



ESF/SCH Exploratory Workshop

**Theoretical And Practical Implications For The Understanding Of Sign
Language Acquisition And Its Consequences For Sign Language Assessment**
Zurich, Switzerland, 15 - 17 September 2006

European Science Foundation
Standing Committee for the Humanities (SCH)

ESF SCH EXPLORATORY WORKSHOP

Scientific Report

**Theoretical and Practical Implications for the
Understanding of Sign Language Acquisition
and its Consequences for Sign Language
Assessment**



Zurich, Switzerland, 15 - 17 September 2006

Convened by:

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Co-sponsored by

The University of Applied Sciences for Special Needs (HfH Zurich)



Executive Summary

The recent international movement towards the adoption of bilingual and second language approaches to instruct deaf students in a natural sign language has resulted in an increased need for research on sign language acquisition along with standardized assessment instruments. This ESF-Exploratory Workshop on the *Theoretical and Practical Implications for the Understanding of Sign Language Acquisition and its Consequences for Sign Language Assessment* has spearheaded this new and emerging area of transdisciplinary scientific research whose aim is to forward the European and international work on sign language acquisition and assessment.

In this context, the workshop served as catalyst to generate a community of deaf and hearing scientists from a wide range of disciplines to collaborate on future projects.

This workshop had four major aims:

- to examine and compare the path of language acquisition across different natural sign languages
- to investigate how similarities and differences across sign languages impact our understanding of language development
- to explore ways to assess, plan intervention, and subsequently monitor progress in sign language acquisition by deaf children
- to discuss ways to provide educators with diagnostic tools which guide them in developing instructional strategies to teach deaf children
- to build a network of researchers and educators

From its keynote the workshop set about to increase communication between deaf and hearing existing researchers, who have been key figures in the field of sign language acquisition and assessment, and a number of young researchers emerging from a wide variety of different backgrounds, as well as from many different European countries. In this sense, the workshop spearheaded a new and emerging area of a Pan-European and transatlantic scientific collaboration whose aim is it to combine the (separate) efforts taking place in each of the participating countries into one large multinational (and cultural) effort with the goal to better understand the nature of sign language acquisition, develop appropriate measurement instruments, and optimize support services.

Not until recently, aspects related to sign language assessment have been less frequently reported in the literature despite their significance for the field of sign language acquisition (e.g., by documenting developmental patterns in different types of deaf learners). One of the main achievements of this workshop was to raise awareness on the interconnectivity between language acquisition and –assessment, which brings along the need for appropriate testing instruments. A European collaboration on this subject is of importance in order to work together towards norms which, in the long run, will have an important impact on deaf education in Europe as well as facilitating cross-linguistic research comparing different sign languages.

Also, given that sign languages differ from country to country (not to mention regional differences within each country), the collaboration of an international team of experts motivates the comparison of crosslinguistic and crosscultural similarities and differences as



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well as the impact resulting from these similarities and differences on sign language assessment.

Combining acquisition and assessment also means thinking about ways to make information more easily accessible and more compatible in terms of the format in which it can be shared between European researchers. One possibility is to take advantage of the vastly progressing new media in form of computer-, or internet-based test platforms which are highly interactive and could be used for assessing sign language proficiency in different European countries. The progress of such technologies holds great potential for future efforts to simplify data exchange.

At the same time, a close collaboration between deaf and hearing professionals, coming from a wide variety of disciplines (e.g., linguistics, psychology, pedagogy) will help bridging the gap between theoretical and more applied sciences. One of the main challenges of such a collaboration is to provide equal access to deaf professionals from different countries. Ideally, it would be arranged through sign language interpreters. In reality, this solution is very costly and usually requires additional funding unless a deaf workshop participant has legal right for sign language interpreters. However, the legal situation varies from country to country.

Furthermore, even with such an arrangement, it may not be possible to get government-funded interpreters, who are equally fluent in both the sign language used by the deaf individual and the spoken language used during meetings. Consequently, the probability of having qualified interpreters for different sign languages present at events like this ESF Exploratory Workshop remains limited.



Scientific content of the workshop

The contributions at the ESF-workshop *Theoretical and Practical Implications for the Understanding of Sign Language and its Consequences for Sign Language Assessment* offered a broad spectrum of in-depth investigations on some of the major issues related to typical and atypical sign language acquisition in deaf children, sign language proficiency and its impact on literacy, as well as the development and adaptation of tests to measure sign language skills. These talks were completed by discussion sessions lead by deaf workshop participants which provided room for more in-depth interaction between attendees on some of the major issues.

Each of the talks fell under one of three main session themes, i.e., Psycholinguistic Issues, Bilingual Issues, and Applied Issues.

