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Simultaneous Communication as Used By
Philippine Deaf High School Students

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Abstract

The purpose of this investigation is to find out the Simultaneous Communication performance of deaf High School students from the Philippine School for the Deaf and the Philippine Association for the Deaf. Ten minute utterances of 14 students were videotaped and were analyzed on the basis of the communication modalities and sign variety utilized.

Data gathered indicate that students use Simultaneous Communication employing varied modalities such as signs simultaneously with either speech, mouthing, and fingerspelling. In some instances, students use signs simultaneously with pointing and gestures, signs only, and fingerspelling only in expressing themselves. As regards sign system, it was observed that Philippine School for the Deaf students use ASL (41%), SEE2 (36.1%) and PSE (22.9%) in their utterances. AD students, meanwhile, employ ASL (63.5%) PSE (23%) and SEE2 (13.5%) in their utterances. Sim Com performance of subjects reveal that SD students yielded 60. 3% correspondence and 39.7% non correspondence while AD students produced 76. 1% correspondence and a low 23.9% non correspondence.

Outcomes of this study disclose that though students have high Sim Com performance, attention should be given to the extent in which the English language is used in their expressive communication, particularly in terms of grammar and syntax.

Key Words : Simultaneous Communication, utterances, ASL, PSE, SEE2, school for the deaf

Introduction

Total Communication which came into popular use in the 1970's originated at Santa Anna School District in California, U.S.A. and was developed by Roy Holcomb in 1968.

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Its basic premise is to use every and all means to communicate with deaf children from infancy to school age and the important concept is to provide an easy, free, two-way communication means between the deaf child and his family, teacher and schoolmates (Northern and Downs, 1975).

In the early years of Total Communication, the signs of choice were those that belong to

conventional Manually Coded English (MCE) systems created primarily for the classroom which is likewise based on the premise that by interacting in English in all its modalities, deaf children will have more opportunities to become proficient in the use of English. These MCE systems developed to provide students and teachers with visible, manual equivalents of English words and affixes, include Seeing Essential English (SEE1), Signing Exact English (SEE2) and Linguistics of Visual English (LOVE). Because Total Communication utilizes the MCE systems to simultaneously present English in signs and speech and all its modalities in the same way as Simultaneous Communication, many researchers and educators recognize that Total Communication and Simultaneous Communication mean the same.

At the current time, Simultaneous Communication (Sim Com) which uses signs simultaneously with speech, has been practiced as the primary method of communication in many school programs for the deaf (Mayer & Lowenbraun, 1990). As such, it has been the focus of many researchers investigating on the teachers' Sim Com performance, parents' use of the method, students' use of Sim Com and its effect on the students' language proficiency. Most of the studies examining the teachers' use of signs have assessed the match between signs and spoken English as a measure of linguistic proficiency. For most part, earlier studies have shown that teachers are inconsistent in their modelling of English (Reich and Bick, 1977 ; Marmor and Petito, 1979). Other studies further state that the signing behavior of teachers of the deaf is often inconsistent and the English grammaticality of their messages may be very low when they have no training in the use of MCE

or Simultaneous Communication (Kluwin, 1981 ; Strong and Charlson, 1987 ; Woodward and Allen, 1988). However, recent studies show that teachers can be proficient in their coding of English and they can produce a high sign to speech ratio from 85% to 93% and can transmit an equally high percentage of message correspondence in their utterances (Maxwell and Bernstein, 1985 ; Luetke-Stahlman, 1988 ; Mayer and Lowenbraun, 1990).

Ressearches also show that the use of Sim Com is one means of increasing the effectiveness of signing (Stewart, 1987 ; Johnson and Erting, 1989). Hence, proponents of Sim Com encourage deaf children to speak and sign simultaneously in the classroom setting.

The Philippine School for the Deaf (SD) and the Philippine Association of the Deaf (AD) are two among the schools for the deaf in the country which employ Sim Com and a variant of MCE system. In order to find out whether students from both schools actually use Sim Com in their daily expressive communication activities, this research has been conducted. It is desired that results of the study will contribute to the further development of language and communication for and among deaf individuals.

