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QUESTIONS IN ENGLISH OR AMERICAN SIGN LANGUAGE TO ACCESS READING SKILLS OF DEAF HIGH SCHOOL STUDENTS

A Thesis

Presented for the

Master of Arts

Degree

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ABSTRACT

A reading skills assessment from the Hearing-Impaired version of the Stanford Achievement Test (SAT-HI) was administered to twelve deaf students in a residential high school. Half of the test questions were administered in written English and the other half in videotaped American Sign Language (ASL). The mean ASL scores were not significantly different than the mean English scores.

As a descriptive measure, correlation coefficients were calculated to investigate the relationship between some of the variables. English questions and ASL questions both showed a moderate correlation with the grade level scores on the SAT-HI administered by the classroom teachers.

Some subjects scored higher on the ASL questions than on the English questions. This occurred more often for subjects with low reading scores. For these subjects questioning in ASL provides another reference point and possibly a more meaningful measure of reading skills.

This study was unique because it used ASL questions to measure reading skills. This technique had not been reported in the literature.

A more extensive study with more subjects is needed within specific reading levels.

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CHAPTER I

INTRODUCTION AND REVIEW OF LITERATURE

Introduction

Hearing-impaired children with severe or profound hearing losses consistently score lower than normal-hearing children on reading and achievement tests such as the Stanford Achievement Test (SAT), the California Achievement Test (CAT), and the Woodcock Reading Mastery Test (WRMT) (LaSasso, 1987a; Davey, LaSasso, and Macready, 1983). Cooperative studies by Gallaudet University (Moores, et al., 1987) and Central Institute for the Deaf (CID) (Geers & Moog, 1989) identified factors that predict the literacy of profoundly hearing-impaired students. Moores, et al. (1987) concluded that knowledge of English grammar and vocabulary and the ability to utilize auditory input were highly predictive of reading skills of deaf children who learned sign from birth or who were in a total communication program. Geers and Moog (1989) found that oral ability, use of residual hearing, and early amplification and education were primary factors predicting reading skills.

It is not surprising that literacy, as measured by standardized tests, is related to English language skills.

Both the reading passage and the questions are typically in written Standard English. As used here, the term "Standard English" refers to the established, formal language used in public and academic settings. Reading tests are designed for students proficient in Standard English and therefore, interpretation of results for these students is quite staightforward. But interpretation is more difficult for those students whose primary mode of communication is different from the language used in their classroom or in society (Moores, et al., 1987).

Adler (1988) has noted difficulty in testing children whose primary communication is Black English, Hispanic English or some other form of non-Standard English. These children may be adept when using their primary communication mode, but are not proficient in Standard English and therefore, demonstrate poor performance when testing in Standard English. Adler used the term "languge difference" to describe the communication situation for children who use non-Standard English. The "language difference" approach acknowledges the child's language skill while maintaining their inability in Standard English. Deaf children may also exhibit a similar "language difference". Deaf students whose preferred language is American Sign Language (ASL) use ASL for daily communication, but English or an English sign system (e.g., Signing Exact English) is

used in the classroom and for testing. Standardized tests, including the Hearing-Impaired version of the SAT, do not take into account, either in testing or in interpretation, the "language difference" that may exist for these students who communicate primarily in ASL.

The present study acknowledges the "language difference" for deaf students and tests English reading skills by questioning in the preferred language--ASL.

Review of Literature

Three points are discussed in the review of literature. These are: the role of language skills in acquiring reading skills, the language difference for ASL users, and compensations in assessing the reading abilities of the hearing-impaired.

The Role of Language Skills

Language skills in phonology, syntax, semantics and pragmatics provide a foundation for the development of reading skills (Kampfe & Turecheck, 1987). Most normal-hearing children master these language skills during the preschool years before reading instruction is begun in school. Deaf children also have the opportunity to develop language skills by using a signing system. Although the structures of English and signing may be different, manual communication provides awareness of the significance of

language, concepts of language, and increased knowledge and experience facilitated by communication. Indeed, some linguists consider ASL an independent language with morphology and syntax different from English (Cokely, 1976). Moores, et al., (1987) pointed out the lack of correspondence between English and ASL at the single word, grammatical and semantic levels. The major characteristics occuring in every known language of the world are found in ASL (Baker & Cokely, 1980; Baker & Battison, 1980).

