

# Sign Language Documentation in the Asia-Pacific Region: A Deaf-Centered Approach

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## Abstract

In this paper, we would like to share our experience in training up Deaf individuals from the Asian-Pacific countries to compile sign language dictionaries and conduct sign language research through the ‘Asia-Pacific Sign Linguistics Research and Training Program’ at the Chinese University of Hong Kong. The program, fully funded by the Nippon Foundation, is a multi-country, multi-phase project which aims at nurturing Deaf people to become sign language researchers through a series of credit-bearing training programs at the diploma and higher diploma levels. The training covers three major areas: Sign Linguistics, Sign Language Teaching and English Literacy. One important part of the training involves the production of sample dictionaries of the Deaf trainees’ own sign languages. To confirm the dictionary entries, the Deaf trainees conduct surveys in the Deaf communities in their home countries from time to time and as a result a substantial amount of lexical variants have been collected. An online database, called the Asian SignBank, is now being developed to house these lexical data and facilitate further research. Apart from basic search functions, the SignBank also incorporates detailed phonetic features of individual signs and a materials-generating function which allows quicker production of dictionaries in the future.

**Keywords:** sign language documentation, sign linguistic training, sign language lexicography, the Asia-Pacific region

## 1. Introduction

In this paper, we would like to share our experience in training up Deaf individuals from countries in the Asian-Pacific region to compile sign language dictionaries and conduct sign language research through ‘the Asia-Pacific Sign Linguistics Research and Training Program’ (hereafter APSL Program) at the Chinese University of Hong Kong. Specifically, we will discuss the types of training given to these Deaf people, the field work methods that they use to collect lexical variation data during the compilation of sign language dictionaries, and the design of the Asian SignBank, an online platform being developed to house these lexical data.

## 2. The APSL Program

### 2.1 Founding Philosophy

Sign language research has flourished in an increasing number of countries over the past few decades, particularly in the States and Europe. Apart from its academic contributions, the accumulated research findings have brought forth remarkable breakthroughs in the recognition of the value of sign languages to Deaf communities and in the education systems of Deaf children. In the Asia-Pacific Region, however, misconceptions and prejudice against sign languages and Deaf people still abound due to a lack of research. To help improve the situation of the Deaf, there is a pressing need to document sign languages in the region and develop sign language resources that can support future developments. Upon seeing this need, the Nippon Foundation offered a major donation to the Chinese University of Hong Kong to set up the APSL Program in

2003. This program is a multi-country, multi-phase project that aims at documenting sign languages and empowering the Deaf communities in the Asia-Pacific region by providing sign linguistic training to Deaf individuals.

### 2.2 Training for the Deaf researchers

During the first phase of the program (2003–2007), a total of 270 hours of on-site linguistic training was provided to deaf fluent signers in Hong Kong (4 trainees), the Philippines (6 trainees), Cambodia (6 trainees) and Vietnam (8 trainees). The training scheme included introductory courses on the formational structure of sign languages, grammatical structure of sign languages, lexical structure of sign languages, sociolinguistics, lexicographical study of sign languages, and applied sign language linguistics. One important component of this phase was the production of practical dictionaries and sign language teaching materials, which were deemed indispensable for the promotion of sign languages in the local communities.

In the second phase (2006 – 2012), the APSL Program was further expanded to support training to both Deaf and hearing individuals with the long-term goal of establishing sign linguistics research units at the university level in the participating countries.<sup>1</sup> Collaboration was sought with the Regional Secretariat for Asia and the Pacific of the World Federation of the Deaf (WFD RSA/P) in identifying the participating countries and contacting local Deaf organizations for

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<sup>1</sup> Negotiation with the Nippon Foundation about further extension of the APSL Program is now underway.

recruiting potential Deaf trainees. Selected Deaf adults, who are fluent signers of their own sign languages, were brought to Hong Kong to receive centralized research training at the Chinese University of Hong Kong. The first cohort, consisting of five deaf adults from Sri Lanka, 4 from Indonesia and 2 from Hong Kong, commenced their training in November 2007. Recently, in November 2010, 5 Japanese, 2 Fijian and 2 Hong Kong Deaf adults were admitted as the second cohort. Most of these Deaf trainees had only completed 10<sup>th</sup>/11<sup>th</sup> grade without opportunities of further education in their home countries.

The training in Phase II covers three major areas: sign linguistics, sign language teaching and English literacy. Five diploma programs and one higher diploma program (1,350 hours of training in total) are jointly offered by the Centre for Sign Linguistics and Deaf Studies and the School of Continuing and Professional Studies of the Chinese University of Hong Kong. They are:

- Diploma Program in Basic Sign Language Lexicography for the Deaf;
- Diploma Program in English Literacy and IT Application for the Deaf;
- Diploma Program in Sign Language Studies for the Deaf;
- Diploma Program in General Studies for the Deaf;
- Diploma Program in English Literacy Skills for the Deaf; and
- Higher Diploma in Sign Linguistics and Sign Language Teaching,

The sign linguistic component covers areas such as sign language lexicography, phonology, morphology, syntax, sociolinguistics, sign language research projects, language acquisition, etc., which equip the Deaf trainees with basic knowledge and skills for compiling dictionaries and documenting their own sign languages. The purpose of the English component is to ensure that the trainees develop sufficient reading and writing skills for accessing information and conducting research independently. The sign language teaching modules include teaching methodology, materials development, syllabus design, language assessment and practicum. It is hoped that these trainees will become competent sign language teachers and take the lead of promoting sign language in their home countries in the future.