Objectives

The main purpose of this study was to examine the performance of deaf High School students on their use of Simultaneous Communication.

Specifically, this research aimed to provide answers to the following :

1) In what modes of communication do students express themselves?

2) What sign language system or systems do students employ in their expressive communication?

Table 1   Students' Profile

Subject	Sex	Yr. level	Age	Degree of HL	Type of Deafness
S D 1	M	I	16	severe	postlingual
2	F	I	16	profound	postlingual
3	F	I	14	severe	postlingual
4	F	I	17	profound	prelingual
5	F	IV	17	profound	prelingual
6	F	IV	19	severe	prelingual
7	M	IV	21	profound	postlingual
8	M	IV	27	severe	prelingual
A D 9	F	III	17	profound	postlingual
10	F	IV	20	severe	postlingual
11	M	IV	22	profound	prelingual
12	M	III	19	profound	prelingual
13	F	II	20	profound	postlingual
14	F	I	17.5	severe	postlingual

3) How are the different parts of speech conveyed by students in their utterances?

4) What is the status of the students' performance on their use of Simultaneous Communication?

Methodology

1. Subjects

Fourteen (14) High School students from the Philippine School for the Deaf (SD) and the Philippine Association of the Deaf (AD) have participated in this study. The SD group consisted of 4 students each from the First and Fourth Year levels while the AD group included 6 students from all year levels. Subjects were randomly taken from the teacher recommended list of 30 (total for both schools) students having average communication abilities. See Table 1 for profile.

2. Procedures

Prior to the videotaping session, the subjects were instructed that they will be telling about themselves, their family, school life and their ambitions in life. It was made clear that each one will not have any communicative partner while talking about himself. The videotaping, which lasted for about 10 minutes for every subject was done successively.

Utterances produced were transcribed by 3 experienced interpreters of SD and were analyzed on the basis of communication mode and sign system utilized by the subjects. There was 95% inter-rater reliability for the 3 interpreters in respect to the structural level correspondence of students' utterances.

3. Definition of Terms

Communication modalities were classified and defined in accordance with those used by the students in their videotaped utterances. These include:

◇ Speech & Signs – simultaneous use of intelligible speech with signs.

◇ Mouthing & Signs – use of mouthing simultaneously with signs.

◇ Signs only – use of standard signs.

◇ Mouthing only – use of mouthing.

◇ Speech & FS – simultaneous use of speech and fingerspelling.

◇Mouthing & FS – simultaneous use of mouthing and fingerspelling.

◇FS – use of fingerspelling.

◇Ptg. & Speech – use of pointing together with speech.

◇Ptg. & Mouthing – use of pointing simultaneously with mouthing.

◇GE & Speech – use of gestures along with speech.

◇GE & Mouthing – use of gestures and mouthing. By mouthing means silently pronouncing or speaking an utterance without necessarily producing an audible and intelligble sound.

In order to determine the performance of students on their use of Sim Com, utterances were categorized as those having :

– correspondence when conveyed through two modalities, i.e., either speech or mouthing used simultaneously with signs, fingerspelling, pointing and gestures ; and

– non correspondence when expressed in only one modality such as fingerspelling, pointing, gestures and signs. A high correspondence percentage and a low non correspondence percentage obtained suggests that a student has good Sim Com performance while the reverse indicates poor performance.

4. Method of Analysis

As observed, three sign systems were mainly utilized by the subjects in expressing their utterances. Thus, each sentence in students' utterances was classified as either ASL (American Sign Language), PSE (Pidgin Signed English), or SEE2 (Signing Exact English), the characteristics of which are briefly discussed.

Characteristics of 3 Sign Language Systems

ASL – American Sign Language has (1) its own specific grammatical rules, and syntax is not necessarily related to English language structure, (3) no one-to-one, word-to-sign representation of English, (4) concept based, (5) uses non-manual signals such as facial signals, eye gaze, body shift and other devices to represent time, aspect and quality, (6) uses repetition and sign inflections to indicate plurality and directions.