Stuckless and Birch (1966) reported a significant difference between deaf children of deaf parents who learned manual communication from infancy and deaf children of hearing parents who had not learned early manual communication. The early manual group achieved a grade equivalent of 3.9 on the Elementary Reading Test of the Metropolitan Achievement Test and the group without early manual communication achieved a grade equivalent of 3.4. Similarly, Kampfe and Turecheck (1987) reported that deaf children who learn early manual communication from deaf parents scored two grade levels higher on the SAT than non-manual deaf children of hearing parents. However, these studies were based on the hearing status of the parents, not on the signing skills or the degree of hearing loss of the children. It should be noted that as a group, deaf children of deaf parents and deaf children of hearing

parents differ significantly in the following areas: type of education placement, degree of hearing loss, age at onset of loss, cause of loss, I.Q., multihandicapping conditions, hearing aid use, number of deaf siblings, income level, parental adjustment, and ethnic background (Kampfe and Turecheck, 1987). Individuals deafened by exogenous etiologies have shown a greater amount of brain damage and learning disabilities than individuals whose auditory deficit was inherited (Vernon & Koh, 1970). These variables should be considered when comparing performance of the two groups.

Kampfe and Turecheck (1987) also cite studies in which the amount of speech used or the amount of sign used show no pattern with respect to achievement scores. Similarly, Moores, et al. (1987) found that level of performance in ASL or in oral communication was not significantly related to reading achievement. There is, therefore, a lack of agreement about the role of speech and sign in reading skills. However, knowledge of English grammar and vocabulary were closely related to literacy. Moores et al. (1987) noted that valid measures of ASL vocabulary and grammar did not exist. Therefore, it was not possible to determine the extent that these variables were related to the achievement of literacy with deaf adolescents of deaf parents.

Luetke-Stahlman (1988) compared seven different communication systems (oral English, Cued Speech, SEE-1, SEE-2, ASL, Signed/Manual English, and Pidgin Signed English). Subjects were given a literacy battery of seven tests which included portions of the Woodcock-Johnson Psychoeducational Battery, Johns Sightword List for Third Graders, and Northwest Syntax Screening Test. Students exposed to languages (English and ASL) or systems which attempt to encode English (SEE-1, SEE-2) tended to score significantly higher on selected tests of achievement including reading than students exposed to systems that do not correspond as well to English (Pidgin Signed English, Signed/Manual English).

The Language Difference for ASL Users

Because there is little relationship between written or spoken words and manual signs (Moores, et al. 1987), many deaf children do not know the phonological, syntactical or semantic rules of English. Normal-hearing children who speak Standard English can sound out new words. Deaf children, however, do not have the auditory knowledge of the language being read. Both the written symbols (words) and the spoken language are unfamiliar (Quigley, 1982). The CID and the Gallaudet studies found listening skills to be important for obtaining reading skills (Geers and Moog, 1989; Moores, et al., 1987). Similarly, individuals learning

a second language encounter difficulties with written symbols when their listening skills and speaking skills are limited. Often, learning to read the second language is stressed prior to learning speaking or listening skills.

Although there have been various attempts, there is no standard written language for ASL. The signs may be written as a gloss (the nearest English word or words) such as KNOW or FROM-NOW-ON. Transcription systems are used by linguists who study ASL. For example, 3-CL may represent a classifier with the "3" handshape, a curve above two glosses indicates a compound sign while a curve below indicates a contraction (Baker & Cokely, 1980). However, these systems are incomplete and do not include all the linguistic information conveyed by the signs. Therefore, the deaf reader who uses ASL as the preferred mode of communication is unique in that he will never read in his preferred language (Gormley & Franzen, 1978).

Morariu and Bruning (1984) suggested that the deaf reader must mentally translate the written verbal code (English) into a visual code (sign). For example, when an English question is read, the deaf reader must visualize the signs in order to understand and to formulate an answer. Translation is used to convert the visualized signs back to written English. Normal-hearing individuals can process information auditorily, but due to lack of listening skills

resulting from the hearing loss, deaf people develop an encoding system which processes information visually. Morariu and Bruning (1984) studied deaf subjects' abililty to recall propositions presented in four modes: written English, signed English, written ASL, and signed ASL. Most of the recall occured when signed ASL was used. ASL provided greater capacity for understanding and recalling information than did English. Morariu and Bruning concluded that ASL was the primary language of prelingually deaf individuals. Similarly, Stewart (1985) studied language dominance and comprehension of stories presented in both Signed English (SE) and ASL. He assumed that the dominant language would be preferred for retelling a story and would yield greater comprehension. Subjects from a Total Communication program were rated for signing ability and some were classified as SE-dominant and others as ASL-dominant. Each subject performed a story retelling task. Results showed that regardless of classification, ASL was preferred for retelling the story. Ewolt (1982) reported that deaf people have more options than normal-hearing people (fingerspelling, pantomime, various sign systems), and are not bound to English syntax. So why do the deaf not achieve higher reading levels? Perhaps it is partially a function of the assessment procedure.

