Sign Language Interpreters' Training

Eirini Andriakopoulou, Christos Bouras, Eri Giannaka

Sign Language Interpreters' Training

Eirini Andriakopoulou[1, 2], Christos Bouras[1, 2], Eri Giannaka[1, 2]

[1]Research Academic Computer Technology Institute, Greece
[2]Computer Engineering and Informatics Department, University of Patras, Greece

Key words: *Tele-learning, computer aided language training*

Abstract:

>   Nowadays, the evolution of technology and the increasing use of computers gave the opportunity for developing new methods of education of deaf individuals and sign language interpreters. The e-learning environments that have been developed for the education of sign language provide web-based courses, designed to effectively teach to anyone the Sign Language. Recognizing the difficulties and barriers of sign language training as well as the importance of sign language interpreters for the community of deaf and hearing impaired, this paper presents the SIGN Learning Partnership, a project for sign language education. The objective of the partnership is to develop a new training method for sign language interpreter's training together with a curriculum ready for accreditation, based on the outcome of the research in all previous-mentioned areas.

1   Introduction

The understanding of Deaf culture as well as the recognition of Sign Language is of major importance for the inclusion of Deaf community in everyday life. In particular, it is important that Sign Language is given a greater standing among language learning and acquisition agendas should be recognized as an important minority language for deaf people and their communication. Traditionally the First and Secondary education of deaf individuals becomes either in special schools, where teaching of courses becomes from professionals who know the sign language and the main method for educating Deaf individuals is the optic – acoustic one. However in many cases the number of special schools is limited and a lot of deaf children are forced to attend courses in mixed schools. The deaf individuals have the possibility via special examinations to be registered in universities and attend the courses with the help of interpreter. Furthermore, in some countries, where Sign Language is officially recognized as a minority language, academic departments exist, which offer postgraduate programs for Sign Language.

One of the most important roles in the deaf community is the interpreter of Sign Language. The role of the interpreter is to solve the communication problem. Interpreters constitute the "voice" of deaf people or hearing impaired. An interpreter assists in seminars, lectures and other official affairs.

The successful inclusion of individuals, who are deaf or hard of hearing, constitutes a challenging goal over time. In particular, as mentioned in [27], "in the wake of increasing concerns about the full inclusion of individuals who are deaf or hard of hearing in general education, without adequate communication and social supports, research is needed to clarify the roles and responsibilities of the key individuals making inclusion possible". Long-standing debates on communication approaches render the issues of inclusion more complex. The issue of communication is a key factor in implementing inclusive education. The

responsibility placed on an educational sign language interpreter is that important that the issue of roles, functions, and qualifications emerges as a concern for the field [27].

Nowadays, the evolution of technology and the increasing use of computers gave the opportunity for developing new methods of education of deaf individuals and sign language interpreters. The e-learning environments that have been developed for the education of sign language provide web-based courses, designed to effectively teach to anyone the Sign Language. The courses focus on conversational Sign Language and make extensive use of digital video to demonstrate the visual nature of signing, while later years haptic devices and equipment is also proposed. Furthermore most of e-learning environments provide useful services like on-line dictionaries, fingerspelling, glossary and numbers [8].

Recognizing the difficulties and barriers of sign language training as well as the importance of sign language interpreters for the community of deaf or hearing impaired, this paper presents the SIGN Learning Partnership, a project for sign language education. This project aims to improve the present sign language and deaf education/training system in Europe. The objective of this project is to bring equality through disseminating information about Deaf culture and by breaking down existing barriers and misconceptions about Deaf culture.

This paper is structured as follows: Section 2 presents the main characteristics of Sign Language, while Section 3 describes the role of Sign Language interpreters in the community of the deaf and hearing impaired. Section 4 presents tools and platforms developed for supporting Sign Language Training in many countries, while the Section that follows presents the Sign Learning Partnership. Finally, Section 6 concludes the paper.