PSE – Pidgin Sign English (1) combines some ASL signs and uses them in standard English word order, (2) content words are signed following the English word order while inflections and most of the function words are omitted, (3) may omit the copula "to be , does not mark plural on nouns, number or person on verbs and use of tenses or articles are optional, (4) may include some ASL features such as incorporation of subject and object into the motion of certan verbs, (5) no complete representation of English.

SEE2 – Signing Exact English (1) provides a complete representation of English, following the English syntax, (2) has signs for affixes, noun and verb inflections and word endings, (3) is concept based like ASL, (3) root signs from ASL are often adapted by initialization to convey distinctions (Bench, 1992; Swisher, 1983 ; Bernstein & Tiegerman, 1985; Northern & Downs, 1974 ; Downs, 1977).

Results and Discussion

Communication Modes Expressed by Students

Analysis of data indicate that SD students have eminently used signs only in 36.7% of their utterances followed respectively by mouthing & signs-20.1%. Other modes used were : speech & FS-4.2%, mouthing & FS-3.6% ; FS-3.1% ; pointing & mouthing-. 2%,

Table 2   SD and AD Performance on the Use of Sim Com

Modality	S1	S2	S3	S4	S5	S6	S7	S8	ACor	S9	S10	S11	S12	S13	S14	ACor
S & SI	82.1	—	81.3	—	—	—	5.7	—	21	72	81	—	—	39.1	81	45.5
M & SI	—	60.7	—	36.5	44.5	40.6	36.9	29.3	31	10.8	8.1	12.9	60.4	41.4	12.2	24.3
S & FS	17.9	—	16.3	—	—	—	.6	—	4.4	6.4	5.2	—	—	.6.9	2.7	3.5
M & FS	—	12.7	—	.6	4.2	4.9	2.6	2.8	3.5	—	—	.8	2.8	8.1	.7	2.1
P & S	—	—	—	—	—	—	—	—	—	.4	—	—	—	—	—	.1
P & M	—	—	—	1.3	—	—	—	—	.2	—	—	—	—	—	—	—
G & S	—	—	—	—	—	—	—	—	—	—	.5	—	—	1.1	—	.3
G & M	—	—	—	.6	—	—	—	—	.1	—	—	1.3	.7	—	—	.3
T Cor%	100	73.4	97.6	39	48.7	45.5	45.8	32.1	60.3	89.6	94.8	15	63.9	96.6	96.6	76.1
SI only	—	26.6	2.4	46.5	49.6	53.3	49.7	67	36.9	10	3.8	80.7	34.7	3.4	22	22.4
FS only	—	—	—	14.5	1.7	1.2	4.5	.9	2.9	.4	1.4	4.3	1.4	—	1.4	1.5
T NC%	—	26.6	2.4	61	53	54.5	54.2	67.9	39.7	10.4	5.2	85	36.1	3.4	3.4	23.9

and finally gestures & mouthing-. 1%.

Students from AD, on the other hand, have considerably employed speech & signs in 47% of their utterances. The rest were delivered using mouthing & signs-20% ; signs only-25.9% ; speech & FS-3.4% ; mouthing & FS-1.3% ; FS-1.7%; gestures & speech-.2% ; gestures & mouthing-.4% ; and lastly, pointing & speech-.1%. See Table 2.

It may be observed that the use of finger-spelling combined with other modes like speech & mouthing gained comparatively lower percentage than speech & signs or even speech & mouthing. Again, this proves that fingerspelling constitutes less than 15% of the conversation among deaf people because it is potentially stressful and it lacks the sponta-neous dramatic expressive quality that is part of all human language (Fant, 1977 ; Furth, 1973).

Of all the subjects in both groups, only Student 1 expressed -ing and 's affixes through speech in 6.9% (10 words) of his entire utterances. Some students have omit-ted -ing affix either in the signed or spoken portion while the others have seriously signed and uttered the -ing affix in their utterances.

