

CLASSROOM USE OF ARTIFICIAL SIGN SYSTEMS BY TEACHERS

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Abstract

In 1985 the Center for Assessment and Demographic Studies at Gallaudet sent a questionnaire asking about classroom communication practices to teachers of more than 4,500 hearing-impaired students, selected at random from a data base of more than 50,000. An earlier paper (SLS 54) focused on teachers who claimed to use American Sign Language as their preferred medium of classroom instruction. Here we focus on the teachers who reported that they use an artificial sign system for representing English. Thirty-nine percent of all teachers surveyed and 59.1% of signing teachers reported that they used an artificial sign system in the classroom. However, a series of questions asking about specific communication behavior demonstrated that only 8.1% of all teachers, and 12.3% of signing teachers may actually be using one of these systems. (Certain information on data collection and analysis has been repeated here for readers who may not have access to the earlier report.)

Classroom use of signing

Studies of sign language variation in the United States have reported diglossia (Stokoe 1969) or a diglossic continuum (Moores 1972, Woodward 1972) between ASL and English represented in signs. As one approaches the English end of the continuum there is a clear shift to English word order; however, there is a considerable amount of variation among signers as to vocabulary choice and the number of English function words and affixes that are manually represented. Until the 1960s signers could choose one of three major patterns when they wanted to use English-like signing: (a) ASL signs in English word order, (b) pattern (a) with some function words manually represented

(usually fingerspelled), or (c) pattern (b) with some English inflections and derivations manually represented.

In the 1960s a number of Manual English sign systems were developed in the attempt to represent English more closely. Sign vocabulary choice is one of the crucial differences between such artificial systems of Manual English and previously existing varieties of signing English. While the makers of these artificial systems claim to use ASL vocabulary, they do not do so in a way that is consistent with ASL; e.g. ASL has different signs that translate 'look for' and 'look at' but Manual English systems represent *look* with the same sign for both meanings and use different separate signs for *for* and *at*. Another important difference is that developers of artificial sign systems believe that using an artificial sign they invent for an English word is better than fingerspelling it; and they claim that their system represents English better than other methods of English-like signing and will result in greatly improved English language skills if used with deaf students.

Although the development of these artificial systems for representing English manually began in the 1960s (cf. Bornstein 1973), there has been little attempt to assess the relative frequency of their use in deaf education. Two studies (Jordan, Gustason & Rosen 1976, 1978) have reported that the majority of programs surveyed report using "total communication." The authors suggest that, from the sign language textbooks used, many of these programs are using one of the artificial sign systems. These studies, however, surveyed programs, not classroom teachers, and the sign language books used as primary resources, on vocabulary and usage in the program were taken as true indicators of the particular system used by the teachers.

In the present study we examine empirically the kinds of classroom communication used by teachers of hearing-impaired students, and we draw from these data several conclusions about their proclaimed versus their actual use of artificial sign systems. We focus specifically on the four major sign systems used in the U.S.A. (cf. Bornstein 1973): SEE I, Seeing Essential English; SEE II, Signing Exact English; LOVE, Linguistics of Visual English; and SE, Signed English.

Data collection

Data for this study were collected in the spring of 1985 by the Gallaudet Research Institute's Center for Assessment and Demographic Studies (CADS). The population for the study was drawn from those programs supplying data to the Annual Survey of Hearing Impaired Children and Youth, which collects demographic and educationally relevant data on over 50,000 hearing-impaired students in the U.S. From the 1983-84 Annual Survey data base, 4,500 students were randomly selected and assigned to one of three subject area stratification groups: reading, math, and social studies. Questionnaires were sent to the programs enrolling these students, with instructions to distribute them to the reading, mathematics, or social studies teachers of the students. This stratification was done to ensure that teachers in a variety of academic contexts were represented in the data base. Because sampling was not carried out on an individual student basis, some teachers received two or more questionnaires. The primary aim of the study being to describe the background characteristics of teachers and their communication patterns, the duplicate responses from these teachers were eliminated from the data base. The resulting file contained information on 1,852 teachers. The great majority of them were (self-classified) hearing (89.0%), 6.7% deaf, and 4.3% hard of hearing.

Data analysis

One way to determine language use in the classroom is to ask teachers what language they use. One question on our questionnaire took this approach:

The following list consists of phrases which have been used to characterize types of signing. Which of these best describes the signing that you use when teaching this student? (Choose only one.)

- A. American Sign Language (ASL or Ameslan)
- B. Pidgin Sign English (PSE)
- C. Seeing Essential English (SEE I)
- D. Signing Exact English (SEE II)

- E. Signed English
- F. Linguistics of Visual English (LOVE)
- G. Other

As Table 1 indicates, 722 teachers claimed to be using one of the four major artificial sign systems, C, D, E, and F above. These teachers comprised 39.0% of the total number of 1,852, and 59.1% of the 1,221 teachers who reported signing to their students. The great majority of the 722 teachers claimed that they are using either Signed English (52.6%) or SEE II (42.5%). Less than 5% of the teachers claimed to be using SEE I (4.6%) or LOVE (0.3%).

