

The Psycholinguistic Integration of Signed French and Cued Speech: How Can Speech Components Be Triggered?¹

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The psycholinguistic integration of Signed French and Cued Speech is here defined as the possibility for a deaf child to: (1) understand or express the same meaning for words, concepts, or sentences produced in either one of these two modalities; (2) switch from one to the other; and ultimately (3) recognize what belongs to one modality and what belongs to the other.

It is quite possible that other participants in this symposium would prefer to define psycholinguistic integration otherwise. If this is the case, it will be a matter for discussion and, hopefully, agreement, during the symposium. The bimodal combination of Signed French and Cued Speech has effectively been utilized for the last seven years in the Brussels "Ecole Intégrée" and the "Centre Comprendre et Parler".

The Signed French utilized is not a contrived or partly contrived signed language, such as some of the Signed English systems which use grammatical markers. It utilized only the signs of the LSBF, the Sign Language of the Belgian Deaf who belong to the French-speaking community. These signs are utilized in the syntactical order of French, so that they can be executed in 'approximate synchrony with the corresponding spoken word. In order to present a complete visual presentation of the correct syntactic structure of French, the function words for which there is no sign, such as articles, are spoken in Cued Speech. Cued Speech is also used for: (1) exclamatory interjections such as "Oh", "Ah", "Oh là là", etc.; (2) for proper names (in preference to finger spelling because it is much better adapted to synchronization with speech); and (3) for those words for which the parent or teacher does not know the sign.

The Cued Speech under consideration here is the French version--called Langage Parlé Complété or LPC--of the technique originally described by Cornett as a visual complement of spoken English. Cued Speech or LPC is speech accompanied by a limited set of eight well-differentiated hand shapes which move from one place to another in proximity to the mouth. The purpose of the technique is to clarify and complete the visible image of speech available for lipreading. Each hand shape characterizes a group of consonants which are well-differentiated on the lips, and each of the five places relative to the mouth characterizes a group of vowels which are well-differentiated on the lips. The association of the hand *shape* and of the mouth movement allow the unequivocal identification of vowels. A hand *position* and mouth shape allow the identification of vowels. A single hand shape in a certain place is, therefore, sufficient to clarify a whole consonant-vowel syllable; it can also clarify initial vowels, final consonants of consonant-vowel-consonant syllables and middle consonants of triple consonant groups. It is important to stress that Cued Speech or LPC is not only the system of hand cues (or "clés" in French) designed to clarify the lipreading image of speech. Cued Speech or LPC means the association and simultaneous production of these cues *and of speech*.

It is also important to remark that this Cued Speech-LPC is practiced by a team of teachers of the deaf and speech therapists thoroughly trained in the verbo-tonal method, which stresses the importance of emphasizing correct prosody in all language models presented to deaf children. Great attention is, therefore given to the small forward movements including the so-called "flick") accompanying the cues in the side location, especially when successive syllables require the same cue, as in the word *banana*. This was actually prescribed by Cornett from the very beginning of his published material on Cued Speech (Cornett, 1967), but had been overlooked or, at least, not sufficiently stressed by some of his followers, with the result that Cued Speech was perceived as too static by several observers in Europe. In addition to these movements which belong to correct Cued Speech practice, the Brussels team incorporates the hand cues into the large movements of the verbo-tonal method's phonetic rhythms and the reduced version of these movements utilized in individual speech therapy. In this sense, the Cued Speech-LPC utilized in Brussels has been, as might be said, "verbotonalized."

Combining Signed French and Cued Speech

How and why are Signed French and Cued Speech combined? In two ways: First, with young deaf children beginning language acquisition, Cued Speech is utilized to fill in the gaps of Signed French, as described above, in order to

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give a complete visual representation of spoken French, affording the deaf child *both an efficient means of communication and access to a language which is made completely available to him.*