Moreover, there were instances when some English signed words were either spoken or mouthed in Tagalog. Examples exhibited are executing the sign for dress while mouthing the word "baro" (dress), die while speaking out "patay" (to die), finish while speaking out "tapos" (finish), like while speaking out "gusto" (a Spanish Filipino adopted word) and a lot more. These were found to have occurred in. 8% (10 words) of the total num-ber of utterances produced by the SD group and 1% (11 words) for the AD group. Also, words denoting rank or order (first, second, third, etc.) were either pronounced or mouth-ed as numerals like one, two, three and so on. One explanation to account for these, is that mentioned English words might have been difficult to lipread or pronounce so that stu-dents might have been able to learn the Tagalog pronunciation, which might have been easier to do. Another, perhaps, better interpretation could be that parents and the people within the students' environment might have been talking to them in Tagalog, hence the students have learned the Tagalog pronunciation of said words rather than Eng-lish pronunciation.

It may be stated that only Students 1 and 3 of the 8 SD students have excellent speaking

ability who were able to produce very intelligible and audible speech sounds. Student 7 of the same group has also used intelligible speech in a few of his utterances. His spoken utterances, however, consisted of single words rather than sentences as compared with Students 1 and 3. Records reveal that Student 1 was mainstreamed in a regular school in his elementary years while Student 3 has had special speech lesson until about her fourth grade in the elementary level.

For the AD group, Students 9, 10, 13 and 14 have intelligible speech though not as clear as those of Students 1 and 3.

Although speech lessons and trainings were provided to subjects in their lower elementary years, this may not guarantee good speaking ability as there are many factors, most unrelated to intelligence, which affect the child's speech. Also, no matter how much training they receive, deaf children's speech will never sound exactly "normal", but can be understood by those accustomed to their voice production in most cases. (Katz, et al, 1978). This statement is supported by the findings of lvimey (1977) in his study which describes that the actual sounds produced by 10 to 11 year olds were very deaf, articulation was weak, transitions blurred, sequences were restricted in length and the elements were limited in number.

Nevertheless, though students in this study have obtained low average percentage in the simultaneous use of signs and speech (20.1% for SD and 47% for AD), it was observed that they too have employed mouthing simultaneously with signs. The use of mouthing instead of speech connotes that the subjects have tried to use speech but were restricted to do so for reasons such as those of the above. This mouthing or "speaking silently"

was also observed among deaf subjects of Maxwell and Bernstein (1985) who explored the correspondence of speech and signs of deaf children.

Data collected in the present research indicate that subjects were able to obtain high percentages using signs simultaneously with other modes such as speech, mouthing, fingerspelling, gestures and pointing. These figures signify that students have prominently used Sim Com in majority of their utterances. See Figure 1.

These findings correspond with the results of an earlier study conducted to the same groups (Arevalo & Kusanagi, 1995 ; 1996) where the subjects were found to have selected Sim Com as their most preferred mode. However, with defferent communication partners, they were found to have been employing varied modes which are remarkably dependent upon the communication ability of their partners.

Sign System Employed by Students

Transcribed utterances manifest that students have used three sign systems (ASL, PSE and SEE) in their expressive communication. Classified according to the distin-
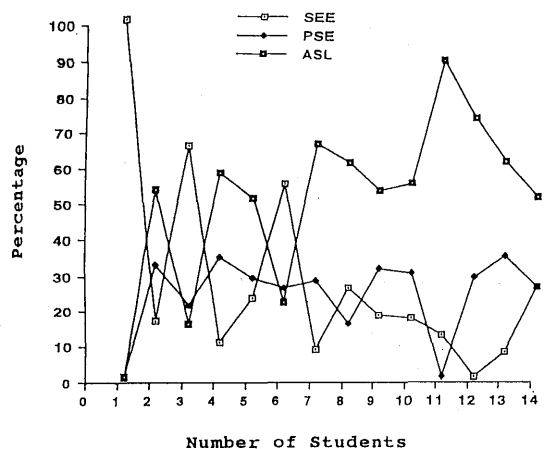

Fig. 1 Sign Systems Used By Students

guishing features of the three sign systems, collected data show that SD students have used 36.1% of SEE2 ; 22.9% of PSE ; and 41% of ASL in their entire utterances. AD subjects, meanwhile have utilized 13.5% of SEE2 ; 23% of PSE and 63.5% of ASL in their entire videotaped utterances.

