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ABSTRACT

The research project on sign language in progress at the University of Stockholm is intended to: (1) give an account of the structure of sign language, (2) make a structural comparison between Swedish and sign language, and (3) utilize insight gained through the analysis of sign language in the development of teaching materials. The project is described in general introductory terms, with the emphasis on the background, some of the main problems, and a summary of the three principal phases. The total communication method of teaching the deaf, characterized by the simultaneous use of speech and sign language, is discussed; and those procedures used in describing spoken language are applied to the analysis of sign language. It is concluded that the construction of a system for transcribing sign language is possible. In addition to the aims cited above, the anticipated results of the project include: (1) the evaluation of the influence of sign language on linguistic development and learning, (2) the drawing up of proposals for a sign dictionary, (3) the analysis of the linguistic feasibility of the total communication method, (4) the presentation of guidelines for the further development of sign language, and (5) the development of materials for teaching sign language. (PP)

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AIMS

The aims of this research project are

to give an account of the structure of sign language
to make a structural comparison between Swedish and
sign language

to utilize the insight gained through the analysis of
sign language in the development of teaching materials.

BACKGROUND

The teaching of the deaf

For the greater part of the present century, the official
method of communication in teaching the deaf has been the

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so-called oral method. Communication is effected via the spoken language, the primary aim being for the deaf child to acquire a full command of the spoken and written language. The child is taught to lip read and (in the case of those with seriously defective hearing) is given auditory training with a view to maximum utilization of its residual hearing ability. Manual communication - sign language and the manual alphabet - is not prescribed in the curriculum but has become increasingly common in recent years. The advances of electro-techniques during the fifties enhanced the status of the oral method, since it was possible with new technical aids to show that many persons previously thought to be totally deaf had certain residues of hearing which could be utilized for speech and hearing practice. But the expectations of improved teaching results to which this gave rise were perhaps excessive and have not been fulfilled. Sad to say, the results achieved in special schools for the hard of hearing cannot be said to stand in any reasonable proportion to the great efforts and investments that have been made in the past few decades.

The total communication method

The Swedish National Association of the Deaf has demanded the expansion of the purely oral method into the so-called total communication method. The latter is mainly characterized by the simultaneous use of speech and sign language and has also been termed the simultaneous or combined communication method. The Federation's demand is based on the need for accompanying signs to support the meagre and often uncertain information concerning a spoken sentence derived from lip reading. Deafness is not only an auditory handicap. In reality it also becomes a linguistic handicap, and accordingly the child should not be deprived of anything that can accelerate and assist the difficult process of language learning.

The total method has been criticized, above all on the grounds that sign language is not suitable for accompanying

spoken Swedish. This objection is justified insofar as it refers to the spontaneous and completely untutored language of the deaf themselves. For instance, the syntax of this language differs completely from that of Swedish, with the result that the sign language variant (known as everyday language or gesture language) cannot be used together with Swedish.

But there is another variant (teaching language) which has been developed by a committee set up by the Swedish National Association of the Deaf. The aim of this committee was to create a uniform national sign language geared as closely as possible to Swedish, so that the two languages could be used simultaneously. This work has led to the creation of a host of new signs for the depiction e.g. of conjunctions, prepositions and verb forms.

Sign language never investigated

During the spring of 1971 the National Board of Education set up a working party to investigate the role of sign language in teaching and to consider the possible introduction of the total method of communication. However, the consideration of this question soon ran into difficulties, due above all to lack of knowledge concerning the structure of sign language. No serious study has previously been made of sign language. In the absence of a description of sign language, it is impossible to say how this language affects the child's language learning or its intellectual and emotional development generally. Nor can any conclusions be drawn concerning the relation of sign language to Swedish, which in turn means that the purely linguistic feasibility of the total communication method is impossible to assess. These are two of the most important reasons why the National Board of Education is now financing research into sign language.

ANALYSIS OF SIGN LANGUAGE

There are a number of criteria of the oral human languages. By systematically studying these criteria and investigating whether they also hold good for sign language, we can eventually arrive at the linguistic status of sign language. Our utilization of methods of analysis generally practised in connection with language descriptions will result in a description of sign language based on the same principles as are applied to Swedish, which in turn will make it easier to carry out the structural comparison planned between the two languages. The question of which levels and units are to be compared with each other will then solve itself, with the result that similarities and deviations will be relatively easy to observe.

Aspects of the sign

The following is true of all signs: one or two hands perform a movement which is based either on a part of the body or on an area in front of the body (the neutral position). In other words, something does something somewhere. These three parts, which together describe the foundation (or framework) of the sign we have termed:

- a) articulator
- b) articulation
- c) articulation point

It should be noted that we are not dealing here with actual "parts" in the sense that a sign can be divided into segments and the segments treated in isolation from one another. Rather they should be viewed as different aspects of the sign. All three aspects must be taken into account when describing individual signs. The interesting problem now arises, how are these aspects to be described? How can we ascertain what has included in order for the description given to be considered exhaustive and how can we ensure that the different aspects according to the same

The linguistic structure of the sign

To render the procedure followed when analysing the signs comprehensible, we shall compare it here with the corresponding procedure applied to the description of a spoken language.

