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Correspondence of Spoken and Signed Utterances
Among Elementary School Teachers

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Abstract

Many schools for the deaf in the Philippines have recently been using Simultaneous Communication (Arevalo, Kusanagi, 1995). No research, however, regarding the description of teachers' utterances using this mode has been reported. This study investigated the correspondence between speech and signs relative to structure and the corollary correspondence of the messages conveyed by each channel. Videotaped for 10 to 30 minutes were six elementary teachers handling varied subjects. Transcribed utterances were analyzed by comparing the signed code with the spoken words to determine message accuracy and elements present in speech but deleted in the signed code or vice versa. Results reveal that teachers were able to produce approximately 40% perfect message correspondence, 31% similar messages and about 28% non correspondence messages. In terms of sentence structure, subjects were able to represent 35% of their utterances simultaneously in two modes. A total of 56.8% were partially executed in signs and speech while 7.8% were expressed in only one mode. The results indicate that there is a need for teachers to improve Simultaneous Communication ability to enable students to accurately receive learning experiences expected of elementary education.

Key Words : speech, signs, utterances, message level correspondence, structural level correspondence, Simultaneous Communication (Sim Com)

Introduction

Primary education serves several purposes. Among these include teaching students basic cognitive skills and developing attitudes and skills that children need to function effectively in society. A third one, which comes as a consequence of the first two goals is to

advance nation building (Lockheed, et al., 1991). Acquisition of knowledge and skills in the primary years is so vital that success or failure of a child to perform academic and related tasks in the High School and higher years would depend upon these foundation years. It is at this stage of a child's school life where teachers must make sure that a student does really learn basic knowledge and skills necessary for further learning and

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attainment of his full potential.

Since communication is at the heart of educational process, deaf children whose impairment impose limitations on the perception of speech may not be able to achieve these goals without effective communication methods. Favorable modes of communication for the deaf may mean those that employ the visual modality which has become an important channel of receiving information as a supplement to defective hearing. Though some deaf children may have residual hearing to enable them to communicate orally, majority may need auxiliary modes. Thus, aside from the oral mode, there evolved various approaches such as fingerspelling, manual and a combination of these like Rochester Method, Simultaneous Communication and Total Communication.

Realizing the importance of primary education, elementary school teachers must be able to efficiently communicate with the child, i. e. in ways which will elicit his response to determine the extent to which he understands and can accomplish what is expected of him. Hence, teachers of the deaf are expected to be fluent in all methods of communication that the deaf child uses to understand and be understood (Katz, et al., 1978).

The present study aims to describe the characteristics of Elementary school teachers' utterances on the use of Simultaneous Communication. In as much as majority of the students rely on the visual mode such as sign language, fingerspelling and speechreading, it is necessary to find out the percentage of such in teachers' utterances. Data which will be gathered in this study will help ascertain the teachers' communication ability in the classroom. Results may further serve as gauge for administrators in deter-

mining whether there is a need to provide more appropriate programs and inservice trainings to uplift teachers' skill on the use of Sim Com. This will surely be of great benefit to the students since improved communication ability will mean a better understanding and greater learning.

Methodology

1. Subjects

As seen in Table 1, six teachers from the Upper Elementary Department of Philippine School for the Deaf (PSD), a national residential/day school for the deaf participated in the study. Two teachers each from Grade IV, Grade V and Grade VI levels who were teaching CA English IV, V and VI, Science IV, Social Studies V, and Math VI served as subjects of the study.

All teachers had taught in their current grade level and subject areas for at least one year in addition to the year when videotaping and data gathering was done. They have also been in the school for more than three years and have passed the basic sign language level.