Compensations in Assessing Reading of the Hearing-Impaired

Moores, et al., (1987) reported that a hearing-impaired child's performance is a function of the type of test given. For example, LaSasso (1987b) found that test scores for a single child varied as much as four grade levels on various types of tests such as cloze completion, narrative retelling and multiple choice. Thus, reading levels are highly task dependent for hearing-impaired students. To provide a more accurate measure of reading and academic achievement for hearing-impaired students, the Center for Assessment and Demographic Studies at Gallaudet University developed a Hearing-Impaired version of the Stanford Achievement Test (SAT-HI). The test has the following modifications (Allen, White, and Karchmer, 1983): 1) test instructions were adapted to a variety of communication situations, 2) a screening procedure was used to assign students to the appropriate level for testing, 3) subtests were structured according to the typical academic growth patterns of hearing-impaired students (e.g. the progress is faster in math than in reading), and 4) the SAT-HI was normed with a sample of 6,873 hearing-impaired students. The test items and subtests of the SAT-HI are identical to the regular SAT. However, the hearing-impaired version differs in the school grades at which the different subtests are administered (Jensema, 1978; Wolk & Allen,

1984). For example, an 8th grade student may take the 8th grade math subtest, and the 5th grade reading subtest.

In administering the SAT-HI, ASL may be used for the instructions, but the test questions are administered in written English. The reading skills of deaf students with more ASL competency may be underestimated when students are required to read and respond to questions in the language of least competence (Hatfield, Caccamise, & Siple, 1978).

In summary, language skills in English or in sign language are important in developing reading skills. The language difference for ASL users requires a translation task as discussed by Morariu and Bruning (1984).

According to Morariu and Bruning (1984), a deaf student reads a question in English, then mentally translates the question to ASL. The question is then processed and an answer formulated in ASL. Then, the ASL answer is translated back into English for a response. However, if the question is in ASL, this translation process will be minimized. Using ASL questions for assessing reading comprehension, may yield a more realistic measure of performance. This review did not find any studies which included the use of ASL questions in an assessment task.

Purpose

The purpose of this study was to compare the use of English questions and ASL questions for measuring reading skills of deaf ASL-competent high school students.

Hypothesis

The null hypothesis was: There is no difference in reading comprehension scores of deaf high school students when tested by questions in written English and in ASL.

CHAPTER II

METHODS AND PROCEDURES

Subjects

Twelve deaf residential high school students at the Tennessee School for the Deaf served as subjects. The school had a philosophy of total communication. The subjects (6 males and 6 females) were 15 to 19 years of age and had: 1) mean pre-lingual sensorineural hearing losses of 107 dB HTL (range= 88 - 120) in the right ear and 109 dB HTL (range= 90 - 120) in the left ear, 2) nonverbal IQ's of average or above, 3) mean reading levels of 6.6 grade (range 4.1 to 12.1) on the Stanford Achievement Test-Hearing Impaired (SAT-HI), 4) normal vision, and 5) proficiency in American Sign Language (ASL). (See Table 1). The ASL proficiency was judged independently by two teachers who were deaf. Both teachers were fluent in ASL and understood the grammatic features listed in Appendix A. The teachers' ratings were based on daily observation of communication situations with the students. The mean rating for each subject was derived from the two teachers' ratings of the 10 features. The mean ASL Proficiency Score for the subjects

TABLE 1

SUMMARY OF SUBJECT SELECTION CRITERIA AND CHARACTERISTICS

Subject No.	Sex	Age Years/Months	Mean PT Threshold** Right	Left	Reading Grade Level***	Mean ASL Rating
1	M	17/7	93	90	5.2	4.0
*2	M	18/2	113	118	6.6	3.9
3	F	17/10	92	96	8.2	4.0
*4	M	19/0	100	103	8.6	4.0
*5	M	17/4	120+	120+	8.3	3.25
*6	F	15/6	93	105	4.2	3.75
*7	M	18/1	118	98	9.5	3.85
*8	M	17/9	120+	120+	12.1	3.45
9	F	17/4	113	115	4.2	3.8
10	F	16/11	120	117	4.0	3.95
11	F	17/10	118	112	4.3	3.95
12	F	17/10	88	118	4.1	4.0
Means:		17/7	107	109	6.6	3.83
S.D.:		0/10	13	11	2.7	
Range:		15/6-19/0	88-120	90-120	4.0-12.1	3.2-4.0