### **2.3 Training for the Hearing researchers and inter-university collaboration**

While grooming deaf sign language researchers is essential to Deaf empowerment in the long run, we also see the importance of nurturing hearing researchers to work as collaborators with Deaf people in promoting the study of sign languages. Hence, efforts have been made to set up inter-university links with the participating countries for recruiting committed hearing students to come to CUHK to receive sign linguistic training at the master level. So far, the University of Indonesia

(Indonesia), the University of Kelaniya (Sri Lanka), the University of the South Pacific (Fiji) and the University of Tokyo (Japan) have agreed to be our collaborators. For each country, a maximum of two hearing students with good signing skills will be recruited. At present, two hearing Indonesian students are receiving their training in Hong Kong. More are expected to come in the near future.

## **3. Documentation of Sign Languages**

### **3.1 Compiling dictionaries and teaching materials**

Besides studying, the Deaf trainees of the APSL Program (Phase II) are involved in the production of sample dictionaries and teaching materials of their own sign languages. The dictionaries basically adopt parameters in sign language phonology as the principles for entry ordering. Signs are first broadly classified in terms of handshapes and ordered accordingly. Within each handshape, the signs are further ordered according to the number of hands, palm orientation, etc. For the entries, both line drawings/still photos and video clips are produced. The line drawings/still photos are used for producing printed dictionaries, whereas the video clips will be used for producing electronic dictionaries or be placed online for public access in the future. We decided to provide training on different ways to produce dictionaries because the format of the dictionaries Deaf trainees will make in the future depends on the socio-economic situation of their own communities. For developed countries where computers are commonplace, electronic dictionary is the way to go; printed dictionaries with line-drawings will be suitable for developing countries where computers are still rare and printing cost is high for full images. So far, the Sri Lankan team has finished the drafts of Book 1 and Book 2 of the sample dictionaries, each consisting of around 250 sign entries. The Indonesian team is working on the dictionaries of two signing varieties, one in Jakarta and one in Yogyakarta. For both varieties, the drafts of Book 1 and 2 are also completed. Both the Sri Lankan and Indonesian students are preparing the manuscripts of the teaching materials. As for the Japanese and Fijian trainees, they just started the compilation recently, and hopefully the draft of the first dictionary booklet will be ready by the end of 2012.

### **3.2 Field surveys, lexical variation and other sign language data**

Note that in the process of dictionary compilation, the Deaf trainees are required to conduct surveys in their home countries once or twice a year to verify the sign entries and look for possible lexical variants. What they usually do is prepare photos/movie clips for eliciting the target signs, and look for fluent deaf signers in their countries as informants. The lexical variants, when found, are videotaped. These surveys provide useful information on the lexical variations across signers in the Deaf community. So far, over 3000 lexical variants have been collected from Sri Lankan Sign Language and the two

signing varieties in Indonesia respectively.

In the fieldwork survey, the trainees also collected some other signing data such as picture descriptions, narratives and conversations from the signing informants. These data can be used for further linguistic research or as references for making teaching materials. In fact, these lexical variations and discourse data are now being analyzed in the following small-scale research projects by the Deaf/hearing trainees or staff members of the APSL Program:

- Comparing Jakarta Sign Language and Yogyakarta Sign Language
- Sign language use and lexical variations in Jakarta Sign Language
- A comparison of word order in Hong Kong Sign Language, Sri Lankan Sign Language, and Jakarta Sign Language

## 4. Asian SignBank

### 4.1 Design of the infra-structure

The Asian SignBank is an online database developed to facilitate componential analysis and storage of sign entries collected through the APSL Program. It is capable of storing a wide range of linguistic information of a sign, including:

- glosses of signs in their native spoken language and English, to facilitate both local and international access of information;
- individual glosses for each component in compound signs;
- examples which make use of that sign;
- related signs which show variation of the signs in the Deaf community, and
- detailed phonetic information of the sign.

The phonetic notional system of the SignBank is based on the feature analysis proposed by Brentari's Prosodic Model (1998), as shown in Figure 1:

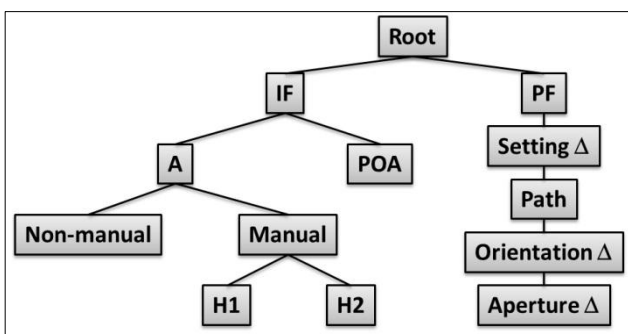


Figure 1. Brentari's Prosodic Model (1998)

For each sign, the phonetic information that can be listed in the system include: inherent features (i.e. static features of a sign, like the handshape, place of articulation, body

part, palm orientation, handparts, etc.) and prosodic features (i.e. dynamic features of a sign, like path and shape, setting, orientation, aperture and handshape changes, trilled movements, etc.) (See Figure 2).