2   Sign Language Characteristics

A sign language is a language that uses manual communication, body language and lip patterns instead of sound and oral language, in order to express meaning-simultaneously combining hand shapes, orientation and movement of the hands, arms or body, and facial expressions to represent clearly a speaker's thoughts [2], as shown in figure 1 [3]. Sign languages commonly develop in deaf communities, including interpreters, friends and families of deaf people as well as people who are deaf or hard of hearing themselves. Sign language differs from one region to another, just like it happens in oral language. However, when people using different sign languages meet, communication is significantly easier than when people of different oral languages meet. Sign language, in this respect, gives access to an international deaf community. However, sign language is not universal and many different sign languages exist that are mostly mutually unintelligible.
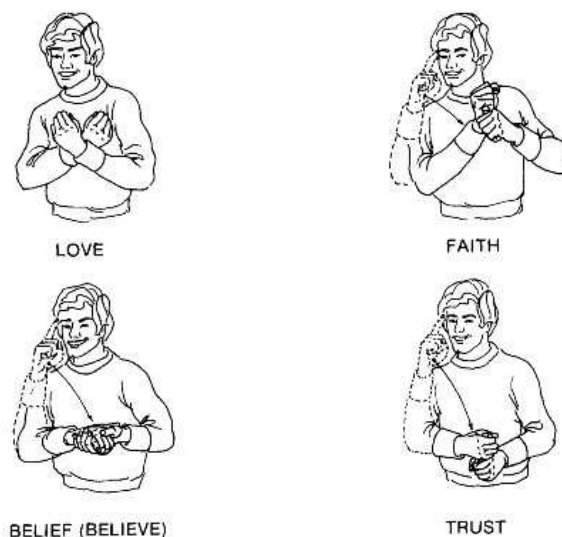

Figure 1: Abstractions which occur in American Sign Language [3]

Wherever communities of deaf people exist, sign languages develop, having complex spatial grammars that are markedly different than spoken language. Often various signed "modes" of spoken languages have been developed, such as Signed English [18] and Warlpiri Sign Language [19]. Many different sign languages are in use around the world and are at the core of local Deaf cultures. There are sign languages that have obtained some form of legal recognition, while others have no status at all. An example for the mature status of sign languages is the growing body of sign language poetry, and other stage performances.

3   Role of Interpreters

People are communicating everyday with each other assuming that they can both be understood and understand others 0. In the case of deaf and hard of hearing persons communicating with people that do not know Sign Language becomes a central issue. In these situations, a sign language interpreter is needed in order to assure that communication and understanding occurs. Sign language interpreters remove language barriers between people who are deaf and use Sign Language and people who can hear and speak. The main goal of each interpreter is to make the communication experience as complete as possible for both hearing and deaf or hard of hearing people. Interpreters constitute the "voice" of deaf people or hearing impaired. An interpreter assists in seminars, lectures and other official affairs. Although interpreters are commonly used within the Deaf community, they could have high hourly costs and may cause a problem in situations where privacy is of high concern, such as at a doctor or lawyer's office. Interpreters for Deaf people with specialized vocabularies, such as a PhD in Mechanical Engineering, can be difficult to find and very expensive [7].

In order to become an interpreter someone has to acquire fluency in Sign Language. In each country several ways to accomplish this have been developed. Individuals with deaf or hard of hearing, who use Sign Language, begin acquiring signing skills very soon. Conversational fluency in oral language and Sign Language alone does not automatically qualify a person as an interpreter. Additional specific education is needed to ensure that qualified interpreters, who understand their important and special role and also the different situations they may encounter in their work, are available for the Deaf community.

Ideally a variety of areas should be covered by interpreter education programs for Deaf, hard of hearing, and hearing interpreters. We can mention as examples the following: the special role of an interpreter, a historical overview of the interpreting profession, public speaking techniques, understanding and sensitivity to the Deaf community, linguistics and language development, the interpreter's code of ethics, physical factors involved in interpreting, the various specialized situations in which an interpreter might function, and extensive guided practice in the skills involved in interpreting.

4   Tools for Sign Language Training

The need to educate deaf students in their own language, that is sign language, is recognized and is widely accepted as being a positive influence on learning. Researchers, technologists and teaching organizations aim at developing new learning technologies that support sign language education. To this direction many applications were developed, which aim at facilitating sign languages learning as well as at introducing more complex knowledge to the deaf user. The developers of these systems have chosen either Internet or computer based applications to assess larger groups of users. In [22], an e-Learning environment, which was developed for the deaf people is presented. The main objective of this project is the promotion of English Language as a second language for the Deaf people. The environment is based on the adaptation of advanced teleconference services and offers a set of applications and

services aiming at supporting education and training in the form of life long and continuous education and training for the deaf people. In [23] an Internet Test Battery system is described, which tries to overcome problems of reading and spelling in Portuguese for both hearing and deaf students. A web-based application, which provides a series of four American Sign Language (ASL) courses, is presented in [26].

Historically, the beginning of computer science is connected with raw interfaces based on text. The progress in computer technology enabled the creation of graphical interfaces but still this interfaces use text as a basic form for the representation of information. For the majority, this is the natural representation of the language which they use in their everyday life. But for individuals that use sign language this is not natural as they have other form of representation of the word, which are gestures. The application described in [11] is an example of application using sign language gestures as the basis of the communication interface. This application uses predefined symbols representing gestures of the sign language. This is very basic support for sign language, because this application does not render actual gestures but transfers user predefined pictures.