*Section A read questions in one order, and Section B read in another order

**500, 1000, and 2000 Hz

***Stanford Achievement Test-Hearing Impaired Grade Level as determined and administered by the classroom teachers at TSD

had a mean of 3.83 and a range of 3.2 to 4.0 on a scale of 0 to 4. A mean rating of 3 is advanced and 4 is superior. These 12 subjects ranged from advanced to superior in ASL proficiency.

Reading Test

Reading passages and questions from Form E of the Stanford Achievement Test (SAT), Intermediate Level 2 (grade level 5.5 to 6.9), were used in this study. Different Levels of the same test were used by Tennessee School for the Deaf in obtaining the reading grade levels on Table 1. The SAT-HI was selected because it is used in the field of education with hearing-impaired students. The test questions for each passage (See Appendix B) were multiple-choice with four possible answers (A, B, C, or D). The questions required inferential skills as well as direct application of facts presented in the passage. The reading section of Form E had ten passages. Six of the passages were selected on the basis of content, format, and the type of story. Passages that had poetry or numerical information were not included. The six passages varied in the number of questions. For example, the 1st passage had 6 questions, the 2nd had 4 questions, the 3rd had 5 questions, the 4th had 6 questions, the 5th had 8 questions, and the 6th had 6 questions. Copyright laws of

the SAT prevented the investigator from including the passages or the questions in this text.

The English questions for each passage were typed on a separate page for reading. For ASL questioning, the thirty-five questions were recorded on videotape using a Panasonic VHS Reporter Camcorder (Model AGHP4). An RID-Certified interpreter translated and presented them in ASL. A separate deaf educator, with ASL as her primary language, viewed the videotape and wrote an English translation of the ASL questions. The investigator compared the English translation with the English questions and found no discrepancies.

A video recording was shown for the assessment on a Panasonic AG-500R Monitor/Player to ensure the same presentation for each subject.

Procedure

The reading passages were administered individually by the investigator in a quiet room at Tennessee School for the Deaf. The subjects read the instructions in English and also viewed an ASL translation of the instructions on a videotape. This procedure was used to increase the subjects' understanding of the task.

Six subjects were randomly assigned to Section A (5 males and 1 female) and six subjects to Section B (1 male

and 5 females). For Section A, each subject read passage #1 and then read the six English questions for that passage. After each question, the subject chose one of the four possible answers (see Appendix B). The same procedure was used for the four questions for passage #2 and the five questions for passage #3. The subjects were allowed to reread both the passages and the questions before selecting an answer. For the videotape portion, each subject read passage #4 and viewed the six ASL questions on the videotape. The same procedure with videotaped questions was used for passages #5 and #6. Each subject was allowed to reread the passage and review the videotape.

For Section B, each subject read a passage (#1, #2, and #3), and viewed the videotape of the ASL questions for the passage that was read. Next, the subjects read a passage (#4, #5, or #6), and then, read the written English questions for the passage. The subjects in Section B were allowed to reread the passage, and the questions or review the videotape.

Each subject only circled one answer (A, B, C, or D) on the answer sheet. (Appendix B). For passages #1, 2 and 3, four points were given for each of the fifteen questions. For passages #4, 5, and 6, three points were given for each of the twenty questions. The total possible score for each was 60 points (4 X 15 = 60 or 3 X 20 = 60).

Time for each subject to complete the assessment ranged from forty to sixty minutes.

CHAPTER III

RESULTS AND DISCUSSION

Reliability

Within one week of the first test two randomly selected subjects were retested for reliability. One subject was from Section A and one was from Section B. Each subject was retested with the same procedure as the first test. Test and retest scores are shown in Table 2.