The workshop started with a keynote on features of deaf children's typical and atypical language acquisition. Bencie Woll, London, UK, discussed some of the current issues in sign language research, including the relationship of signs and gestures, language structure and acquisition patterns, as well as language use and acquisition patterns. In this context, one of the key questions related to atypical language development was whether language impairments reside in a specific modality or whether they are modality-independent deficits. By presenting examples from different case studies with deaf signers, Woll provided evidence that language impairment can occur independent of modality as well as separately in each modality. The talk showed the significance that research on deaf language impaired learners has on our understanding of typical language development in both deaf and hearing learners.

D. Hermans, Viataal, Netherlands, followed the question what drives the development of language in deaf children, presenting the results of a longitudinal study in which the sign language proficiency of 300 deaf children was measured by a test that had been developed specifically for Sign Language of the Netherlands (SLN). In this context, emphasis was placed on the relation between different subskills of SLN (i.e., phonological, lexical, morphosyntactical) which were monitored and compared over a 3-year period.

Shifting the attention from assessing deaf children's sign language proficiency to their acquisition of classifier signs, G. Morgan, London, UK, examined the question whether exposure to sign language offer deaf children a special developmental path. He pointed out that in order to investigate this question, it is important to distinguish between gestures and signs which are often misunderstood for being the same. While gesture in both hearing and deaf children's communicative development follows a special path, such path does not exist for sign language acquisition. Sign languages do not circumvent the language filter even when talking about space, movement, or location.

Looking yet from another angle at deaf children's language acquisition, M. Tedoldi, Triest, Italy, emphasized in her talk on the importance of language learners' understanding of theory in mind, with particular regard to the type/quality of language input these individuals receive. Sharing her results from a study in which different groups of Italian deaf children as well as a group of hearing children were evaluated based on their understanding of false belief as well as pragmatic competence. The presented findings suggest a relation between theory of mind reasoning and conversational understanding.



Another area of sign language acquisition research that holds great importance for deaf children's successful development of language was presented by R. Herman, London, UK, who stressed in her talk the significance of narrative skills. Based on a study in which the development of linguistic devices which are central to narrative in British Sign Language, showed e.g. showed clear progression with age and that deaf native signers are most consistent in their development compared to deaf children with hearing parents.

The first presentation of the next session, bilingual issues, made the participants realize that there are certain areas related to sign language acquisition and –assessment which, to this point, have been rarely researched. Pointing out the shifting demographics of the deaf learner which are shown by the growing number of deaf children with parents/families from linguistically and culturally diverse background, W. Mann, London, UK, challenged the other participants to think about where these individuals fit in. Presenting the results from a study in which two groups (one with German parents, the other not) of German deaf students were tested on their understanding of simple agent-patient actions both in German Sign Language and written German. He showed that despite an overall higher average performance of deaf children with German parents compared to their peers from linguistically diverse backgrounds, showed similar performance pattern. In this context, conducting separate analyses for different groups of learners minimizes misinterpretation/overgeneralization of deaf children's performance scores. Furthermore, examining the suitability of the instrument for different participant groups can indicate whether an additional test version may be necessary.

Previous studies on deaf children's literacy have suggested that individuals with good signing skills can build on this knowledge in the course of learning to read. Yet, it remains unclear how the small amount of deaf children with deaf parents successfully acquires literacy skills. Following up on this issue, M. Harris, London, UK, examined the role of speech reading and its effect on deaf children's literacy performance.

Investigating the question whether deaf students can learn a foreign sign language and whether this may facilitate their acquisition of the corresponding spoken language, P. Pritchard, Norway, talked about a study that looked at British Sign Language (BSL) receptive skills in a group of Norwegian deaf students. The reported success of this approach gives reason to believe that the conditions needed for deaf students to learn a foreign sign language are comparable to those needed by their hearing peers. The results from the study suggest that deaf students are transferring their knowledge of their first language (i.e., Norwegian Sign Language) and using metalinguistic knowledge to solve the task of understanding BSL. One of the questions that was generate by this study is whether students may have gained any metalinguistic “spin-offs” through their learning experiences with BSL and also whether they can make use of their language learning experiences in acquiring English.

B. Bergman, Stockholm, Sweden, addressed another relevant issue in her presentation on bilingual development in Swedish preschool children with cochlear implant and with hearing aid. Her results showed that, regardless of which language (i.e., Swedish Sign Language, spoken Swedish) appears to be the most developed at the first of several test sessions, the deaf students continue to develop both languages. At the same time, the gap between the two languages decreases. This notion was supported by K. Schönström, who described some of the research problems connected to describing sign language skills in Swedish school-aged first language users.