Later, Signed French completed by Cued Speech and Cued Speech alone are utilized alternately, which can be done quite naturally with small children where repetitions are often necessary. The same utterances will be alternately spoken-signed and cued, or in other circumstances, first spoken-cued and then spoken-signed. Having the constant visual mouth pattern and acoustic (through aided residual hearing) pattern, the child who knows the signed word can transfer this knowledge to the equally clear cued word. The aim is to progressively reach complete reception of spoken language through Cued Speech, in order to ensure acquisition of the French language at a rate and to an extent as close as possible to those of normally hearing children. If this can be done before the normal age for formal teaching of reading and writing, it is hoped that deaf children will approach these skills with an inner (cerebral) image of spoken language equivalent to the inner phonological representation of hearing children, Conrad (1979) having shown that such "inner speech" is correlated with good reading and lipreading abilities. Current observations show that some of the children following this program do achieve a French language competence equivalent or close to that of normally hearing children of the same age.

Evidence for psycholinguistic integration of Signed French and Cued Speech

The evidence is essentially circumstantial, consisting of numerous observations of the following linguistic events, some of which will be illustrated by videotape sequences. Included in the accumulated evidence are: (1) conversations in which a question is asked in Cued Speech and answered in sign, or vice versa; (2) conversations in which a question is asked in Cued Speech by the hearing partner, answered in approximate speech by the deaf child, the hearing partner seeking confirmation of his understanding of the spoken answer by repeating this answer in sign; and (3) relatively easy transfer of an understood sign to the understanding of the corresponding word expressed in Cued Speech.

How can speech components be triggered?

When a *normally hearing* child coos and babbles, he hears himself, and this fact in itself constitutes a reinforcement of his own oral productions. Then his mother will often repeat the child's cooing and babbling with an expression of pleasure conveyed acoustically by her intonation and visually by her facial expression. This repetition constitutes a most powerful reinforcement for the child's vocal productions.

In this repetition, the mother interprets the child's oral productions in keeping with her own phonological system. When the child's production tends to approximate a word of the mother's spoken language, such as [me-me], close to "*maman*", she will recognize and repeat that word, rejoicing at what she will call his first word (or one of his first words), and telling her friends and relatives "he has said *maman*." While repeating *maman* she will point to herself, saying "*Mais oui, c'est maman*", and progressively the child will equate the word *maman* with the person it signifies.

In this process--first of reinforcement of the child's meaningless babbling, and later of attribution of meaning to those babbling productions that approximate spoken words--the normally hearing child receives several types of information from both acoustic and optic sources.

Acoustic information is perceived through the normal auditory system. This information is both segmental (about the phonetic content) and supra-segmental, the latter including the affective component conveyed by intonation. The optic information available through his visual system is also both segmental and supra-segmental, with the segmental information being carried by the visible articulatory movements, and the supra-segmental information by the facial expression, the accompanying body gestures, and by such natural signs as pointing (in the case of *manan*, the mother pointing to herself).

The segmental acoustic information and the segmental optic information are congruent, since they are in each case simultaneous manifestations of the same vocal tract gesture. The supra-segmental acoustic and optic information are in each case also congruent, since the first is produced by the vocal tract gesture and the second is closely associated with it, both deriving from the same intent of the speaker.

When a hearing-impaired child coos and babbles, he does not hear himself and does not hear his mother's repetitions. He can perceive only a small part of it acoustically (if he has some residual hearing). Although he receives the same optic information as the normally hearing child (provided that his mother continues to communicate with him orally), this optic information brings to him only a part of the segmental information necessary to identify and recognize speech sounds. This situation does not allow him to differentiate between his mother's repetitions of his own different babbling productions, nor to recognize the constancy of certain patterns to which his mother attributes meaning.

With Cued Speech, the deaf child receives through his visual system an amount of segmental information equivalent to that which the normally hearing receives through his auditory system. He can, therefore, recognize the differences between his own spontaneous babbling productions reproduced by his mother, and progressively modified by her to fit into the patterns of what she has interpreted as words. This differential reinforcement constitutes a powerful stimulus, which can effectively encourage the child in his vocal productions, allowing him to follow a speech development pattern more similar to that of a hearing child. For example, there is no specific sign for the vocalization (a-re, a-re), but it can be cued.

An important point is the congruency between the visually perceived information and the acoustic information which the child with some residual hearing can receive through his hearing aids. The two types of information are congruent at both the segmental and supra-segmental levels.