Figure 2: A result page from Asian SignBank showing detailed linguistic features of a sign.

### 4.2 Benefits to sign language research

In addition to providing a storage and viewing platform for the linguistic properties of signs, the Asian SignBank also allows a searching strategy of the signs according to any piece of information one may know about them, from the glosses to the most detailed phonetic information. Searching can be done by a single feature or by a conditioned combination of features. For instance, in Figure 3, a user can search for a sign with a handshape plus location feature (e.g. 5-handshape + articulated on the shoulder). Also, users can look for the definition and pre-defined values of each linguistic feature (Figure 4).

Figure 3. A search page of the Asian SignBank allowing users to query for a sign with different combinations of linguistic features.

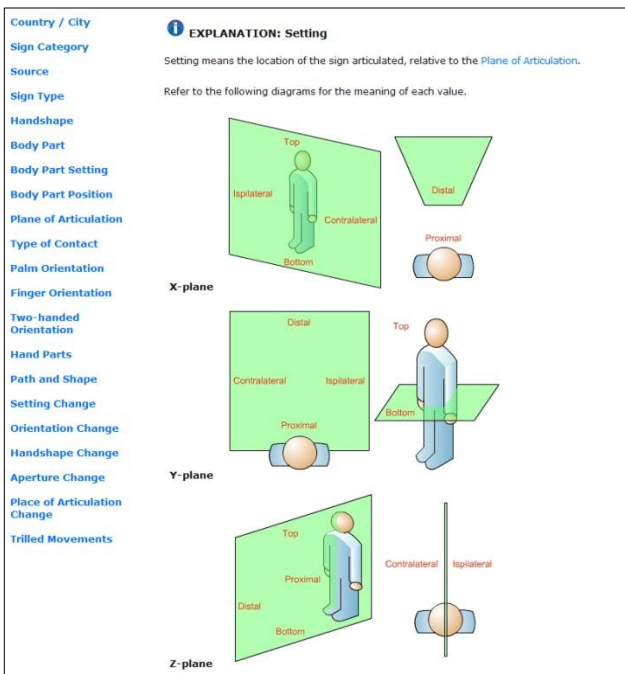


Figure 4. An explanation page describing the definition of each linguistics feature and its corresponding pre-defined values.

On top of serving a sign retrieval purpose, the search functions can serve a descriptive statistical purpose such as frequency of occurrence or co-occurrence of particular features of signs. When the system extends to include other sign languages in Asia, the system will allow a cross-linguistic comparison of signs and their linguistic information. So far the data in the Asian SignBank has already supported the completion of an M.Phil thesis on the movement properties of Hong Kong Sign Language (Mak 2011).

### 4.3 Sign language material-generating function

Recently, a materials-generating function was also added to the system to allow researchers to generate search

outputs in formats that (i) facilitate qualitative and quantitative analysis; (ii) allow sign language dictionary and glossary production in customized formats; and (iii) allow sign language materials production that suits different teaching purposes.

For instance, a sign language teacher may want to get a list of all S-handshaped signs for his class, or a sign linguist may want to retrieve from the Asian SignBank with all the signs from different countries that use 'head' as the body part. Without the need to install any specific software, users can get the resulting documents in form of Excel spreadsheet for feature analysis, or in PDF format with customizable layout as teaching materials or dictionary.

### 4.4 Current stage of development

At present, the infrastructure of the Asian SignBank has been established and tested with around 2000 Hong Kong signs, 780 Vietnamese (Ho Chi Ming City) signs, 150 Sri Lankan signs, 340 Jakarta signs and 270 Yogyakarta signs. When the system is mature, more signs from these sign languages will be input and analyzed. The next target sign languages for the Asian SignBank will be from the sign language varieties of Japan and Fiji.

## 5. Conclusion

In this paper we've introduced how Deaf adults from the Asia-Pacific region are trained to compile sign language dictionaries, produce sign language teaching materials and become sign language researchers/teachers through the APSL Program at the Chinese University of Hong Kong. We've also discussed the design of the Asian SignBank, an online database developed to house the lexical data of different sign languages in a way that can facilitate linguistic analysis as well as production of sign language materials for research or pedagogical purposes. Central to the whole APSL Program is our conviction that Deaf people need to be in the centre of sign language documentation and sign language research, which is deemed essential for the empowerment and betterment of Deaf people in the region in the long run.

## 6. Acknowledgements

We are heavily indebted to the Nippon Foundation for their trust in us and their generous financial support for the APSL Program. In addition, we would like to thank WFD/RSAP, the local deaf organizations, and the four partner universities for their collaboration and support.

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