Sample Size
The sample size was ten LWVI in classes four and five in each of the schools for blind children in Gindiri and Abuja. This made a total sample size of twenty students in all.

Instrument for Data Collection
For this study, the researcher developed and used the Adapted Geometry Task Performance Test (AGTPT). It contains ten items with concepts and skills in orientation & mobility connected or linked to geometry tasks.

Description and Administration of Applied Orientation & Mobility Programme (Treatment)
Both experimental and control groups were pretested in geometry skills. The experimental group was then exposed to a treatment. The treatment period lasted for eight weeks, with two hours and forty minutes of lessons per week. The post-test on Adapted Geometry Task Performance Test (AGTPT) was administered on the experimental and control groups at the end of the treatment period.

Results
Research Question: What is the nature of geometry task performance of learners with visual impairment?

The data for analysing this research question were obtained from the Adapted Geometry Task Performance Test (AGTPT). The statistical tool used in analysing the scores was simple percentage and is presented in the bar chart in Figure 1.

![Figure 1 Individual Performance in Adapted Geometry Task Performance Test (AGTPT) for Experimental Group](image)

N1 = 70%  N2 = 87%  N3 = 58%  N4 = 79%  N5 = 64%  N6 = 92%  N7 = 83%  N8 = 65%  N9 = 70%  N10 = 83%

Figure 1 Individual Performance in Adapted Geometry Task Performance Test (AGTPT) for Experimental Group
Table 3: Result of the Mean Score of Adapted Geometry Task Performance Test (AGTPT) of Experimental and Control Groups

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>( \bar{X} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achievement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>10</td>
<td>75.1</td>
</tr>
<tr>
<td>Control</td>
<td>10</td>
<td>45.1</td>
</tr>
</tbody>
</table>

Table 3 above shows that the mean score for the experimental group is 75.1. The mean score for the control group is 45.1.

There is a significant difference in the mean score in the task performance in Adapted Geometry Task Performance Test (AGTPT) of the experimental group and the control group.

Hypothesis: There is no significant difference in extent of geometry task performance of learners with visual impairment trained in the use of the Applied Orientation & Mobility Programme and those not trained.

The result of the independent-samples t-Test in table 4 indicated that there was significant mean difference in the task performance on Task Performance Test (AGTPT) of LWVI who were in the experimental group and those in the control group. The p-value of (0.001) is less than the level of significant (0.05). Hence there is substantial evidence not to fail to reject the null hypothesis. In other words, the calculated t value is 5.88.
The critical t value is 2.10. The P-value or sig (2 tailed) is 0.00. The df is 18. Since the Critical t value 2.10 at df of 18 and P = 0.05 is less than the Cal t value of 5.88, there is enough evidence to reject the null hypothesis.

**Discussion**

**Effects of Applied Orientation & Mobility Programme on Geometry Learning:**
APOMP enhanced the high task performance in geometry of learners with visual impairment (LWVI). The experimental group performed better than the control group. This was because their participation in the Applied Orientation & Mobility Programme (APOMP) gave them the skill to solve geometry problems.

The study revealed (see Figure 1) that all ten learners with visual impairments in the experimental group (100%) scored 50% and above in the Adapted Geometry Task Performance Test. None of them scored below 50%. Seven (70%) of the LWVI in the experimental group scored 70% and above in the Adapted Geometry Task Performance Test. Three of them (30%) in the experimental group scored between 50% to 60% on the Adapted Geometry Task Performance Test. The highest score achieved was 92% ($N_6$), and the lowest was 58% ($N_5$).

For the control group, see Figure 2. Four (40%) LWVIs scored 50% and above in the Adapted Geometry Task Performance Test ($N_{12}$, $N_{14}$, $N_{17}$, and $N_{18}$). Six (60%) of the LWVI scored below 50% in the Adapted Geometry Task Performance Test. None of the candidates scored 70% and above. The highest score achieved by candidates in the control group was 65% ($N_r$). The lowest score achieved by control group learner was 29% ($N_{20}$).

**Recommendations**

Nigeria should adopt the Applied Orientation & Mobility Programme (APOMP) as an adapted strategy for teaching and learning geometry in particular and mathematics in general to learners with visual impairment. Parents are the best partners to collaborate with in introducing and teaching O&M skills to children with visual impairment as early as possible. These O&M skills enhance the teaching of geometry/mathematics to the children with visual impairments. Further research could be done or replicated in other places.

**References**


ICEVI Promotes Inclusive Education in Tajikistan

Bhushan Punani, Regional Chair, ICEVI West Asia, India
E-mail: blindabad1@bsnl.in

A team of Mr. Hans Welling, Chairperson, ICEVI Europe and Mr. Bhushan Punani, Chairperson, ICEVI West Asia paid maiden visit to Tajikistan during 22nd to 28th September, 2008 on the invitation of the Tajikistan Association of the Blind, Dushanbe. The purpose of this visit was to study the existing services for the persons with visual impairment and to propose a strategy for promoting appropriate education and comprehensive rehabilitation on behalf of the ICEVI. During this visit, the officials had discussion with concerned officials of the TAB, other leading organizations, concerned Ministries; visited leading schools and other educational institutes for the visually impaired and enterprises for the blind; observed Braille production facilities; and conducted a Round Table Conference with the state-holders and organized a feedback session.