2. Procedures

To obtain samples of utterances in their usual communication style, the six teachers were videotaped for a minimum of 10 to 30 minutes during their actual classroom teaching. Of these videotaped materials ten minute utterances of each teacher were utilized for transcription. Portions which did not elicit much of teacher's utterances such as when the teacher was asking a student to read a story or paragraph were eliminated. A verbatim transcript was made of each teacher's speech and signs. Symbols were used on each word to distinguish which was spoken and signed simultaneously, spoken only, signed only, fingerspelled, mimed, and

Table 1 Elementary Teachers' Profile

Teacher	Sex	Age	Subject/ Year Level	SL Level	Years in School
1	F	44	English VI	Advance	11
2	M	28	Math VI	Advance	4
3	F	52	English V	Interpreter	25
4	F	35	S. Studies V	Intermediate	13
5	M	32	Science IV	Interpreter	5
6	F	42	English IV	Interpreter	7

pointed. More specifically, the transcripts were analyzed to determine for each teacher what part of speech (eg., noun, pronoun, verb, adjective, etc.) was represented through speech and signs and other modalities stated. Transcribed utterances were further analyzed to ascertain the percentage of simultaneously spoken and signed utterances and to find out, which part of speech, if any, is omitted affecting both the message content and sentence structure.

3. Analysis

Transcripts were analyzed by comparing the signed code with the spoken message to determine elements present in speech but deleted in the signed portion or vice versa. Transcribed data were categorized in terms of message level and structural level correspondence of teacher's transcribed utterances. The coding scheme developed by Mear et al. (1992) and Maxwell and Bernstein (1985) were used to analyze the message level correspondence while the criteria set by Fujitani (1994) was employed for the structural level correspondence.

- 1) Message Level Correspondence—refers to the evaluation of each utterance to determine the degree of correspondence of the message content in the two simultaneously presented modalities. Utterances were labeled as those hav-

ing :

Perfect Correspondence—when messages conveyed by spoken and signed modalities are the same or identical.

Partial Correspondence—when messages conveyed are similar or partially correspondent caused by slight differences between the spoken and signed modalities or omission of less important words in the signed portion.

Non Correspondence—when messages conveyed are altered due to differences between the spoken and signed modalities or omission of important or obligatory words either in the spoken or signed modality.

- 2) Structural Level Correspondence—refers to the evaluation of each utterance to determine the degree of correspondence of the words and phrases in the simultaneous use of speech and signs. Utterances were classified as having :

Perfect Correspondence—when all words or phrases in a sentence are simultaneously presented in two modalities.

Partial Correspondence—when words or phrases are presented either through sign or speech or a combination of these.

Non Correspondence—when the entire sentence is presented in only one modality, that is through speech, sign, gesture or fingerspelling alone.

Note that while considering the simultaneity of speech and signs and fingerspelling, message level correspondence (MLC) checks and compares the completeness and accuracy of the message delivered with the intended message. On the other hand, structural level correspondence (SLC) examines the completeness of speech and sign representation of utterances without taking account of the message conveyed. A sentence might be rated as having perfect SLC where utterances

may have been completely and simultaneously spoken and signed or fingerspelled but the message delivered may not have been the intended one due to wrong choice of sign used, among other factors.

Results and Discussion

1. Characteristics of Teachers' Spoken and Signed Utterances

1. Correspondence of Signed and Spoken Messages

Table 2 shows the percentages of spoken and signed utterances of subjects in terms of MLC. As indicated, Teachers 1 to 6 have made a total of 40.6% perfect correspondence (PC) sentences; 31.5% partial correspondence (PLC); and 27.9% non correspondence (NC) sentences. Of all subjects, English Teachers 1, 3, and 6 have uttered the highest PC sentences, followed by Science Teacher 5,