Data of SD subjects further indicate that SEE2 was used by 3 students in about 54 to 100% of their utterances. PSE was utilized by 4 students in about 27 to 32% of their entire utterances while ASL was considerably used by 5 students in about 50 to 65% of their utterances. Students 3 and 6, however, who have high SEE2 percentage have used ASL in a low 15 to 21% of their utterances.

Furthemore, 4 AD subjects have used SEE2 from 6.1 to 17.47, range while Student 14 has a little higher percentage of 25% and Student 12 did not even have a single SEE2 sentence. But for Student 11 who has no PSE sentences, all the other 5 subjects have PSE percentages ranging from 25 to 33%. ASL was immensely used by all AD subjects in about 50 to 89% of their utterances.

It may be recalled that in the same survey conducted by Arevalo & Kusanagi, ASL emerged as the most preferred sign system, followed by SEE and PSE, respectively.

Hence, it may be stated that there is correspondence between results of previous research and the present study where ASL was seen to have been used by both groups in majority of their sentences. For the SD students, data holds true even for the SEE and PSE signs since there were more SEE than PSE sentences. In the case of AD subjects, on the other hand, there were more PSE than SEE sentences.

In the following transcribed utterances of students, the distinct characteristics of 3 sign systems described may be discerned. It may also be construed that ASL and PSE features like sign inflections, directionality, repetition and facial expressions such as nodding and shaking of the head for positive and negative responses were observed in the videotapes of students. Directionality was used in phrases such as "tease me", "tell me", etc., where tease and tell were signed toward self so that the word me doesn't need to be signed anymore. Sign inflection was observed in the phrase "First Year" where the word year was no longer signed as it was inflected when the word first was signed. It was also noticed that some students have used ASL vocabulary while others have used SEE2 vocabulary in their utterances. As shown in Fig. 2,
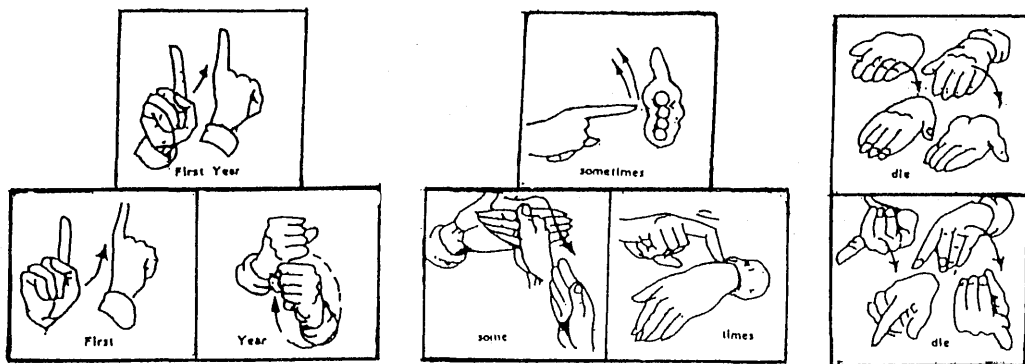

Fig. 2   Differences in ASL and SEE2 Vocabulary

"sometimes" was signed in ASL by striking the palm of the right hand using the left index fingertip upward twice while in SEE2 some and times were signed as separate words. In addition, initialization of some words were also noticed such as signing "die" using the "D" hands instead of just using the "B" hands to execute the sign for the word.

The Different Parts of Speech as Conveyed by Students

As shown in Figure 3, all parts of speech for SD students were mostly uttered through simultaneous use of signs and speech or mouthing and signs only. Aside from these modes, some nouns were uttered through speech & FS and FS only, a number of pronouns were expressed through pointing and mouthing, and a few adverbs were uttered through gesture and mouthing. Also, SD subjects have produced a total of 166 sentences; 1,132 words; and 604 vocabulary. Each student had an average of 20.8 sentences; 141.5 words; 75.5 vocabulary; and an MLU of 6.9 words in a sentence. With respect to classifi-