A question-by-question agreement was calculated using the following formula:

$$\text{Percent Agreement} = \frac{A}{A+D} \quad \text{where} \quad \begin{array}{l} A = \text{number of agreements} \\ D = \text{number of disagreements} \end{array}$$

The subjects' response to a question was scored as an "agreement" if it was correct both times or incorrect both times. It was scored as a "disagreement" if it was correct one time and incorrect another time. Subject #2 had 93% agreement for the English questions and 95% agreement for the ASL questions. On the retest, Subject #2's total score was 4 points lower for the English questions, and 3 points higher for the ASL questions. Both the percent of agreement and the total scores were considered reliable for this subject.

TABLE 2

PERCENT OF AGREEMENT FOR QUESTION-BY-QUESTION ANALYSIS ON TEST AND RETEST SCORES

Subject #	Type of Question	Test Scores*	Retest Scores*	Percent (%) Agreement	Difference Score
2	English	48	44	93%	- 4
	ASL	42	45	95%	+ 3
10	English	15	30	65%	+15
	ASL	40	36	53%	- 4

* Test and retest scores were the number correct out of 60 possible points.

Subject #10 had 65% agreement for the English questions and 53% agreement for the ASL questions. For the total point correct, subject #10 scored 15 points higher for the retest of the English questions, and 4 points lower for the ASL questions. On the first English test, subject #10 scored at the level of chance for these 4-choice questions (15/60=25%). It appeared that subject #10 was guessing at random. However, in the retest one week later the same subject scored 50% correct (30/60=50%). For the ASL questions, subject #10 scored 4 points poorer for the retest. The test and retest scores were not reliable for subject #10. It was not clear why this occurred.

Results

The total points for each subject is displayed in Table 3 for both the written English questions and videotaped ASL questions. With passages 1, 2, and 3 having 4 points for each of the 15 questions, and passages 4, 5, and 6 having 3 points for each of the 20 questions, the total possible score was 60 points (4X15=60 and 3X20=60). A t-test for related measures was not significant ($t=1.16$; $df=11$; $p>.05$) for the total correct on the English questions and the ASL questions. These data were not normally distributed, and appeared to violate a basic assumption of the t-test. Therefore, a non-parametric signed-rank test

TABLE 3

TOTAL POINTS CORRECT, MEAN,
STANDARD DEVIATION, RANGE AND t-RATIO
FOR ENGLISH QUESTIONS AND ASL QUESTIONS

Subject	English Questions	ASL Questions	Differences*
1	33	40	+ 7
2	48	42	- 6
3	39	56	+17
4	48	39	-11
5	52	48	- 4
6	36	30	- 6
7	60	48	-12
8	52	54	+ 2
9	18	36	+18
10	15	40	+25
11	33	32	- 1
12	27	48	+21
Mean:	38.42	42.75	
S.D.:	14.07	8.19	
Range:	15-60	32-56	

t-ratio=1.16 (df=11; p>.05)

* A plus (+) difference indicates the ASL score was higher and a minus (-) difference indicates the English score was higher.

was also computed on these data; the results were nonsignificant ($z=1.33$; $df=11$, $p>.05$). The results of the signed rank test verified the nonsignificance of the t-test. The null hypothesis for this study was not rejected because of the lack of a statistically significant difference between the group means.

The mean ASL score (42.75) was 4.33 better than the mean English score (38.42). There was a greater variability in the English scores (S.D.=14.07) than for the ASL scores (S.D.=8.19). The means and standard deviations are shown in Figure 1 and Table 3.

Although not part of the original design of this study, Pearson correlation coefficients were calculated to investigate the relationship between some of the variables. This descriptive analysis revealed the following correlation coefficients: 1) English Questions vs. SAT-HI $r= 0.83$, 2) English Questions vs. ASL Proficiency $r= -0.42$, 3) ASL Questions vs. SAT-HI $r= 0.70$, 4) ASL Questions vs. ASL Proficiency $r= -0.26$, 5) ASL Proficiency vs. SAT-HI $r= 0.48$.

English questions ($r=0.83$) and ASL questions ($r=0.70$) both showed a moderate correlation with the grade level scores on the SAT-HI administered by the classroom teachers.