Identification of Areas of Priority: The visiting team identified areas of priority as involvement of concerned Ministries in promotion of education of children with visual impairment, capacity building of teachers, introduction of low vision services, launching of EFAVI campaign, seeking support for modernization of Braille Press, establishing of assistive devices bank etc. The utmost priority should be organizing a teacher training course and training of Master Trainers in low vision. It was agreed that certain schools for children with visual impairment may be used for this purpose so that accommodation and training facilities could be provided at affordable cost. Efforts may also be made to invite the visiting faculty from the neighbouring countries. The outcome of this visit was modernization of Braille Press with the support of donor agencies from Europe.

Sensitization of CBR Officials: A team of CBR Officials from Tajikistan visited CBR Project in Gujarat during 29th November to 3rd December, 2012. The team was led was Ms. Andrea Vogt, Country Director Operation Mercy, Tajikistan. The other members of delegation were Government officials from Ministry of Health and Social Protection and Agency of MLSP in Tajikistan. The group observed, “The main focus of the “Education for all” programme in Gujarat is clearly to make mainstream schools inclusive. However we also saw an example of a special school, with a small number of boarders and disabled day students that was turned into an inclusive school. Which could cater especially for children with more severe disabilities. While this is not a model that is talked about a lot and should not the area of our main
attention, it might be an answer to some of the transition process for the existing institutions in Tajikistan". The group also observed successful implantation of community based rehabilitation, inclusive education, teacher training and shift from special education to inclusive education with the support and participation of Government.

**Orientation of Officials of Ministry of Health:** The World Health Organization (WHO) in partnership with Ministry of Health and Social Protection, Republic of Tajikistan is implementing a disability rehabilitation program in Tajikistan for development of National Rehabilitation Policy, system, services with focus on Community Based Rehabilitation (CBR) and Human Resource Development (HRD). WHO sent a team of high ranking Officers from Tajikistan with the goal of the visit being to build the capacity of the Ministry in initiating Govt. run and managed CBR programs with an objective to orient participants on governance and services that can contribute in achieving qualitative rehabilitation for persons with disabilities. The high-level delegation (7 members) from Tajikistan visited Gujarat from 23-26 February, 2015 namely Ms. Sodiqova Dilorom, Adviser of the Minister, Ministry of Health and Social Protection; Mr. Rahmatulloev Sherali, Head of the Department of Mother, Child and Family planning, Ministry of Health and Social Protection; Mr. Kurbanov Qudratullo, Head of the Department of Social protection, Ministry of Health and Social Protection; Mr. Kholov Abdulkhalim, Head of State agency on Social Protection, Ministry of Health and Social Protection; Mr. Kalandarov Safo, Project Associate, World Health Organization, Tajikistan; Mr. Satish Mishra, Technical Officer, Disability and Rehabilitation, World Health Organization, Tajikistan. The ICEVI West Asia organized their visit to CBR programs run by the Blind People's Association and had meetings with all the relevant Officials in the departments of health and social justice. It motivated the visiting officials to promote comprehensive services for persons with visual impairment and to follow WHO CBR Guidelines in their country.

**Participation in International Seminar on Ophthalmology:** The Ministry of Health and Social Protection, Tajikistan and World Health Organization invited Dr. Bhushan Punani, Chairperson, ICEVI West Asia to attend First International Conference on Ophthalmology held in Dushanbe during 27-28 November, 2015. The aim of the congress was to strengthen health care system for persons with blindness and low vision. He also made a plenary presentation on importance of assessment of children with low vision. He also shared activities of ICEVI in respect of promotion of education.
of children with visual impairment. He also conducted one day workshop of the professionals and workers in the field of CBR in respect of effectiveness of WHO CBR Guidelines.

**Evaluation of Inclusive Education:** The Association for Aid and Relief, Japan has been promoting inclusive education of children with disabilities in Dushanbe. The ICEVI was invited to assist this AAR, an initiative of Government of Japan to support it for conducting an evaluation on its approach on inclusive education. Dr. Bhushan Punani represented ICEVI during this evaluation conducted during 18-24 December, 2016. During this visit, he conducted a seminar on inclusive education for Directors from all schools in Dushanbe promoting inclusive education. He shared the need for promotion services on assessment, child preparatory and school readiness for such children. He also conducted a Workshop for the staff of kindergarten and parents in respect of importance of role of parents in supporting child preparatory services at such kindergarten.

The exciting workshop was on “Role of Special Schools for the Promotion of Inclusive Education” for the staff and parents of Boarding School at Dushanbe. This Workshop could dispel the pre-conceived notion of the teachers and parents that promotion of inclusive education would result into closure of boarding schools. The participants appreciated the concept of role of boarding schools in respect of providing services of low vision assessment, low vision devices, child preparatory services, schools readiness services, supply of Braille Books and Talking Books teacher preparation.