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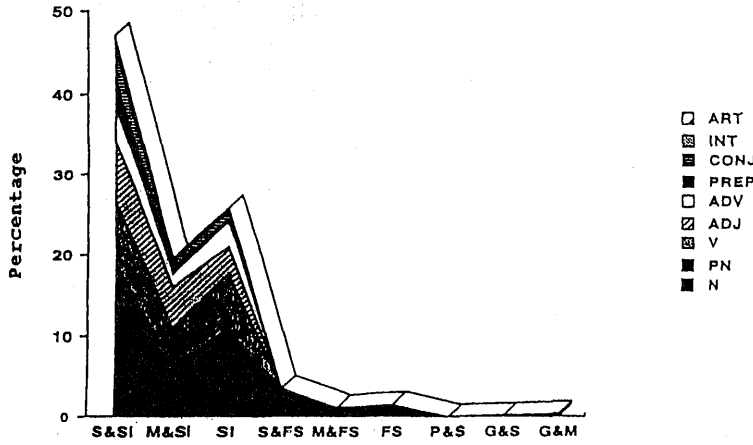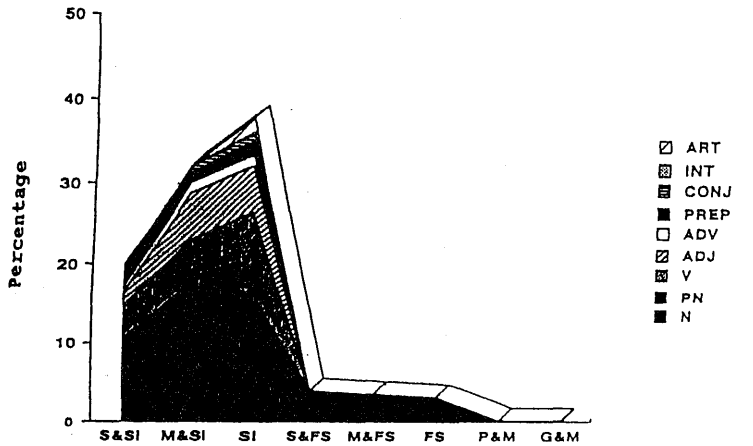

Philippine Association for the Deaf Students

Fig. 3　Percentage Distribution of Parts of Speech and Modality Used

cation by part of speech, nouns obtained the highest percentage of 41.5%, followed by verbs – 19.8% ; pronouns – 13.7% ; adjectives – 13.3% ; prepositions – 4.9% ; adverbs – 3.5% ; conjunctions – 2.1% ; interjections – .4% and articles – .8%.

Like their SD counterparts, the AD subjects have expressed majority of the different parts of speech through signs and speech or mouthing and signs only. Other than these modes, however, a number of nouns were expressed through speech & FS, mouthing & FS and FS only, a few adverbs were uttered through pointing & speech and gestures & speech. In addition, AD students have uttered a total of 126 sentences ; 1,071 words ; and 487 vocabulary. Each had an average of 21 sentences ; 178.5 words ; 81.6 vocabulary ; and an MLU of 8.3 words in a sentence. Categorized by parts of speech, nouns produced had the highest percentage of 33.1% succeeded by verbs – 19.2% ; abjectives – 16.3% pronouns – 9.6% ; adverds – 9.3% conjunctions – 6-9% ; prepositions – 4.3% ; interjections – 1.2% ; and articles – .1%.

Results of this study corroborates with that of Tate (1980) whose subjects have generated relatively the same proportion of parts of speech in which nouns were produced the highest with prepositions, adverbs, conjunctions and articles, respectively having the least number. Conjunctions commonly used in the present study include "because", "and", "but" and "so", while Tate's had "and", "then" and "but". The use of unnecessary conjunctions have made the students' sentences a little longer than the average length of 7 words.

In a research on the Sim Com performance of teachers (Arevalo & Kusanagi, 1996), it was revealed that teachers have omitted seemingly less important words such as conjunctions, interjections and articles in the signed portion of their utterances. Since the language input received by the students were simplified because of these omissions, their language output likewise manifest same deletions as reflected in this study. Data collected serves as another proof that the output is the input with a twist.