We all have an intuitive feeling that words can be analysed into smaller, intrinsically meaningless units. But in order to establish exactly what these units are we operate among other things, with so-called minimum contrast word pairs or word sequences (minimal pairs). Take for instance the following words:

bend - lend - send

bend - band - bond

These words only differ through the variation of one sound in each of them. These sounds are the smallest differentiating units (phonemes) and have a distinctive linguistic function. (In alphabetical writing systems it is phonemes that are symbolized by letters of the alphabet). Language is highly economical in its construction, so that using only a small number of sounds it can form a very large number of words. It has been said that the ingenious structure of these linguistic symbols is one of the cardinal differences between human and animal language.

Does the structure of the sign resemble that of the spoken words? This would mean that every sign could be analysed into smaller parts which, while lacking an intrinsic meaning, could join together with other parts to make up a sign. To obtain an answer to this question, we can employ minimum contrast sign pairs:

HAT - right hand on the head

MY - right hand on the chest

LIVE - right hand on the right cheek

ON - right hand on the back of the left hand

In these examples the variation in place or position is the differentiating element which must be ascribed a linguistic, distinctive function. By contrasting a large number of signs in this way we have been able to establish many types of elements in signs having the same function. We have termed these minimum units of sign language cheremes, which is the designation used by the American philologist W.C. Stokoe for the corresponding units of American sign language. (Stokoe presented his findings in 1960 in the series Studies in Linguistics:O.P.8: "Sign Language Structure: An Outline of the Visual Communication Systems of the American Deaf"). The various types of cheremes are then studied separately in order to establish the exact positions, hand shapes etc. that occur.

The answer to the above question is: the aspects of the sign are described with the aid of the smallest differentiating units, i.e. the cheremes.

<u>ASPECT</u> is described by	<u>TYPE OF CHEREME</u>
articulator:	the shape of the hand the attitude of the hand
articulation point:	I) position, or if position = left hand, II) the shape of the hand the attitude of the hand
articulation:	type of movement direction of movement type of interaction

In the above we have tried to show something of the working procedure followed in analysing the individual sign. But there are other sides of the language which have to be charted before a description has been arrived at resembling those of the spoken languages. We are alluding above all to studies of morphology, syntax and semantics. The results of these sub-studies will deepen our knowledge of what in traditional terms would be called the grammar of sign language.

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TRANSCRIPTION

It is thus evident that signs have the same ingenious structure as words in the oral languages and that sign language is not merely composed of "natural gestures" as has sometimes been asserted. The fact that the signs have a describable linguistic structure (with a corpus of about 50 cheremes) implies that it is possible to construct a system of transcribing for sign language. This can be based on the same principle as an alphabetical system of writing: a graphic symbol (letter) for each chereme (phoneme). In concrete terms this means that in every sign where a certain chereme - e.g. an extended hand - occurs, it will be depicted by the same symbol. A system of this kind will be more economical and practical than a system having a unique symbol for each complete sign (cf. the Chinese alphabet).

The system for transcription will play an important practical part in subsequent work on sign language, not least as regards the second principal phase of the project. When comparing sign language with Swedish, we will then be able to depict signs by means of a special alphabet and will no longer be consigned to pictures or Swedish words. The former of these alternatives is time-consuming and unpractical, the latter is arbitrary and confusing.

Insofar as the system can be made simple and, accordingly, easy to learn, it should also be suitable for use in the compilation of sign dictionaries and other descriptions of sign language. Its future role in teaching is more difficult to judge and will in the ultimate analysis be determined by the function of sign language in special school and by special school theories as to how deaf children can and should learn language.

TEACHING MATERIALS

The third phase of the project comprises the compilation of teaching material for the learning of sign language.

The courses arranged e.g. for the parents and teachers of deaf children and children with seriously defective hearing are in great need of textbooks and instruction material. A grammar of sign language can be compiled on the basis of the insight gained concerning the structure of sign language. The purpose of such an account would be to introduce the beginner to the regularities and system of the language, to teach the pupil to see the language as a structured system - not as a congeries of isolated signs lacking common properties.

The project may also yield material for the teaching of Swedish in special schools. It is possible by means of contrastive studies between Swedish and sign language to pinpoint the important differences (and similarities) and so predict the stages in the teaching of Swedish which will cause special difficulties. It is impossible to overstate the difficulty encountered by the deaf child in learning Swedish and the need to utilize every opportunity for making this process easier. This in turn may make it possible for greater scope to be given to the acquisition of other kinds of knowledge.

SUMMARY OF THE ANTICIPATED RESULTS OF THE PROJECT

An assessment of the linguistic status of sign language can be made on the basis of the results of the sign language analysis, after which the influence of sign language on linguistic development and learning can be evaluated. Proposals will be drawn up for the compilation of a sign dictionary.

The purely linguistic feasibility of the total communication method will be elucidated on the basis of a comparison of Swedish and sign language. Guidelines can be given for the further development of sign language.

Teaching materials can be developed for teaching sign language to persons with normal hearing but also for the

teaching of Swedish in special schools for the deaf, particular regard being had to the linguistic competence which may accrue from early contact with sign language.

The presentation of the project has deliberately been couched in general, introductory terms, the emphasis being upon the background, some of the main problems and a summary description of the three principal phases, because the project has not previously been presented in the School Research Newsletter. A more detailed account of methods and results will be found in the interim reports which have been submitted to the National Board of Education.

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