System reporting C-F	No. teachers	% of teachers		
		N = 1,852	N = 1,221	N = 722
Signed English	380	20.5	31.1	52.6
SEE II	307	16.6	25.1	42.5
SEE I	33	1.8	2.7	4.6
LOVE	2	0.1	0.2	0.3
<i>Totals</i>	<i>722</i>	<i>39.0</i>	<i>59.1</i>	<i>100</i>

Table 1. Artificial sign systems teachers claim to be using

As a check on direct questioning about communication usage the questionnaire also contained specific behaviorally oriented questions that would indirectly assess the teachers' language use. These questions were designed so that the answers would ultimately eliminate those teachers who could not logically be using one of the artificial sign systems. The questions and their significance are presented below.

Read the following two English sentences:

He is looking at me.

I am looking for him.

A. When communicating the meaning of the two English sentences above to the named student in the classroom, indicate how you would communicate each of the following: (a. Would fingerspell; b. Would use separate sign or gesture; c. would include as part of another sign; d. would omit)

He	(a, b, c, or d)	I	(a, b, c, or d)
is	(a, b, c, or d)	am	(a, b, c, or d)
look	(a, b, c, or d)	look	(a, b, c, or d)
-ing	(a, b, c, or d)	-ing	(a, b, c, or d)
at	(a, b, c, or d)	for	(a, b, c, or d)
me	(a, b, c, or d)	him	(a, b, c, or d)

B. When communicating the meaning of the two English sentence above to this student in the classroom, indicate how you would normally sign the following words:

(a. Would use the same sign for each; b. Would use a different sign for each; c. Would not sign one or both of these words)

He and Him	(a, b, or c)
I and Me	(a, b, or c)
Am and Is	(a, b, or c)
Look, in both sentences	(a, b, or c)

While each of the four major artificial sign systems has a number of differences in the way that they sign some sentences, a teacher using any of them would have to have the same answers for the two questions above if he or she is using the system correctly. For question A, a teacher using any of the four should respond with **b** "use a separate sign or gesture" for each of the English morphemes in column one. For question B, a teacher using any of the four should respond **b** "use a different sign for each", for **he** and **him**, and **am** and **is**. The teacher should respond **a** "use the same sign for each", for **look**, in both sentences. Essentially, then, there are three different ways a teacher could violate principles of artificial sign systems: (a) using

fingerspelling when there is already a sign for the morpheme (answering **a** to any of the items in question A); (b) omitting signs for English morphemes (answering **c** or **d** to any of the items in A), and (c) not using appropriate sign vocabulary for the artificial sign systems (answering **a** "...the same sign for each" for **he** and **him**, **I** and **me**, or **am** and **is** -- or answering **b** "...a different sign for each" for **look** in both sentences).

Table 2 provides information on the numbers of teachers who claim to be using one of the four major artificial sign systems (**proclaimed use**) and the numbers of teachers who report signing the example sentences according to the principles of these systems (**inferred use**).

System	No. teachers		% of teachers		% signing tchrs	
	Pro	Inf	N = 1,852		N = 1,221	
			Pro	Inf	Pro	Inf
Signed English	380	48	20.5	2.6	31.1	3.9
SEE II	307	94	16.6	5.1	25.1	7.7
SEE I	33	8	1.8	0.4	2.7	0.7
LOVE	2	0	0.1	0.0	0.2	0.0
<i>Totals</i>	<i>722</i>	<i>140</i>	<i>39.0</i>	<i>8.1</i>	<i>59.1</i>	<i>12.3</i>

Table 2. Proclaimed vs. inferred sign system usage.

It is clear from Table 2 that the percentage of teachers using these systems that can be inferred from responses to questions is much lower than the percentage claimed by the teachers themselves -- from three to seven times lower. Only 150 of these 722 teachers (20.8%) who claim to be using one of the four systems actually report signing the sentences on the questionnaire according to the principles of the four systems. Thirty-three teachers claimed that they were using SEE I as their preferred method of classroom communication; however, only 8

(24.2%) of the 33 actually followed SEE I principles according to their answers. Of the 307 teachers claiming to use SEE II in the classroom only 94 (30.6%) of them actually followed SEE II principles in reporting how they would sign the example sentences. Two teachers claimed to be using LOVE as their preferred method, but both of them violated principles of the method when they answered the same questions. Three hundred and eighty teachers claimed that they were using Signed English (for the purposes of this study we are assuming the narrow definition of Signed English as the specific artificial system developed by Bornstein and associates (Bornstein 1973); but only 48 (12.6%) of these 380 teachers actually followed Signed English principles in reporting their way of signing the examples.