Status of the Students' Performance on their Use of Simultaneous Communication

Statistics shown on Table 2 are indications that majority of the students employ Sim Com in their expressive communication. It may be observed that among the SD group, Student 1 yielded 100% correspondence ; while Student 3 has 97.6% correspondence and Student 2 has 73.4% correspondence. The other subjects garnered the following percentage correspondence ; Student 5-48.7% ; Student 7-45.8% ; Student 6-45.5% ; Student 4-39% ; and Student 8-32.1%. Average correspondence percentage for the group is 60.3%. High non correspondence (NC) percentage obtained are seen in the utterances of the following : Student 8-67.9% ; Student 4 -61% ; Student 6-54.5% ; and Student 7-54.2%. Student 2 has a low NC of 26.6% while Student 3 has a negligible NC of 2.4%. Average NC percentage is 39.7%.

The AD subjects produced higher average correspondence percentage of 76.1% compared with their SD counterparts. Although there was no one among the AD group who scored 100% correspondence percentage, 4 of them obtained more than 90% correspondence, namely : Students 13 and 14-96.6% ; Student 10-94.8% ; and Student 9-89.6%. Student 12 has 63.9% while Student 11 has a very low correspondence percentage of 15%. Non correspondence percentage averaged to

23.9% with Student 11 having the highest NC of 85%. The rest of them yielded the following: Student 12-36.1%; Student 9-10.4%; Student 10-5.2%; and Students 13 and 14 who both have 3.4% NC percentege.

Like their teachers in the study mentioned earlier, it may be inferred that students in the present research were able to use signs simultaneously with speech or mouthing in about 60 to 80% of their utterances. However, teachers employed signs alone in a low .9% of their entire utterances which is in contrast with the students' 36.7%. Another opposing outcome is that the teachers have utilized speech only in 25% of their utterances while the students did not have such in any single occurrence, except for some affixes by Student 1.

As indicated, AD students have higher Sim Com performance than their SD counterparts. This discrepancy may not be due to the communication modality they have been using since both schools adopt Sim Com as their language policy, nor will this be caused by speech trainings since both schools have such. Neither will this be an effect of the subjects' degree of hearing loss since there were those who performed well despite having profound deafness. It may then be concluded that said discrepancy may partly be attributed to the subjects' type of deafness wherein 50% of the SD subjects have postlingual deafness while 67% of the AD subjects have the same condition (Table 1). Hence, there are more AD subjects who have developed language bafore they were deafened, enabling them to use speech in majority of their utterances. It may therefore be deduced that those students having postlingual deafness (but for Student 7) have obtained higher performance as against those who were prelingually deaf. However, a similar study involving more subjects is necessary to make this a general statement.

One may also wonder why despite having more ASL sentences than SD subjects, AD students still obtained higher Sim Com performance than the former. This may be explained by the fact that the simultaneity of speech and signs were counted regardless of the sign system used in each utterance giving consideration to distinguishing features of ASL and PSE such as sign inflections and directionality.

Conclusion

It may be perceived that about 50% of the subjects were not able to produce clear and intelligible speech as a requisite for Sim Com. Nevertheless, it is worthy to state that they were able to compensate for this inadequacy through the use of mouthing while executing signs, fingerspelling or gestures. Thus, regardless of said imperfection, the students were able to use Sim Com as an effective means of communication, particularly that of self expression.

Consequently, analysis of subjects' utterances discloses that students can learn the system and can perform Sim Com in about 60 to 80% of their utterances. If one is to say, however, that Sim Com is to be used in an attempt to provide sign for every spoken utterance, the goal being to present every aspect of English morphological structure manually as well as orally, then the subjects in this study should be taught to use any form of MCE sign system more than they used to. It is to be made clear that though students have used signs and speech or mouthing simultaneously in over 60% of their utterances, the goal of providing exact English

representation was defeated. This may be attributed to the fact ASL was used in 40 to 65% of students' utterances while SEE was employed in only 10 to 36%. As a result and as proven by other researches, the language expressed by deaf students is charactarized by certain types of errors, such as syntax errors, additions, omissions and undue use of carrier phrases known as "deafism" (Myklebust, 1964 ; Flores & Ueno, 1989).