Computer technology in learning process is proven to be very convenient and permits for time optimization. Most of the currently developed applications are based on a user self-verification that is the student who achieves the progress and based on that the further study is planned. In the case of sign language domain, the user, who is not fluent in gesture peculiarity, may have difficulty in marking the advance. The introduction of automatic verification of the headway feedback makes a new quality of teaching. It permits to mark the quality of shown gestures objectively and manage the further learning progress. Kids Sign Online [9] is an application in which interface uses all possible media to represent information. Text, pictures, video and sign marks are used to present information in very natural form. This system not only transfers gesture selection from one user to another but it verifies it to determine user progress in education.

Many people with hearing problems might have difficulties for written language learning because is a foreign language for them. For these purpose have been developed many applications which translate written or said text to sign language. The [20] is a system which has been developed for Chinese to Chinese Sign Language translation and the [21] for English Sign Language.

The Online Sign Languages Dictionaries [29][30][31][32][33] constitute very important educational tools for the e-learning and training of Sign Languages. To this direction many online dictionaries have been developed for different Sign Languages. The majority includes a large number of signs and targets at signers as well as at students that learn a Sign Language as second language. These dictionaries have been drawn to meet the requirements and provide the most optimal usage product in each user. Each sign is accompanied from the material and includes, on one side one translational equivalent and the other side synonyms and antonyms in the Sign Language.

At the same time it was essential to place certain standards about the development of e-learning environments. The Access Board is an independent U.S. Federal Agency charged with developing accessibility requirements and guidelines, assisting in the implementation of accessible solutions, and enforcing accessibility standards for federally funded facilities. In 1998, Congress amended the Rehabilitation Act to include Section 508 [10], requiring all U.S. Federal Agencies to make their electronic information accessible to people with disabilities. Compliance with the requirements set out by the Access Board in Section 508 is usually referred to as "ADA Compliant".

5   Sign Learning Partnership

Recognizing the difficulties and barriers of sign language training as well as the importance of sign language interpreters for the community of deaf or hearing impaired the SIGN Learning Partnership project for sign language education aims at improving the present sign language and deaf education/training system in Europe. The objective of this project is to bring equality through disseminating information about Deaf culture and by breaking down existing barriers and misconceptions about Deaf culture.

In the framework of the SIGN Learning Partnership for sign language education a common platform for discussing and exchanging information to present and future methods of sign language education is developed, to the practices of inclusion of deaf people into VET system and elaborating new training methods and curricula for sign-language interpreters. After an intensive research period in the web, books, reviews and face-to-face interviews, information has been collected in the related fields involving a wide range of different stakeholders such as sign-language interpreters, trainers and trainees of sign language teaching, delegates of organizations established for representing interests of deaf people, specialists from the state administration responsible for policy-making related to social inclusion of the Deaf. Furthermore via meetings and interviews information has been collected concerning the state of the art of the legal status of the sign language in each participating as well as the legal recognition of the sign interpreter profile. Moreover information has been gathered about the courses and training methods which are used in different countries for training sign interpreters as well as the availability of each country for e-learning paths for sign interpreters training.

The survey resulted in two reports: a) "Sign Language Training" and b) "Sign Language Learning Environments". The first report presents an overview of Sign Language Training in each participating country. Specifically in this report the progress of Sign Language Training in each country has been described along with the current state of training, the dictionary used and the services provided. Moreover some of the basic institutes/organizations that provide and support Sign Language Training are presented along with the national organizations for hearing impaired. The second report presents an overview of e-Learning Systems developed for deaf people and the hearing impaired. This report presents the main functionality and services provided by the selected e-learning systems presented as well as the requirements they aim to support.

Furthermore, an informational portal is created aiming at enabling the exchange of information among stakeholders, and providing a basis for future e-mentoring and e-learning solutions. Some of the main functionalities of the website are the following:

- Home: in this module information for the Sign project is presented. In particular, it describes the aim of the project as well as the specific goals it aims to achieve,
- News-Events: in this module information for news and events planned concerning sign language interpreting in terms of conferences, seminars, etc.
- Online Survey: this module provides a questionnaire developed by the partners for monitoring sign language interpreting in different countries.
- Library: in this unit provided documents and information on sign language interpreter training in various countries as policy documents,
- Forum: this module allows to members of the sign portal to communicate and exchange ideas on various topics of interest.
- Links: this module provides useful links regarding sign language and sign language training as for example, association for the deaf and hearing impaired, associations of sign language interpreters and links to other useful resources.
- Search: this module allows the searching and retrieving of pieces of information.
- Sign Members: this module presents the members of the Sign website, which are the users registered to the system. The main objective of this section is to bring people together and create the idea of a "community".

