

# Technology Based Resources for Deaf Learners

**Pakistan Sign Language digital lexicon developed by Deaf Reach Schools**

## I. Context

Pakistan has one of the highest rates of illiteracy in the world; the overall literacy rate of those aged 15 and above is 56% (PSLM Survey 2008-09, Government of Pakistan).

Rates of participation of children with disabilities (CWDs) remain significantly low in Pakistan. Not only do CWDs have difficulty entering the education system, they are also less likely to progress through it. Evidence suggests school completion rates are lowest amongst CWDs even when compared to other marginalized groups. A key finding from a report by Plan International (2013) is that CWDs are 10 times more likely not to attend schools, and when they do their level of schooling remains below their peers.

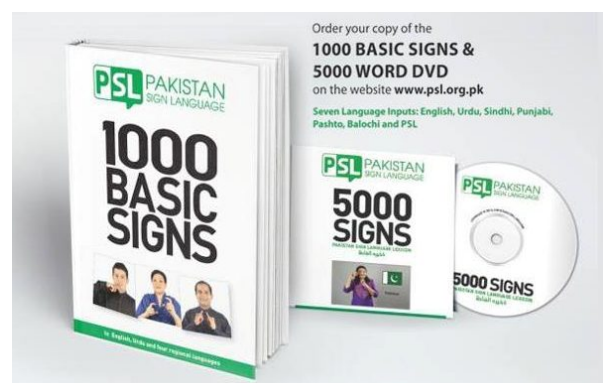
Providing adequate education for the Deaf remains an international concern, and the needs of Pakistan's Deaf community remain behind that of the world community. Of Pakistan's deaf school-aged children, estimated in 2010 as comprising over 1.25 million<sup>1</sup>, less than 5% have access to schooling, and the percentage is much lower for deaf women.

The literacy rate of Pakistan's deaf children and adults lags far behind those of their hearing peers. Key reasons for this gap is the scarcity of deaf-focused educational programs, general paucity of learning resources in their native language (Pakistan Sign Language – PSL), and

the inability of parents and instructors to foster language development in their deaf children.

Pakistan has made progress in making the education system more inclusive for CWDs, but it is lagging behind its regional neighbours. The National Policy for Persons with Disabilities 2002 speaks about the necessity of a shift from an exclusive to an inclusive education system. However, practical steps have not been taken to make this a reality. Resource availability, attitudes of ordinary school teachers and special education teachers, and the capacity of teachers and parents to deal with disabilities have been highlighted as key barriers to the achievement of inclusive education for CWDs.<sup>2</sup>

To address this need, Deaf Reach Schools, a project of Family Educational Services Foundation (FESF), has developed a Pakistan Sign Language (PSL) digital lexicon of 5,000 commonly used words and academic vocabulary relevant to children in primary



*PSL resources in digital and print formats*

<sup>1</sup> National Taskforce Planning Meeting Feb. 2010, "Audio 2020 – Pakistan" - Islamabad, Pakistan (<http://www.wwhearing.org/news/entry/audio-20-20-launched-in-pakistan>)

<sup>2</sup> Singhal, N. 2015. Education of Children with Disabilities in India and Pakistan: An analysis of developments since 2000. Background paper prepared for Education for All Global Monitoring Report 2015 Education for All 2000-2015: achievements and challenges

education levels. This is the first of its kind in Pakistan, and provides needs-appropriate resources, as well as capacity building mechanisms. The PSL Lexicon is available online; on DVD; via mobile phone application; and a book of 1,000 Basic Signs.

## II. Project Description

The objective of the 'Bridging the Gap' project is to develop resources and build capacities to ensure that deaf children can acquire the ability to communicate, the vocabulary to learn, and the support to become active participants of the education system and society at large. The project, launched in January 2013, initially targeted an estimated 187,000 deaf children and community members across Sindh and is now being distributed throughout Pakistan.