Using Sim Com is not just any ordinary task, for, again the students' language competence poses serious consideration. If students' expressive language is distinguished by these types of errors, then it would be difficult for them to construct grammatical sentences. If they find difficulty in expressing their thoughts in correct syntax, then they may not be able to use any MCE sign system. Therefore, educators, parents and those around the children's environment who play great role in this process of language acquisition and communication must always provide correct and complete language models to their deaf children. School administrators, likewise, must exert efforts to impove the status of children's linguistic abilities by way of utilizing effective approaches and strategies.

To potently accomplish its goal of providing complete and correct language model, Sim Com practitioners are urged to simultaneously use speech with signs and adopt a sign system that will syntactically represent the language being used.

References

Arevalo, E., Kusanagi, S. (1995) : "Status of Communication Modes in Philippine School for the Deaf" Bulletin of Special Education, University of Tsukaba, 19,97–111.

Arevalo, E., Kusanagi, S. (1996) : "The Use of Simulataneous Communication in the Philippine School for the Deaf" Bulletin of Special Education, University of Tsukaba, 20,23–34.

Bench, R. J. (1992) : Communication Skills in Hearing Impaired Children. London, England, Whurr Publishers Ltd., 102 –103.

Bernstein, D., Tiegerman, E. (1985) : Language and Communication Disorders in Children. Columbus, Ohio, Charles E. Merill Publishing Co., 283–284.

Downs, M. P. (1977) : Goals and Methods of Communication. In Jaffe, B. F. (ed.) Hearing Loss in Children A Comprehensive Text. Baltimore, Maryland, University Park Press, 734–735.

Fant, L. (1977) : Sign Language, USA, Joyce Media, Inc.

Flores, E., Ueno, M. (1989) : "A Study on the Written Language Abilties of Hearing and Deaf High School Students in Japan and in the Philippines". Final Report Compilation of 8th In-Service Training for Overseas Teachers, University of Tsukuba.

Furth, H. G. (1973) : Deafness and Learning. Wadsworth Publishing Co., Inc., California, 18.

Katz, L. et. al. (1978) : The Child in the Public Schools. Illinois, USA, The Interstate Printers and Publishers, Inc.

Kluwin, T. N. (1981) : "The Grammaticality of Manual Representations of English in Classroom Settings", American Annals of the Deaf, June, 420.

Marmor, G., Petito, L. (1979) : "Simutaneous Communication in the Classroom : How Well Is English Grammar Re-

presented?", Sigh Language Studies, 3, 99-102.

Mayer, P., Lowenbraun, S. (1990) : "Total Communication Use Among Elementary Teachers of Hearing Impaired Children". American Annals of the Deaf, 135 (3), 257.

Maxwell, M., Bernstein, M. (1985) : "The Synergy of Sign and Speech in Simultaneous Communication". Applied Linguistics, 6 (1), 79.

Myklebust, H. (1964) : Psychology of Deafness. Sensory Deprivation, Learning and Adjustment, New York, Gruns and Stratton Inc., 259.

Northern, J., Downs, M. (1974) : Hearing In Children. Baltimore, Maryland, The Williams and Wilkins Co., 260.

Swisher, V. M. (1983) : "The Representation of English in the Signing of Hearing Mothers to Their Hearing Impaired Children", Doctoral Dissertation. Michigan, University Microfilms International, 2-5.

Take, M. A. (1980) : "A Study of Patterns of Language Development in a Sample of Hearing Impaired Children", Journal British Association Teachers of the Deaf (4) 6, 1980.

Wodlinger-Cohen, R. (1991) : "The Manual Representation of Speech by Deaf Children, Their Mothers, and Their Teachers". In Siple, P. and Fischer, S. (eds.) Theoretical Issues in Sign Language Research. University of Chicago Press, 2, 149-169.

Wooward, J., Allen, T. (1989) : "Classroom Use of Artificial Sign Systems By Teachers", Sigh Language Studies, 77, 290-291.