With Signed French, the deaf child receives meaningful information through his visual system, and has no difficulty in producing the signs whose meanings he has recognized. His own approximate sign productions will be reinforced by the repetitions of his mother and interpreted by her, so that the child will progressively reach levels of receptive and expressive abilities in signs along a process similar to that of the hearing child in his acquisition of spoken language.

How can spoken language be triggered, in conjunction with this communication system? The essence of Signed French is that the same word is simultaneously, or nearly simultaneously, signed and spoken. Therefore, along with the sign, the child can perceive the available visible information associated with the articulatory gesture; i.e., the information available through lipreading, and also the acoustic information available through his aided residual hearing.

The sign information and the speech information (visual and acoustic) are not congruent at the segmental level, but they are at the supra-segmental level. The speech information, however, is totally or nearly redundant in relation to the sign information, which is sufficient for communication. This redundancy is likely to lead to neglect and possibly to loss or diminution of ability to utilize the speech information receptively, while the ease of expression by signs can lead to neglect and disuse of vocal expression. These adverse effects on spoken language are indeed reported in many so-called Total Communication programs, in which the ease of communication by signs seems to lead to a neglect of measures aimed at vocal skills development.

These adverse effects can be reduced under certain circumstances: (1) When due attention is paid to the continued use by parents and teachers of clearly articulated and normally loud speech simultaneously with signs; (2) When the child's auditory capacities are stimulated; (3) When his vocal productions are encouraged and rewarded; (4) When some occasions are preserved of speaking to the child without signs when the situational context is such that there is a good chance that he will understand the message by speechreading alone (with the aid, of course, of residual hearing); (5) When parents and teachers make it obvious that they attach importance to the child's spoken language.

Current observations suggest that the adverse effects of sign communication on spoken language can be reduced even further--and for some deaf children completely avoided--if in addition to the measures already listed, use is made of an appropriate combination of Signed French and Cued Speech.

The ease of communication through signs results in a generally more relaxed atmosphere in the home or in the classroom. Since speech is no longer the only possible means of expressing one's thought and desires, the child who attempts it is less subject to tension. Sure to be understood by sign if his speech is unintelligible, he can either speak and sign simultaneously, or speak and then follow by sign if not understood, or if misunderstood. This lowering of tension is currently reflected by more natural speech and better voice quality in many children, than when exclusively oral methods were utilized in this program.

When Cued Speech is utilized to fill in the gaps of Signed French, it is possible to utilize perfectly natural structures of spoken language at a natural rhythm, which provides the deaf child a model which he can perceive in its totality. When Cued Speech is used alone, in alternation with Signed French, the child receives a complete visual representation of spoken language. Even when he cannot yet orally produce all the speech elements which he sees, he knows the place of each phoneme in the word, of each word in the sentence, and when he does acquire the capability of producing a new phoneme orally, one observes that he soon generalizes that acquisition, correctly producing the phoneme each time it occurs in the words and sentences of which he has an inner image.

In addition to the receptive utilization of Cued Speech, many children who are cued to begin spontaneously to cue themselves. At first the handshape and movement may be perceived as a sign, and approximately reproduced as such. Progressively, however, the children learn to associate the cueing hand with the mouth image and to utilize the hand cue as a support for their own speech in order to be better understood, or to correct a faulty interpretation, by a hearing partner, of their approximate articulation.

In conclusion, current observations suggest that the total communication combination of Signed French and Cued Speech provides an efficient means of communication, a powerful tool for the acquisition of the structure and vocabulary of French, and that it does not hinder, and indeed can promote, a harmonious development of both receptive and expressive speech skills.

Besides providing an efficient means of communication, the early use of signs in the Signed French modality familiarizes the deaf child with the vocabulary of (Belgian) sign language. It is hoped that this early introduction will prove to be a good preparation for the subsequent acquisition of sign language itself. Such is not, however, the topic of this paper and consequently will not be discussed in detail here.

References

Conrad, R. (1979). **The deaf school child**. London: Harper & Row.

Cornett, R. O. (1967). Cued Speech. **American Annals of the Deaf**, 112, 3-13.

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