The ASL proficiency rating was negatively correlated with the English questions ($r= -0.42$) and the ASL questions

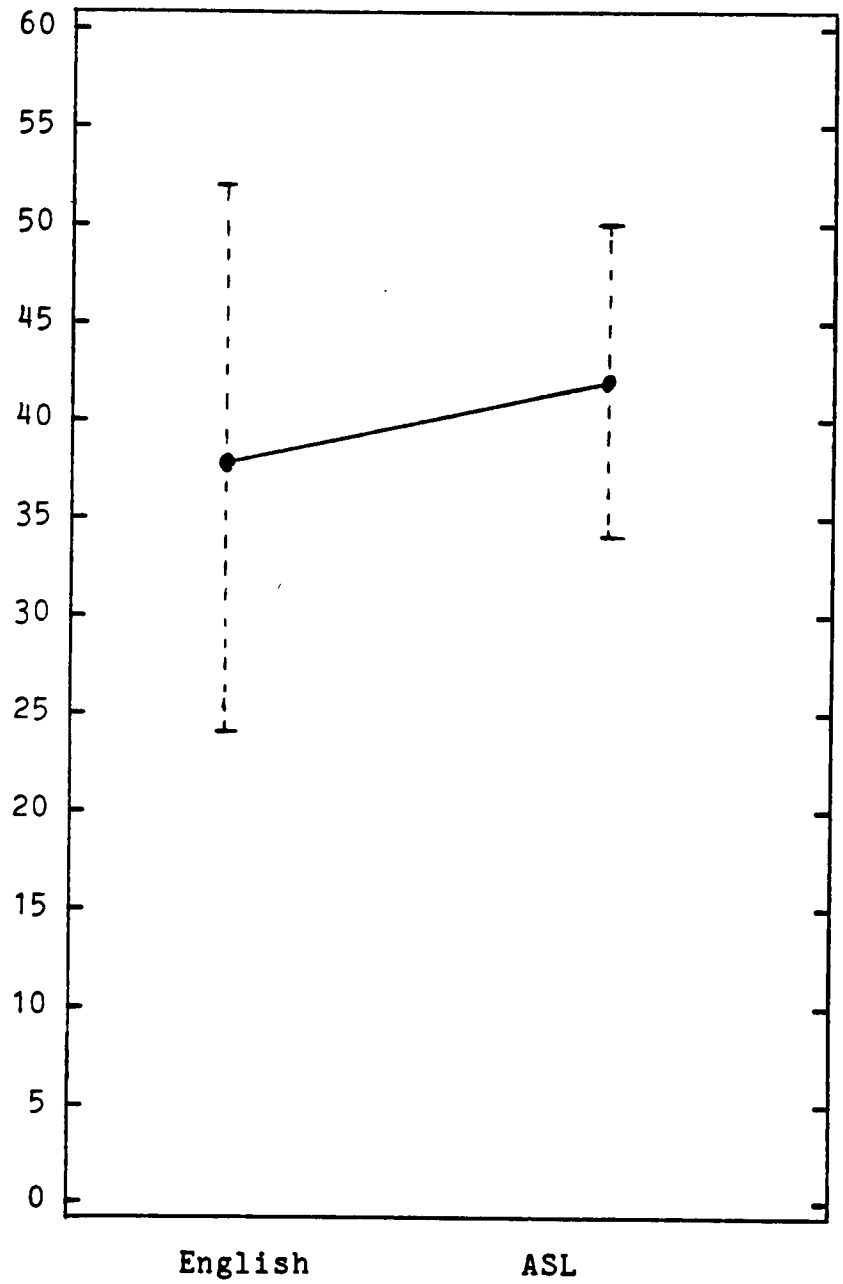


Figure 1: Mean and standard deviations of the English and ASL scores

(r= -0.26). This suggests ASL proficiency, as measured in this study, is inversely rated. In other words, as proficiency is higher, the scores on the English questions and ASL questions are lower. This is especially hard to understand regarding ASL proficiency and ASL questions, which would appear to be positively related. It may be that the ASL rating used in this study is not a sensitive measure measure for separating the ASL skills of the students.

Discussion

Six subjects scored better in English and six scored better in ASL. However, four of the six ASL scores were between 17 and 25 points better than the English scores, whereas none of the English scores were more than 12 points better than the ASL scores. Some subjects demonstrate a greater capacity in ASL for understanding and recalling information as is suggested by the work of Morariu and Bruning (1984).

The test results of this study were compared with the SAT-HI reading levels as recorded in the school's records. Five subjects (#3, 4, 5, 7, and 8) had SAT-HI reading levels above the level of the test passages (5th to 6th grade). Two of these five subjects had higher ASL scores than English scores. Seven of the twelve subjects had low SAT-HI levels (4th, 5th, or 6th grade). Three of these seven

subjects had ASL scores that were noticably higher than English scores (+18, +21, +25). (See Table 4). The higher ASL scores suggests that reading skills for these three subjects may be higher than demonstrated by testing with written English questions. If so, these three students were not accurately assessed when only written English testing was used in the school. Thus, for deaf high school students with lower SAT-HI reading levels (4th and 5th grade), ASL testing provides another reference and probably a more accurate assessment of reading skills than English testing only.