The range of problems related to methodology in the construction of sign language assessment tests was presented by A. Di Renzo, Rome, Italy, who grounded his research approach on the importance of extending an evaluation of deaf Italian students' language capabilities to also include their skills in Italian Sign Language. Some of these problems include the high degree of iconicity in many of the items for both comprehension as well as production lexical tests.

Moving to sign language development at a very early stage (toddlers), T. Woolfe, London, UK, pointed out the pressing need for more data on early sign language development which, in comparison to the amount of available audiological and speech related data, remains rare. In this context, the need arises for data that is normed with regard to early development so parents of deaf children can monitor the progress of their child which helps them in making informed decisions regarding the development of their children.

Making visible the advantages of new and advanced media for the field of sign language assessment was one of the key elements in talks by R. Hoffmeister, Boston, USA, P. Prinz, San Francisco, USA & C. Rathmann, Ohio, USA, and T. Haug, Zurich, Switzerland. In this context, both computer and internet-based technologies were presented and the way this might impact future measurements of deaf children's language skills were demonstrated. These new approaches do not only facilitate the test administration by allowing the testing of more than one participant at the same time, they also help to keep testing conditions constant across participants and significantly improve the accuracy of test data that can be automatically saved.

The lack of available assessment tests for deaf children in most European countries along with the challenges that lie within the development of such instruments was one of the key points in the contribution by V. Kourbetis, Athen, Greece. In his presentation, he pointed out the rationale and the methodology of the development of a curriculum-based assessment of Greek Sign Language.

An ongoing problem for the reliability of scoring deaf children's language skills is the influence of the background of the class teachers with regard to linguistic knowledge, knowledge of sign language, and general motivation. In their presentation, A. Baker & B. van den Bogaerde, Amsterdam, the Netherlands, addressed some of the challenges that arise from measuring language skills in young deaf children (2-5 years) learning Sign Language of the Netherlands. These problems have a significant effect on the quality of an(y) test instrument in that they make it more difficult to develop norms based on which a test can be standardized.

Finally, a look at the possible future of research on sign language acquisition and assessment was taken by B. Woll, London, UK, T. Haug, Zurich, Switzerland, and W. Mann, London, UK. In this context, the presenters raised attention to the increased accessibility to new technologies for the development of assessment tests to measure deaf children's language performance. Furthermore, to stimulate/facilitate future research collaborations, several key areas were identified, based on the results from a questionnaire that had been distributed to all participants during the workshop.



Assessment of the ESF-workshop results

One of the main achievements of this workshop was the assessment of key themes in the field of sign language acquisition and –assessment that require international attention in form of coordinated research collaborations between institutes and universities. Complemented by a series of discussions following each of the sessions, participants responded to a survey that was conducted during the workshop. This took place in form of a questionnaire on which respondents were asked to state their interest in a collaboration drawing from a list of different research areas (in)directly related to the workshop theme (e.g., deaf bilingual education, sign language acquisition and –assessment, development of curricula/pedagogical frameworks based on deaf students’ assessment scores). Furthermore, participants formulated questions that would be of interest for them to investigate as part of an international collaboration. In a next step, the questions in each area will be extended on and developed into an outline for a proposal. This will take place in form of smaller working groups based on area of interest and expertise of the participants. In this context, some of the different areas of interest and the corresponding questions included:

Investigating Deaf Children’s Reading Achievement

An investigation of deaf children’s reading achievement, with particular regard to predictor variables that seem to be related to successful deaf readers’ high performance. While this area has been of equal interest to researchers and educators, much speculation remains about the elements that lead to successful reading (and writing) skills in deaf children assessment of reading achievement and related predictors. In this context, some of the factors that will be of particular interest for a research group to look at in a follow-up meeting include the roles of speech reading and cross-modal bilingualism.

An Evaluation of Intervention Services for Deaf Children

Another area of interest that will be examined in greater detail by a small research group is the evaluation of interventions that deaf children receive in- and outside of school. Because of the wide range within which deaf children in different (European) countries receive intervention as well as the quality of such services, a closer comparison on a national as well as international level is crucial. Among the issues that the group of researchers to lead this investigation will look at are possible similarities/differences in approaches to deaf children with Cochlear Implant before and after the implant: what is the role of sign language?

An Evaluation of Language Level in the Classroom

An additional theme that was considered as in need for more attention relates to the ways what language is used in classrooms with Deaf children. In case of those classrooms which make use of sign language, the sign language skill levels need to be



assessed. This includes both teachers and interpreters as well as different forms of sign language used by students. It also examines the use of comparative linguistics (signed/written language) in the classroom and possible ways to train deaf and hearing teachers of the deaf.