It is interesting to note that proponents of Signed English explicitly advocate omitting English inflections and function words and using ASL sign vocabulary if the teacher is sure that the student has mastered the English constructions in question (cf. Bornstein 1982). It is impossible to know from our data if teachers are violating the artificially designed principles of Signed English intentionally because the student they are signing with has achieved mastery of English or because the teachers themselves are not consistently using the principles of Signed English. Whichever is the case, it is clear that the majority of teachers who claim they are using Signed English are not using the artificially designed characteristics of Signed English but are approximating grammatical and lexical structures common to Pidgin Sign English (cf. Woodward & Markowicz 1980).

Table 3 records the number and percentage of violations of three types of the principles of artificial Manual English systems, as inferred from the teachers' own answers to questions:

Violation	SEE I	SEE II	LOVE	Signed Eng	Total	
N=	33	307	2	294	722	
Inappropriate (77.4%) vocabulary	20 (60.6%) 477 (66.1%)		161 (52.4%)		2	294
Omit English (53.2%) morphemes	15 (45.5%) 342 (47.4%)		125 (40.7%)		2	202
Fingerspell tho sign exists	7 (21.1%)	40 (13.0%)	1	97 (25.5%)	145 (20.1%)	

Table 3. General violations of artificial manual English systems.

As the table shows, nearly two-thirds (66.1%) of the teachers claiming to use one of the artificial sign systems report using sign vocabulary inappropriate to the system of their choice; almost half (47.5%) report omitting one or more English morphemes in their signing of the two sentences in the question; and one fifth (20.2%) report that they would fingerspell one or more of the morphemes in the sentences instead of using signs.

Twenty of the 33 teachers claiming to use SEE I reported using vocabulary inappropriate to SEE I for one or more of the English words. Fifteen of these 33 (45.5%) reported omitting one or more morphemes, and seven (21.1%) reported that they used fingerspelling instead of signs for one or more English morphemes.

Of the 307 teachers claiming to use SEE II, 161 (52.4%) reported using sign vocabulary inappropriate to SEE II; 125 of the 307 (40.7%) reported omission of words; and 40 (13%) reported using fingerspelling instead of signs.

Neither of the two teachers claiming to use LOVE reported using accepted LOVE sign vocabulary for one or more English words, but both reported that they would use fingerspelling where LOVE would require the use of a LOVE sign. One of these teachers also reported omitting English morphemes from the sign sentences in the question.

A large majority, 294 of 380, or 77.4%, of the teachers who claimed to use Signed English reported using vocabulary inappropriate

to SE; 202 (53.2%) reported omissions; and 97 (25.5%) reported fingerspelling instead of using SE signs for one or more English morphemes.

In addition to the three general types of violations, reported ways of signing individual morphemes in the example sentences are also revealing. Table 4 presents a rank ordering of specific violations of artificial system principles:

Violation	SEE I	SEE II	LOVE	Signed Eng	Total	
	33	307	2	294	722	
LOOK (sent. 1) (68.2%)	20 (60.6%) 430 (59.6%)		151 (49.2%)		0	259
LOOK (sent. 2) (68.2%)	20 (60.6%) 429 (59.4%)		150 (48.9%)		0	259
-ING (sent. 2) (51.1%)	14 (42.4%) 327 (45.3%)		117 (38.1%)		2	194
-ING (sent. 1) (45.8%)	13 (39.4%) 300 (41.6%)		111 (36.2%)		2	174
HE (37.4%)	5 (15.2%) 201 (27.8%)		52 (16.9%)		2	142
HIM (34.7%)	6 (18.2%) 188 (26.0%)		48 (15.6%)		2	132
AT (23.7%)	5 (15.2%) 118 (16.3%)		22 (7.2%)		1	90
AM (17.6%)	3 (9.1%) 96 (13.3%)		26 (8.5%)		0	67
IS (17.4%)	2 (6.1%) 95 (13.2%)		26 (8.5%)		1	66
FOR (12.9%)	3 (9.1%) 73 (10.1%)		21 (6.8%)		0	49
I (10.8%)	5 (15.2%) 67 (9.3%)		20 (6.5%)		1	41
ME (3.2%)	1 (3.0%) 14 (1.9%)		2 (0%)		0	12

Table 4. Violations, morpheme-by-morpheme, of artificial sign system principles.