The project is a process and product intervention. Deaf Reach, by building on available resources – and in consultation with national and international experts, has developed a resource that represents a significant step in the direction towards historic improvement in deaf education in Pakistan. The learning resources are the first repository of its kind in Pakistan, and include:

- **Website - [www.psl.org.pk](http://www.psl.org.pk):** Contains 5,000 words in English, Urdu, and PSL. Most of the words are accompanied with a picture to enhance language acquisition, and all words have a voice over component in both English and Urdu.
- **Mobile phone app:** Enables access to the PSL Lexicon via smart mobile phones in both Android and IOS format. Contains the same content of 5,000 words in English, Urdu, and PSL, along with graphic and voice over.
- **DVD:** Contains same content of 5,000 words in English, Urdu, and PSL as well as interactive activities that are designed to test language retention, and enables self-learning.
- **PSL Book:** Contains 1,000 essential signs, and is represented in seven languages: PSL, English, Urdu, Punjabi, Sindhi, Pashto and Balochi. In addition to the PSL, this is one of

the only existing dictionaries in Pakistan that contain all 4 regional languages alongside English and Urdu in one volume.

- **Training Programs:** Designed to improve the communication abilities of educators and families of the Deaf based on the PSL Lexicon. 3 major programs were developed: PSL Basics, PSL Masters, and PSL for Parents.
- **Additional PSL Resources:** Deaf Reach is in the process of developing PSL tutorials and short stories in PSL format.

The development of the PSL Resources is a dynamic educational tool that significantly improves the literacy and language retention levels of deaf children. It also serves as a medium for parents and instructors to learn PSL and significantly improve communication with their children. To facilitate a successful roll out, Deaf Reach has undertaken training for parents and teachers in government and private deaf schools.

At its most basic level, the key to empowerment for an individual or a community is language – the ability and tools to express ones' self. Thus, acquisition of literacy and communication skills is essential to achieving a decent quality of life and access to the basic rights afforded to all. There is a wealth of information and research which proves that language acquisition of any kind should start at as early an age as possible, and that the number of words and gestures acquired at infancy is a significant predictor of child vocabulary size in later years.<sup>3</sup>

PSL Resources, with its extensive vocabulary, is an important step in providing a structure for the development of Deaf education nationwide. Easy access to PSL Resources provides a viable and cost effective platform for improving learning outcomes in schools, as well as self-learning.

## III. Project Mechanism

The process and product intervention provide a platform for the instruction of PSL in the classroom; the development of media content; and deployment of this content as teaching aids in the classrooms and homes of the Deaf.

<sup>3</sup> Learning words by hand: Gesture's role in predicting vocabulary development  
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2745165>

### **Phase 1: Development of the PSL Resources**

Deaf Reach compiled a list of words based on dictionaries of sign languages in other countries - as well as words unique to Pakistan - and documented the most common signs used in the Deaf community. PSL Resources are available in English, Urdu and Pakistan Sign Language, and many are accompanied by a representative picture, which allows for greater vocabulary retention.

### **Phase 2: Develop digital media content**

The PSL Resources are available in digitized formats as well as mediums that can be efficiently and cost-effectively disseminated nationwide. These resources include: access via website; via mobile app; via an interactive DVD; and a book format of 1,000 Basic Signs containing translations in the five major regional languages of Pakistan.

### **Phase 3: Development of innovative educational resources**

Deaf Reach envisions the PSL Resources to be a foundation for the development of innovative educational resources for deaf children in Grades 2-5, and will greatly enhance their language acquisition. These resources will include illustrated stories that promote language development.

### **Phase 4 - Increasing the capacity and capability of deaf instructors**

Deaf Reach has developed three training courses that are designed to provide PSL instruction in an engaging and interactive way: A Basic Course for those who are new to sign language; A Parents Course; and Master Course for those who have some PSL knowledge. These courses have received overwhelmingly positive reviews and have enriched the communication skills of attendees manifold. These courses are targeted towards relatives of the Deaf, instructors from government Deaf education institutes as well as many of the private institutions working in Deaf education. These capacity building courses also develop a professional support and communication network.

## **IV. Achievements**

Developing needs-appropriate learning resources and increasing the skills of deaf instructors and caregivers are critical to developing a quality education system for Pakistan's Deaf community. PSL Resources enhance the ability of the Deaf to communicate and participate with the world and people around them.