A study of narrative development in deaf children

Narratives have an important meaning from a linguistic as well as cultural point of view; they can provide information on a person's understanding of grammatical relationships and also give an insight into that person's cultural perspective/understanding. For the group working on this theme, the focus is on narrative structures in sign languages, particularly the investigation of storytelling skills in both deaf children and deaf adults, including comprehension and production skills. In this context, the researchers will look at similarities and differences in the way deaf individuals produce a story in signed/written language. One of the research objectives of this working group will be to develop materials for young (primary school) deaf children.

Creating Platforms for Assessment and Exchange of Data

A fifth theme that was defined during the workshop and which will be followed up on more closely within a small working group is concerned with establishing a range of common platforms for assessment at different ages (including non-linguistic as well as linguistic assessments) so that children could be compared across countries and languages. Some of the presentations at the workshop raised attention for the vastly progressing technology and the way this is affecting any work done primarily with a target group whose primary channel of/for communication is visual. In this context, examples were provided how computer-based technologies can be used to minimize differences in testing conditions, significantly reduce testing time by testing more than one person at the same time, automatic storing of test results on the computer. This improvement of testing conditions for Deaf children may become a fast and time/cost effective way to elicit data on individuals' sign language proficiency, a progress that would prove particularly valuable for most European schools for the Deaf, which do not have any such instruments that are appropriate for usage in an educational setting. As a result, these presented approaches may become an important alternative/addition to the ways assessment currently takes place in classrooms.

Closely related to the need to take greater advantage of new technologies to improve international assessment standards is the desire to combine such efforts in a way that facilitates the exchange of data between researchers from different European countries. In order to create scientific databases at the European level, one of the ways to enable such a database is the development of a computer-based platform to be used in different European countries for the assessment of deaf children's language skills by enabling the user to select the sign language for the test. In order to make existing data more accessible to European researchers as well as providing researchers, who are working towards the development/adaptation of a test instrument to measure deaf children with examples of existing assessment tests, these samples will be made available on the internet. Participants with test instruments agreed to have these samples of their tests posted on the following site <http://www.signlang->



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assessment.info. This site is already up and has provided information related to sign language assessment to an international group of researchers and other professionals since 2004. Additional links from this site to other webpages are currently established in an effort to generate a growing network of resources to be accessible for researchers from different countries.

A Look at Early Intervention Services and the Changing Demographics of Deaf Learners

Finally, a sixth area that warrants closer examination based on its impact on the field of Deaf education includes the assessment of early intervention programs where universal neonatal screening is used; in this context, special attention need to be given to the type of intervention provided to/ assessment used for children from homes where the home language is neither the spoken or signed language of the linguistic (Deaf) community. In many European countries, the growing number of deaf students, who come from diverse linguistic backgrounds, has a significant impact on the services these students receive and also the way they will be instructed in school.

In sum, it can be said that the ESF workshop provided an excellent platform for the exchange of ideas and knowledge on theoretical and methodological issues related to sign language acquisition and -assessment between participants of this event. One of its first practical outcomes is the forming of collaborative European/international working groups to share their expertise on different research issues related to the main themes of the workshop. The objectives for each of these groups will be combined within a proposal under the EU Framework 7 or another ESF program (or possible other European research agencies).



FINAL PROGRAMME

Time for presentation: 20 minutes

Each session has one or two facilitator(s), who will host the session and lead the discussion which follows.

Friday 15 September 2006

- 14.30-15.45 *Arrival at the HfH, registration, and coffee/refreshments*
- 15.45-16.00 *Welcome note by the workshop hosts*
- 16.00-16.15 **Presentation of the European Science Foundation (ESF)**
Bohuslav Manek (Standing Committee for the Humanities)
- 16.15-16.45 **Bencie Woll**, *keynote, Atypical Sign Language Development*
- Session 1: Psycholinguistic Issues: Typical and atypical sign language acquisition in deaf children**
- 16.45-17.05 **Daan Hermans**, *Sign Language Acquisition: what drives the Development?*
- 17.05-17.25 **Gary Morgan**, *Talking about Space in a visual-spatial Language: does Exposure to Sign Language offer Deaf Children a special developmental Path?*
- 17.25-17.45 **Mariantonia Tedoldi**, *Theory of Mind and conversational Understanding in Deaf Children*
- 17.45-18.05 **Rosalind Herman**, *Narrative Development in British Sign Language*
- 18.05-18.45 *Discussion of presented issues*
- 19.30-22.00 *Dinner (individual)*