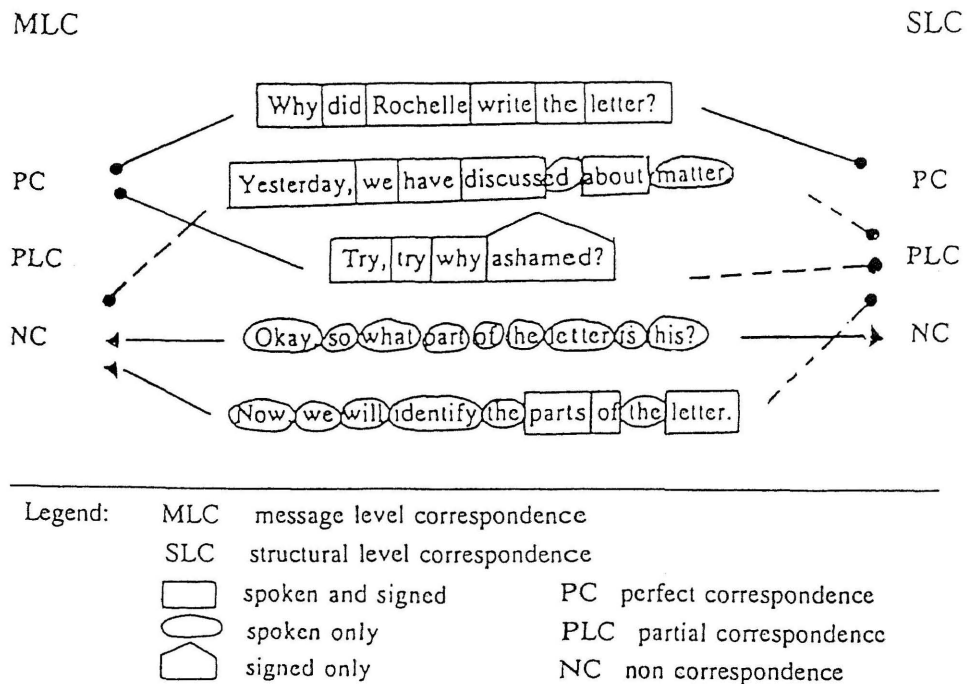


Fig. 1 Classifying Sentences as to MLC and PLC Categories

Table 2 MLC Sentences of Teachers

Teacher	PC	PLC	NC	Total Sentences
1	77-69.4%	20-18%	14-12.6%	111
2	24-27.3%	38-43.2%	26-29.5%	88
3	38-41.3%	19-20.7%	35-38%	92
4	10-19.2%	28-53.8%	14-27%	52
5	21-30.9%	31-45.6%	16-23.5%	68
6	34-37%	22-24%	35-39%	91
Total	204-40.6%	158-31.5%	140-27.9%	502

Math Teacher 2 and lastly by Social Studies Teacher 4, respectively. PLC sentences were highest in Teacher 4 and lowest in Teacher 3. On the other hand, Teacher 6 was seen to have the most number of NC sentences with Teacher 1 having the least number.

Above statistics connote that of all the utterances produced by 6 subjects, less than 50% were found to have been delivered accurately through simultaneous use of appropriate signs and speech. PLC sentences have minor deletions such as omission of auxiliary verbs, articles, prepositions, infinitive markers, and conjunctions in the signed portion. These omissions did not, however, alter the message content of the utterances.

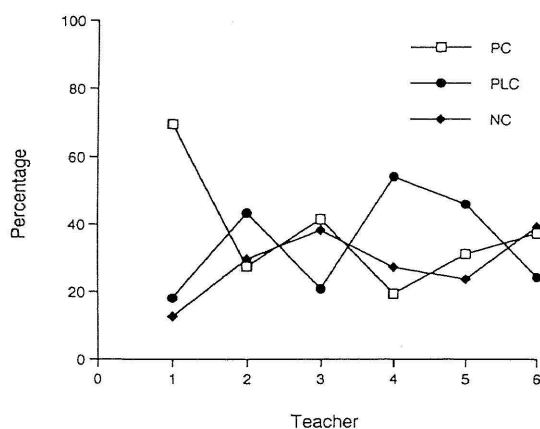


Fig. 2 MLC Sentences of Elementary Teachers

Hence, approximately 72% of the subjects' utterances exhibited no conflict or major propositional differences between the channels. Marked deletions have been evident in NC utterances where nouns, pronouns, main verbs, and other obligatory or more important words were seen to have been signed alone creating altered or incomplete message delivery.

In a similar study conducted among High School teachers of the same school (Arevalo and Kusanagi, 1996), data showed that the subjects obtained about 60% MLC, which was about 10% lower than the elementary teachers. Of the six subjects in the study, one English teacher has made an almost perfect sign to speech correspondence with no major deletions made and only very minimal minor deletions. The other 3 English Teachers, on the other hand, did not perform equally well and obtained much lower MC percentage than the two Math Teachers.