- Sign Team: this module presents the partners of the SIGN Learning Partnership project as well as their short profiles.

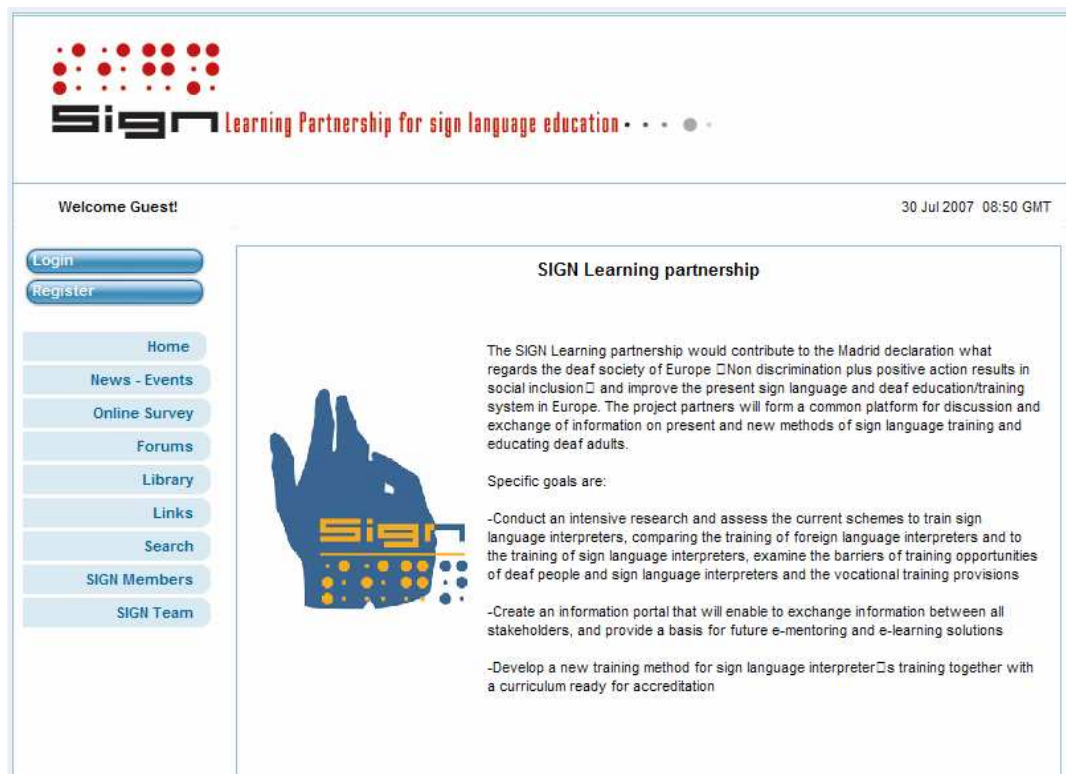Figure 2 provides an overview of the SIGN portal [6].

Figure 2: SIGN Learning Partnership Portal

6   Conclusion and Future Work

This paper presented basic issues in Sign Language Training. In particular, the paper presented the basic and common characteristic among existing sign languages, as well as the role of sign language interpreters in the everyday life of deaf and hearing impaired. To the direction of sign language learning and training, systems and platforms developed for this cause are presented along with the tools, services and functionalities for meeting the special needs of the deaf community. Finally, the SIGN Learning Partnership, a project for sign language education and training in Europe is presented. One of the main objectives of SIGN project is the conduction of an intensive research and assessment of the current schemes to train sign language interpreters, in comparison with the training of foreign language interpreters and the training of sign language interpreters as well as the examination of the barriers of training opportunities of deaf people and sign language interpreters and the vocational training provisions.

Some of the planned steps for the Sign Learning partnership, following the intensive research conducted so far, a new training method and curriculum will be elaborated and will be accommodated to manage peer review. The new training method will use e-learning and e-mentoring solutions, which enables students and trainers to be in different places.