To promote involvement of University in promotion of inclusive education, a Workshop on the Role of University in Promotion of Inclusive Education was conducted for the staff and students of Tajik State National University. A large number of students from the faculty of Social Work participated in the same and understood the concept of inclusive development. Similarly a Workshop for the officials of City Education Department provided the opportunity of seeking involvement and participation of Government officials for the promotion of inclusive education.

Thus ICEVI has been supporting and guiding concept of early intervention, assessment of low vision children, provision of low vision devices, implementing child preparatory services, sensitization of teachers, Government officials and other service providers.
ICEVI Fact Sheet

Mission
In recognition of the continuing global challenges in achieving access to quality education for the millions of out-of-school children with blindness and partial sight, the International Council for Education of People with Visual Impairment (ICEVI) is a membership organisation with a mission to promote access to inclusive, equitable, and quality education for all people with visual impairment.

Goals
Goal 1: Promoting access to quality education for people with visual impairment including those with blindness, partial sight, deafblindness and additional disabilities.

Goal 2: Influencing governments’ and relevant stakeholders’ implementation of the SDGs and UNCRPD in the area of education of people with visual impairment.

Goal 3: Improving networking, information sharing and collaboration at national, regional and global levels.

History of the Organization
Founded in 1952 in the Netherlands, the ICEVI conducted its Golden Jubilee conference in the Netherlands from 28 July to 2 August 2002.

ICEVI Regions
The 7 regions of ICEVI and their coverage of countries are as follows:

- Africa Region: 52 countries
- East Asia Region: 19 countries
- Europe Region: 49 countries
- Latin America Region: 19 countries
- North America and the Caribbean Region: 15 countries
- Pacific Region: 15 countries
- West Asia Region: 25 countries

Currently, more than 4000 individuals and organizations in over 180 countries are actively involved in ICEVI.

Networking with other organizations
ICEVI works closely with International Non-Governmental Development Organizations (INGDOs) and UN bodies such as United Nations Economic and Social Council (UN-ECOSOC), UNESCO, UNICEF, and WHO.

Publications
ICEVI's biannual magazine “The Educator” is available in electronic version in both English and Spanish and is also posted on our website www.icevi.org. ICEVI also publishes a biannual electronic newsletter that is currently distributed to more than 4000 individuals and organizations.

Website of ICEVI
www.icevi.org
### Current International Partner Members of ICEVI
(Those who pay an annual subscription of US$ 20,000)

<table>
<thead>
<tr>
<th>Organization</th>
<th>Website</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBM</td>
<td><a href="http://www.cbm.org">www.cbm.org</a></td>
</tr>
<tr>
<td>Light for the World</td>
<td><a href="http://www.light-for-the-world.org">www.light-for-the-world.org</a></td>
</tr>
<tr>
<td>ONCE</td>
<td><a href="http://www.once.es">www.once.es</a></td>
</tr>
<tr>
<td>Perkins School for the Blind</td>
<td><a href="http://www.perkins.org">www.perkins.org</a></td>
</tr>
<tr>
<td>Royal Institute for Deaf and Blind Children</td>
<td><a href="http://www.ridbc.org.au">www.ridbc.org.au</a></td>
</tr>
<tr>
<td>Royal National Institute of Blind People</td>
<td><a href="http://www.rnib.org.uk">www.rnib.org.uk</a></td>
</tr>
<tr>
<td>Sightsavers</td>
<td><a href="http://www.sightsavers.org">www.sightsavers.org</a></td>
</tr>
<tr>
<td>The Norwegian Association of the Blind and Partially Sighted</td>
<td><a href="http://www.blindeforbundet.no">www.blindeforbundet.no</a></td>
</tr>
<tr>
<td>Visio</td>
<td><a href="http://www.visio.org">www.visio.org</a></td>
</tr>
</tbody>
</table>

### Current Organisational Members of ICEVI
(Those who pay an annual contribution of US $ 100 to US $ 750 depending on their annual budget)

- Overbrook School for the Blind
  [www.obs.org](http://www.obs.org)
- Lions Clubs International Foundation
  [www.lcif.org](http://www.lcif.org)
- LES DOIGTS QUI REVENT (Typhlo & Tactus)
  [www.tactus.org](http://www.tactus.org)
- Round Table on Information Access for People with Print Disabilities
  [www.printdisability.org](http://www.printdisability.org)
Participating Countries

Global Campaign on Education For All Children with Visual Impairment (EFA-VI)

- Vietnam
- India
- Nepal
- Palestine
- Honduras
- Brazil
- Cambodia
- Vietnam
- Papua New Guinea
- Fiji
- Indonesia
- Malaysia
- Mozambique
- Nicaragua
- El Salvador
- Guatemala
- The Dominican Republic
- Mali
- Mauritania
- Burkina Faso
- Ghana
- Uganda
- Rwanda
- Malawi
- Bolivia
- Paraguay
- Ghana
- Mali
- Burkina Faso
- Mozambique
- Uganda
- Rwanda
- Malawi
- Bolivia
- Paraguay