It is worthy to note that the English Teachers in the present study made consistently higher performance than Math and Science Teachers. Findings in two studies reveal that Elementary Teachers are able to represent a more compatible and more accurate message content through simultaneous use of speech and signs than High School

Table 3 SLC Sentences of Teachers

Teacher	PC	PLC	NC	Total Sent	Total Words	MLU
1	63-61%	38-34%	5- 5%	111	393	3.5
2	23-26%	57-65%	8- 9%	88	515	5.9
3	34-37%	54-58.7%	4- 4.3%	92	472	5.1
4	9-17.3%	38-73.1%	5- 9.6%	52	408	7.8
5	17-25%	45-66.2%	6- 8.8%	68	489	7.2
6	27-30%	53-58%	11-12%	91	498	5.5
Total	178-35.4%	285-56.8%	39- 7.8%	502	2775	5.5

teachers.

Cohen (1991), found that degree of overall accuracy decreased as the age of students increased and explained that teachers may be aware of their students' language capabilities and adjust their own communication accordingly. Although the same pattern is exhibited by PSD teachers, it may not be stated that they might have had the same reasons why such pattern existed. A study employing a larger sample would be necessary to generalize the statement.

2. Correspondence of Signed and Spoken Utterances

Table 3 shows the percentages of spoken and signed utterances of subjects. Utterances that were represented simultaneously and completely in sign and speech (PC) comprised 35.4% of the entire sentences produced. Those that were executed partially in speech and signs, with some words uttered in only one mode (PLC), i. e., manual or oral constitute 56.8%. A high percentage of spoken and signed utterances here does not imply low percentage of propositional conflicts or differences since deletions omitted comprised both obligatory and less important words. NC sentences which were uttered completely in only one modality that is, either through signs, speech, fingerspelling or gestures alone

were observed in 7.8% of the entire utterances.

Comparatively, utterances of High School and Elementary teachers indicated a similar trend where PLC sentences obtained higher percentage than those that were rated under the PC and NC categories. Elementary teachers in the present study, however, showed higher PLC percentage and lower NC percentage than High School teachers.

Other previous studies of Luetke-Stahlman (1988), Swisher (1983), Mear (1988), Maxwell and Bernstein (1985) and Fujitani (1995) showed higher percentage correspondence than that of PSD teachers. PSD teachers, nonetheless, performed fairly better than Marmor and Petito's (1979) subjects who were found to have highly ungrammatical utterances because many spoken items were not represented in the signed portion. Note that Marmor and Petito conducted the study at the time when Sim Com has just began its upsurge. It is well recognized that by the late 1970's, hundreds of programs for the deaf abandoned the oral only approach and began using Sim Com and Total Communication (Turkington and Sussman, 1992). Congruently, schools for the deaf in the Philippines have started using Sim Com only some years back. This implies that being a recently adopted

mode, teachers might probably still have insufficient insight or experience on its use.

Speech unaccompanied by signs creates major and minor deletions which affect not only the message conveyed to the students but the structure of the sentences as well. Teachers, who serve as language models must in any way, try to provide complete representation of sentence structure so that students may be able to receive syntactically correct and complete language input.

Another equally notable rationale why teachers are urged to sign in the classroom is to enhance the potential for deaf students to acquire the content being presented. If students are able to receive and comprehend only about 70% of messages or contents presented by the teacher due to absence of visual modality then, it may be probable that students will acquire about the same quantity of knowledge.