Saturday 16 September 2006

- Session 2: Bilingual Issues: Sign language proficiency and its impact on Deaf children's literacy skills**
- 09.00-09.20 **Wolfgang Mann**, *Comparing German Deaf Children's Understanding of Referential Distinction in German Sign Language and Written German*
- 09.20-09.40 **Margaret Harris**, *The Relationship of Sign Language and Speech Reading to Literacy Skills in Deaf Children*
- 09.40-10.00 **Patricia Prichard**, *Test of English as a foreign language (TEFL) for Deaf Norwegian pupils in bilingual schools: Can Deaf pupils learn a foreign sign language? Results of a study*
- 10:00-10:30 *Coffee Break*
- 10.30-10.50 **Brita Bergman**, *Testing bilingual development in preschool children with CI and with hearing aid: Comprehension of spoken Swedish and Swedish Sign Language*
- 10.50-11.10 **Krister Schönström**, *Deaf pupils' bilingual development in Sweden*
- 11.10-12:00 *Discussion of presented issues*
- 12.00-14.00 *Lunch*



Session 3: Applied Issues: European/International Approaches to Sign Language Assessment – Part I

- 14.00-14.20 **Elena Tomasuolo & Alessio Di Renzo**, *Sign Language Assessment in Italian Deaf Children and Adolescents*
- 14.20-14.40 **Rosalind Herman, Tyron Woolfe, & Bencie Woll**, *Pilot Standardization of the MacArthur CDI for British Sign Language*
- 14.40-15.00 **Robert Hoffmeister**, *Age and Developmental Norms of Deaf Children with different linguistic experiences – the case of the American Sign Language Assessment Instrument*
- 15.00-15.30 *Coffee break*
- 15.30-15.50 **Philip Prinz & Christian Rathmann**, *Developing the Web-based Test of American Sign Language (TASL)*
- 15.50-16.10 **Vassilis Kourbetis**, *Curriculum-based assessment of Greek Deaf children's sign language competency*
- 16.10-17.00 *Discussion of presented issues*
- 19.00-22.00 *Conference Dinner*

Sunday 17 September 2006

Session 4: Applied Issues: European/International Approaches to Sign Language Assessment – Part II

Exploring joint approaches for sign language assessment in Europe

- 09.30-09.50 **Tobias Haug**, *Adaptation and Evaluation of a Computer-based Receptive Skills Test for German Sign Language for Deaf Children Ages 4-8*
- 09.50-10.10 **Beppie van de Bogaerde & Anne Baker**, *Assessing Dutch Deaf Children's sign language skills using the Developmental Assessment Checklist for Sign Language of the Netherlands (NGT-OP)*
- 10.10-10.30 **Carolina Plaza Pust**, *Language contact in the bilingual acquisition of sign language and written language*
- 10.30-11.00 *Discussion on the presentations of session 4*
- 11.00-11.20 *Coffee break*
- 11.20-12.30 **Bencie Woll, Tobias Haug, & Wolfgang Mann**, *Final discussion: Presenting, Planning, and Implementing Future Projects on a European Level*
- 12.30-14.00 *Lunch*
- Afternoon *Departure*



List of Participants

Convenor:

1. **Tobias HAUG**
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Co-Convenor:

2. **Wolfgang MANN**
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5. **Brita BERGMAN**
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7. **Penny BOYES BRAEM**
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8. **Tina BRUUN LARSEN**
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Denmark

9. **Alessio DI RENZO**
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10. **Siv FOSSHAUG**
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11. **Astrid FRUERLUND SEILER**
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12. **Margaret HARRIS**
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14. **Daan HERMANS**
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21. **Christian RATHMANN**
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22. **Trude SCHERMER**
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27. **Bencie WOLL**
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28. **Tyron WOOLFE**
Deafness, Cognition & Language Research Centre
University College London, UK



Statistics*

(including ESF representative and convenors)

1. Home Institution

University/college	20
Research institution	4
School for the Deaf	3
ESF Representative	1

2. Level of profession

Senior/professor	10
Senior/lecturer	4
Senior/researcher	4
Junior/lecturer	1
Junior/postdoc	4
Junior/Ph.D. candidate	1
Deaf educators	3
Deaf education specialist	1

3. Country

Czech Republic	1
Germany	2
Netherlands	4
USA	3
United Kingdom	6
Norway	1
Denmark	2
Sweden	2
Italy	2
Switzerland	4
Greece	1

4. Deaf - hearing participants

Deaf	7
Hearing	21

5. Gender

Female	16
Male	12

6. Languages at the workshop

American Sign Language
British Sign Language
Danish Sign Language
Swedish Sign Language
(spoken) English

*The eight sign language interpreters were not included in the statistics