References:

[1] http://clerccenter.gallaudet.edu/infoToGo/357.html

[2] http://en.wikipedia.org/wiki/Sign_language
[3] http://facstaff.gallaudet.edu/harry.markowicz/asl/myth5.html
[4] http://www.noimatiki.gr/signlanguage.html
[5] http://en.wikipedia.org/wiki/Sign_language#Linguistics_of_sign
[6] http://www.eusign.eu/
[7] Dahl, Christine, Wilcox, Sherman, Preparing the Educational Interpreter: A survey of Sign Language Interpreter Training Programs, American Annals of the Deaf, v135 n4 p.275-279 Oct 1990
[8] Straetz K., Kaibel A., Raithel V., Spech M., Grote K. & Kramer F. (2004): An e-Learning Environment for Deaf Adults. Conference Proceedings 8th ERCIM Workshop "User Interfaces for All"
[9] Ohene-Djan J., Naqvi S.: "An Adaptive WWW-based System to teach British Sign Language", ICALT 2005
[10] 508 Law (29 U.S.C., 794d), "§1194.22 Web-based intranet and internet information and applications", Congress amended the Rehabilitation Act to require Federal agencies, 1998, http://www.section508.gov/
[11] Ohene-Djan J., Zimmer R., Bassett-Cross J., Mould A., Cosh B.: "Mak-Messenger and Finger Chat, Communications Technologies to Assist in the Teaching of Signed Languages to the Deaf and Hearing", ICALT 2004
[12] Nurzynska K., Duszenko A.: "Interactive System for Polish Language Learning"
[13] Wu J., Cao W., Song Y., Liu W., Pang B. : A Simple Sign Language Recognition System Based on Data Glove, Proc. ISCP 1998
[14] Culver R.: A Hybrid sign Language Recognition System Proc ISWC 2004
[15] Soontranon N., Aramvith S., Chalidabhongse T. H.: Face and Hands Localization and Tracking for Sign Language Recognition, ISCIT 2004, Sapporo, Japan
[16] Soontranon N., Aramvith S., Chalidabhongse T. H.: Improved Face and Hand Tracking for Sign Language Recognition, Proc ITCC 2005
[17] Bauer B., Hermann H.: Relevant Features for Video-Based Continuous Sign Language Recognition, Proc. 4th IEEE International Conference on Automatic Face and Gesture Recognition, March 2000, Page(s):440 - 445
[18] http://en.wikipedia.org/wiki/Signed_English#Signed_English
[19] http://en.wikipedia.org/wiki/Warlpiri_Sign_Language
[20] Xu Lin; Yuan Bao-Zong; Gao Wen; Tang Xiao-Fang; Xu Yan: "Research on machine translation oriented transformation from Chinese into Chinese sign language", 6th International Conference on Signal Processing, 26-30 August, 2002, pp. 1023 – 1026, vol. 2
[21] Allen J.M.; Foulds R.A.: "An approach to animating sign language: a spoken English to sign English translator system", Proc of. IEEE 30th Annual Northeast Bioengineering Conference, 17-18 April 2004, pp. 43-44
[22] "Dedalos": http://imm.demokritos.gr/dedalos/
[23] Coutinho de Macedo E., MackPesquisa, Capovilla F., Diana C. (2004): "Development of a Test Battery to Assess Deaf Language Skills via WWW"
[24] Sutton V.: http://www.signwriting.org/ (2004)
[25] http://www.lifeprint.com/asl101/
[26] http://www.signingonline.com/index.html
[27] Jones, B.E., & Clark, G.M., & Soltz, D.F., (1997), „Characteristics and practices of sign language interpreters in inclusive education programs, Exceptional Children, 63, 257-268
[28] http://en.wikipedia.org/wiki/Sign_language#Sign_languages.27_relationships_with_oral_languages
[29] http://www.xanthi.ilsp.gr/noema/present9.htm
[30] http://www.britishsignlanguage.com/
[31] http://www.dictionaryofsign.com/main.php?g2_myThumb=
[32] http://www.learnbsl.org/
[33] http://www.yourdictionary.com/languages/sign.html

Authors:

Eirini, Andriakopoulou
Research Academic Computer Technology Institute, Greece and Computer Engineering and Informatics Department, University of Patras, Greece

N.Kazantzaki Str., Patras University GR-26500 Rion, Patras, Greece
andriako@ceid.upatras.gr

Christos, Bouras, Prof.
Research Academic Computer Technology Institute, Greece and Computer Engineering and
Informatics Department, University of Patras, Greece
N.Kazantzaki Str., Patras University GR-26500 Rion, Patras, Greece
bouras@cti.gr

Eri, Giannaka, M.Sc.
Research Academic Computer Technology Institute, Greece and Computer Engineering and
Informatics Department, University of Patras, Greece
N.Kazantzaki Str., Patras University GR-26500 Rion, Patras, Greece
giannaka@cti.gr