3. Word Level Correspondence of Signs and Speech

Teachers' utterances were classified according to part of speech (nouns, pronouns, verbs, adverbs, prepositions, conjunctions, interjections and articles) and were placed under the manner in which they were expressed. Results indicate that simultaneously spoken and signed words ranged from 51 to 79% with a mean of 63% while words spoken only, that is, those unaccompanied by signs, ranged from 10 to 39% with a mean of 29.4%. Words signed only ranged from 0 to 1% while those which were mimed and substituted with similar signs had very low percentage. Speaking out while pointing out persons or objects being discussed seemed to be part of teachers' devices as these were observed in about 2 to 6% of their utterances. Percent of fingerspelled words, meanwhile, appeared to

depend upon certain variables such as teachers' range of sign language vocabulary and the subject or the topic being talked about. As shown in Figure 4, Math VI (T2), English V (T3) and Science IV (T5) Teachers were not found to have used fingerspelling even in a single word while Social Studies IV (T4), English VI (T1) and English IV (T6) Teachers fingerspelled a few of their utterances which ranged from 1.5 to 7.1%. At the time of videotaping, Social Studies IV Teacher who used fingerspelling the highest was talking about former presidents and their outstanding contributions to the nation. In class, she fingerspelled names of presidents and introduced new vocabulary such as land reform, economic mobilization, tenancy, etc. through fingerspelling first before explaining word meanings.

4. Omission of Tense Markers and Plural Endings

Only one of the six teachers signed the past tense form of majority of the verbs he used while the other subjects were able to sign most of the -ing form of verbs neglecting the other tense markers like -ed, -d, -s and -es. The same Math Teacher concretely signed -s and -es plural endings while the rest did not

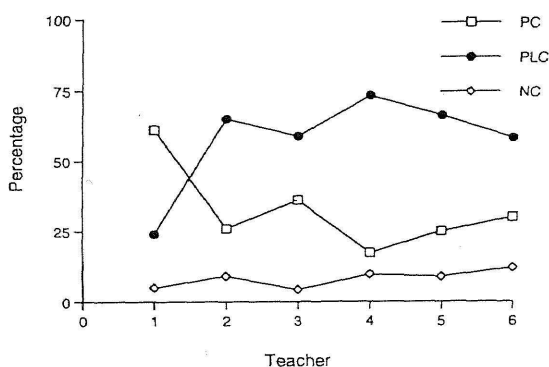


Fig. 3 SLC Sentences of Elementary Teachers

pay particular attention to such.

5. Errors in the Sign Code

Wrong sign was seen to have occurred in a negligible .2 to .4% utterances (one to two words) of four teachers. These were seen in instances like signing “now” for “okay”, “say” for “notice” and “buy” for “sell”. The phrase “closer to the people” was signed using the sign for close, meaning to shut. This sign gives the phrase a completely dissimilar meaning from what the teacher really intended to say.

6. Completeness of Speech and Signs and Sentence Length

Statistics gathered indicate that Teacher 1 has the least MLU of 3.5 and the highest MC percentage of 69.4% while Teacher 4 has the most MLU of 7.8 words in a sentence and the lowest MC percentage of 19.2%. Data further reveal that teachers who have uttered longer sentences have exhibited lower percentages both in message and structural level correspondence. If teachers who have produced shorter sentences obtained higher MLC and SLC and those with longer sentences have lower MLC and SLC, then it may be stated that the longer the sentences, the higher the tendency to produce sentences that

are not simultaneously spoken and signed and vice versa. The finding that PSD High School teachers had higher percentage of deletions, hence, lower MLC and SLC may also be explained by this tendency. The results indicated that High School teachers had higher MLU’s than the elementary teachers in this study. It was ascertained, however, that omissions were observed regardless of sentence length, that is, both longer or shorter sentences were just as likely to contain deletions in the signed portion affecting both the message content and sentence structure.

II. Experience and Sim Com Performance

1. Number of Years in School and Sign Language Level

Teacher 3 who, at the time the study was conducted was teaching Communication Arts English V has been in the school for 25 years. At present, she has obtained a certificate in sign language interpreting and is now an active interpreter. Social Studies Teacher 4 has been in the school for about 13 years and is in the Intermediate level in sign language. English Teacher 1 likewise has served the school for about 11 years and is now in the Advance sign language level. The other three teachers, English Teachers 6, Science Teacher 5 and Math Teacher 2 have been in the school for 7, 5 and 4 years and are in the Interpreters’ and Advance levels, respectively.