The most common violation occurs in the responses teachers gave for LOOK in both sentences. Sixty percent of all teachers claiming to use artificial Manual English signing report the use of the ASL sign for LOOK instead of the Manual English system's sign; this is a very important violation because vocabulary choice is the primary distinction

between artificial English sign systems and already existing Manual English sign varieties used in the deaf community. The second most common violation is a grammatical one. Almost half of the teachers report omitting the English inflectional ending "-ing". This would indicate that these teachers are signing something more like Pidgin Sign English than artificial Manual English (whose devisers insist that it is through the use of signs for inflectional endings that deaf children will acquire English grammar). The third most frequently occurring violation occurs with teachers who report fingerspelling, omitting, or using the ASL sign for *he* and *him* instead of using the artificial Manual English signs for the words. Other common violations include the omission of *at*, *am*, and *is*, and to a lesser extent fingerspelling these words.

We also considered that it is possible that some teachers who say that they use an artificial sign system are not familiar with the name of the system as given here. To check this we examined the answers of teachers who said they were using something other than one of the four major systems. Seventeen of these teachers followed the principles of artificial Manual English systems, according to their answers on how they would sign the two sentences. Eight of these 17 had checked "Other" and two left the answer blank. Four teachers erroneously checked American Sign Language and 3 erroneously checked Pidgin Sign English. Even if these 17 additional teachers are added to the totals, the percentages of use given in Table 2 are changed by only about one percent. The percentage of total teachers who actually, according to their detailed answers, follow the principles of artificial sign systems would change from 8.1% to 9.0%; of signing teachers likewise would change from 12.3% to 13.6%.

One additional topic needing attention is the social background characteristics of teachers who use artificial sign systems. The great majority of the 167 (150 + 17) teachers whose answers show that they follow the principles of artificial Manual English signing systems are hearing (95.2%). They report little or no social interaction with deaf adults (92.2%), and they teach in a non-residential school program (81.4%), at a level below high school (76.1%). Hearing status and type

of program are the only significant variables that relate to whether the teachers are likely to report following the systems' principles in their signing. Table 5 indicates that hearing teachers are most likely to use a Manual English system; hard-of-hearing teachers are less likely to use such a system; deaf teachers least likely to use one.

System	Use ME Sign system	Do not use ME Sign
Hearing	159 (15.3%)	883 (84.7%)
Hard-of-hearing	5 (8.9%)	51 (91.1%)
Deaf	3 (2.4%)	120 (97.6%)
Totals	167 (13.7%)	1,054 (86.32%)

Table 5. Use of Manual English sign system by hearing status.
 $\chi^2 = 16.44$, $df = 2$, $p = 0.0003$

Table 6 shows the relation of ME use signing to the type of school. Hearing teachers who teach in local school programs are most likely to use such a system, less likely in day schools, and least likely in residential schools. When controlling for hearing status and type of program, no other variables showed statistically significant relationships with whether or not a teacher reports following the principles of artificial Manual English signing systems.

System	Use ME Sign system	Do not use ME Sign
Local School	106 (22.7%)	361 (77.3%)
Day School (86.7%)	12 (13.3%)	156
Residential School	29 (7.4%)	364 (92.6%)
Totals	159 (15.3%)	881 (84.7%)

Table 6. Use of Manual English sign system by program type.
 $\chi^2 = 39.31$ $df = 2$, $p = 0.0000$

Summary

While a large proportion of the teachers and the majority of signing teachers claim to be using one of the artificial Manual English signing systems, only a very small percentage of the teachers surveyed actually follow the principles of these systems when reporting how they would sign specific English sentences. These data do not bear out the claim of Jordan (et al. 1976, 1978) about the probable frequency of use of Manual English systems. Quite possibly a number of programs have books on the artificial Manual English sign system in use available to teachers; however, if this is true, the data indicate that most of the teachers are not following the rules that appear in these books. Less than 10% of all teachers surveyed and less than 15% of signing teachers are accurately using any form of artificial Manual English signing in the classroom.

The majority of teachers claiming to use one of the artificial sign systems (66.1%) report using sign vocabulary inappropriate in the system they claim to use; i.e. they report using ASL signs instead of the appropriate ME signs. Almost half of the teachers (47.5%) claiming to use one of the artificial sign systems report omitting one or more English morphemes in signing the two sentences, a strong violation of principles of artificial sign systems designed to represent English. One fifth of the teachers (20.2%) claiming to use one of the systems report fingerspelling one or more of the English morphemes instead of the prescribed sign, another direct violation of the principles of artificial Manual English sign systems.

Two variables, hearing status and the type of school program, show statistically significant dependency relations with whether a teacher reports following principles of Manual English signing systems. Hearing teachers are most likely to report using signing that is consistent with a Manual English signing system; hard-of-hearing teachers less likely, and deaf teachers least likely to do so. Hearing teachers who teach in local school programs are most likely to report

signing consistent with an artificial system's principles, are less likely to do so if they teach in day schools, and least likely to do so if they teach in residential schools.

Note. Production of this paper was supported in part by Sign Language Research, Inc.

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