The biggest achievement of "Bridging the Gap" has been the development and dissemination of Pakistan Sign Language nationwide, and is enabling parents and teachers to communicate with their deaf children in a more meaningful and effective way. More than 10,000 books and DVD's have distributed in 35 cities nationwide via the Deaf Reach Schools and Ambassador programs, with 8,000 more on order.

After having participated in PSL training courses, one mother described the great improvement in her relationship with her daughter as a result of being able to communicate more extensively with each other. Another mother of a third grade deaf child spoke about her frustrations, prior to learning PSL, as a teacher and a mother when she was unable to teach her own daughter due to the gap in communication. Her younger son accompanies her to PSL classes so that he too could be able to communicate with his sister. The availability of PSL Resources has provided essential solutions for these and many, many more throughout Pakistan.

Through the capacity building activities undertaken as part of the "Bridging the Gap" project, Deaf Reach reached out to and trained more 275 parents, 150 teachers, and 400 other community members.

A five month evaluation of PSL Resources in schools for the Deaf, hearing (mainstream), and special education institutes revealed that the Resources significantly improves on current traditional methods of language instruction.

The PSL Resources is the largest repository of sign vocabulary in Pakistan to date, and is available and accessible free of cost nationwide. Previous attempts at documenting Pakistan

Sign Language are either out of print, difficult to obtain, or are not accessible at a national level. Attention has been paid to the quality, continuity and relevancy of the words in order to ensure the objectives of improving learning capabilities for deaf children are achieved. The development of these technology-based products ensures convenient and cost-effective dissemination.

To raise recognition of PSL Resources, Deaf Reach launched the 'Don't Say It, Sign It' campaign (Sign It!) which included filming leading celebrities, industry leaders, and everyday people 'speaking' in PSL, providing an example that anyone can learn to sign.

PSL Resources was awarded Pakistan's prestigious P@SHA ICT Award 2014 in the Inclusion and Community category as recognition for its positive impact on the lives of so many. PSL also represented Pakistan at the Asia-Pacific ICT Awards, 2014.

## V. Implications (Way forward)

Information and communication technologies provide an open platform for raising literacy levels of the Deaf Community<sup>4</sup>. Kristen McLean of the Association of Booksellers for Children pointed out that stories help children develop emotional intelligence and find meaning in their lives. "Participation, collaboration, intuitive problem-solving, critical thinking, mindful attention and radical creativity — these types of literacy will be equally important in the globally networked world."<sup>5</sup> The development and provision of a PSL vocabulary that is readily

available to deaf children in Pakistan will enable them to learn and participate in the education system. Therefore, there is a need to make these resources available on a wider scale.

Education of children with disabilities is currently not an important part of the national discourse in Pakistan. Singhal (2015) has highlighted the absence of children with disabilities from official documents, and national and international reform interventions in education.<sup>6</sup> Further, the devolution of education to provincial level has complicated the issue in relation to those with disabilities by making it difficult to address challenges of data comparability on disability, availability of professionals with requisite skills and essential resources. Provinces differ in their capacity and approach towards making learning opportunities available for deaf children.

Within this context, FESF's project has provided proof of concept for the cost effective provision of resources and mechanisms that needed to start addressing the educational needs of deaf children nationwide. All of Pakistan's Provincial governments, including AJK, have been approached by FESF and presented the PSL Resources to create awareness and understanding of their use and value. They will continue to be engaged to include these resources and mechanisms within their syllabus for children as well as adults who are deaf.

PSL Resources has received international praise from leading Deaf institutions, and is seen as a cost-effective model for the documentation of sign languages in other countries. PSL Resources will be presented at the World Deaf Congress in June, 2015.

<sup>4</sup> M. Glaser and W. D. Tucker, Telecommunications Bridging Between Deaf and Hearing Users in South Africa, Proc. Conference and Workshop on Assistive Technologies for Vision and Hearing Impairment (CVHI 2004), Granada, Spain. (CDROM publication), 2004

<sup>5</sup> <http://publishingperspectives.com/2010/04/the-kids-are-alright-why-digitization-and-e-books-are-good-for-literacy/>

<sup>6</sup> Of the 8 current projects by the World Bank on education in Pakistan, none addressed the needs of children with disabilities. Of the 3 completed projects on disability in Pakistan, it is unclear how much they focused on the needs of education for CWDs.