2. Sim Com Performance

As noted, Teacher 1 who is in the Advanced level and has been in the school for 11 years has surpassed Teacher 3, an interpreter and who has been teaching the deaf for 25 years. Correspondingly, Teachers 2, 5 and 6 who have been serving the school for less

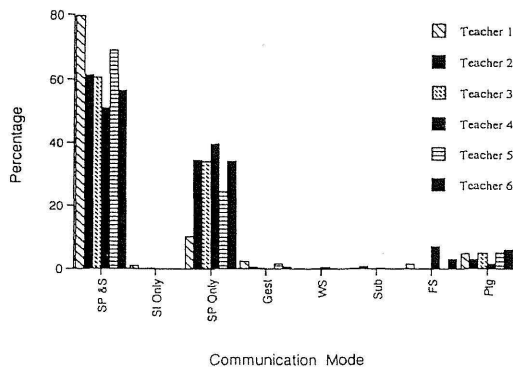


Fig. 4 Communication Mode Percentage in Teachers's Utterances

than 10 years showed preferable performance than Teacher 4 who has been working in the same school for 13 years. A highly probable explanation for this result could be that various approaches such as the manual and the oral modes were used one after the other before its shift to Sim Com so that teachers old and new, might have had parallel length of Sim Com experience.

Depending upon MLC and SLC performance exhibited, it may be stated that a teacher's proficiency to sign as shown by the sign language level he is in does not guarantee better Sim Com performance. Though higher sign language level may assure accuracy in sign execution due to wide range of vocabulary and exposure, it may not, however, warrant that a teacher's spoken utterance will completely be accompanied by signs. In the same manner, teaching experience does not promise acquisition of sign language skill nor superior performance in the use of Simultaneous Communication.

Findings in the present study corroborate with the previous study mentioned in the earlier part which states that the teacher's Sim Com performance were not considerably dependent upon teaching experience, sign language training and subject area taught. In another study, Kluwin (1981), rationalizes that experienced teachers tended to incorporate more ASL forms in their sign codes, thus, they had more frequent deletions of such English structures. On the other hand, other similar studies such as those of Maxwell and Bernstein (1985) and Mayer and Lowenbraun (1990), among others have adverse results which state that experienced teachers were able to produce a high percentage of speech and sign correspondence which ranged from 86 to 98%.

Other factors might be contributing to teachers' sign code deletions such as degree of training given to them, sign language and communication mode policy of the school as well as degree of supervision and monitoring. This supports Luetke-Stahlman's (1988) suggestion that personal and professional motivation influences the development of MCE abilities. Another element, which may be deemed very substantial, is the individual attitude toward communication mode and teacher's level of commitment. Mayer and Lowenbraun (1990), indicated that teachers who are strongly convinced that use of MCE is of benefit to their students had higher rates of sign code accuracy than those who are less convinced.

Conclusions

Findings in this research imply that elementary teachers can produce higher speech to sign correspondence than their High School counterparts. Assumptions may be that elementary school teachers may have had used simpler and shorter sentences than the more complex sentences of High School teachers owing to the relative language sophistication of older students. Teachers may also have the idea that older students have already developed language competency in the higher levels so that it may not be imperative to provide exact sign and speech representation in their utterances. On the other hand, the elementary students need to be provided with a complete language model since they are not yet linguistically proficient.

Likewise, it must be stated here that videotaping of elementary teachers was conducted a year after results of High School teachers' Sim Com performance was submitted to the school administrator. This poses

another possibility that in response to the urgency of improving teachers' communication ability, the administrator might have provided more appropriate programs and more rigid in-service trainings. Regular monitoring and supervision on the school's language policy likewise, might have been carried out. Thus, in the present study teachers tended to provide a more accurate representation of English in their communication.

Nevertheless, to par with subjects in some studies such as those conducted in the United States Britain and Japan, Filipino teachers of the deaf must strive for higher correspondence of speech and sign in their utterances.

Though interpretations have been made, clear-cut factors indicative of the observed Sim Com performance of teachers in this research may not be pointed out. Until a similar study involving larger samples is done, these explanations may be regarded as mere suppositions. Perhaps, a worthy and interesting subsequent study is to find out the students' degree of comprehension and level of language proficiency when Sim Com is used as a classroom mode of communication.

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