The reverse may be true for some deaf students, in that testing in English yields an inflated score due to word-matching. For example, subject #7 scored higher (60 = 100%) for the English questions than for the ASL questions (48 = 80%). During the testing, subject #7 often referred back to the written story. The subject may have found the answers through word-matching. Word-matching is often used by deaf students to match words in the questions with words in the passage. This matching technique can be done without reading comprehension. For example, the sentence "Susie has a cookie." in a passage can be compared to the question "Who has a cookie?". The student matches "has a cookie" and determines that "who" is "Susie". The student may or may not understand the meaning of the word "who". Students who

TABLE 4

SCORES FOR SUBJECTS WITH 4TH, 5TH OR 6TH GRADE SAT READING LEVELS

Subject	SAT Grade Level	Scores English Questions	Scores ASL Questions	Difference**
* 1	5.2	33	40	+ 7
2	6.6	48	42	- 6
6	4.2	36	30	- 6
* 9	4.2	18	36	+18
*10	4.0	15	40	+25
11	4.3	33	32	- 1
*12	4.1	27	48	+21

* Scored higher in ASL.

** A plus (+) indicates a higher ASL score, and a minus (-) indicates a higher English score.

use a word-matching technique could score higher on English questions than on ASL questions. Questioning in ASL does not allow word-matching because the visual signs do not have a one-to-one correspondence with the written English passage. Thus, an assessment in ASL may be a more accurate determination of some students' reading comprehension.

An important element for deaf students in reading comprehension is the ability to recode and chunk pieces of information. Quigley and Kretschmer (1982) point out the importance of this process in order to comprehend sentences and connected prose. Several subjects with lower SAT scores (4th and 5th grade) pointed to each word as they read. These subjects may not be able to put the information in a passage together. If each word is read as an individual unit, comprehension will be poor for the overall passage. It is possible that for some of these students, the ASL questions helped put the information together in a way that enhanced comprehension.

Some differences occurred between the first set of passages and the second set of passages. (See Appendix C). Ten of the twelve subjects (not including subjects #8 and #11) scored higher on the first set of passages than on the second set. It is interesting that Subjects 8 and 11 had the smallest differences (+2 and -1, respectively) between

the English and ASL scores. Usually, fatigue would be a factor, but the test session was less than one hour.

Another interesting observation was that for the first set of passages, the total mean score was 7 points higher on the English questions (49.2) than on the ASL questions (42). For the passages four, five, and six, the total mean was 16 points higher on the ASL (43.5) than on the English (27.6) questions. (See Appendix C). Thus, the means were higher for passages 1, 2, and 3 when questions were administered in English and higher for passages 4, 5, and 6 when questions were administered in ASL. The last set of passages seemed more difficult in vocabulary and topic than the first set of passages. This is possible due to the range of grade level for the SAT subtest (grade 5.5 to 6.9). If the last three passages were indeed more difficult it is interesting that the subjects were able to demonstrate higher comprehension when the questions were administered in ASL.

Though not directly addressed in this study, another aspect of comprehension is the individual's preference of language. Stewart (1985) predicted that greater comprehension occurred when the dominant language was used. All of the twelve students in the present study expressed a preference for ASL when the investigator asked which language each subject preferred. In this study, half of

these subjects demonstrated better comprehension in ASL and half didn't. Appendix D shows a representative sample of the reasons given by the twelve students for preferring ASL.

This research has raised the question of interpretation of reading test scores. Interpretation should be based on the information desired. If the question is, "Can deaf students read and respond to questions in English?" and do they have "survival skills" in English, the answer can be found in standardized test score such as the SAT-HI. But if the concern is about deaf students' comprehension level (i.e., if they understand what they have read), then a thorough assessment for some students should include ASL questions. Testing hearing-impaired students with English questions gives a measure of their English comprehension. Testing in both English and ASL may reveal a more complete assessment of their true reading comprehension.

This study was similar to Robbins (1983) in which students performed better with gestural pictures accompanying English words than with English words alone. The present investigation examined not just the pictures of signs, but the actual sign language itself. Failure to show a significant difference in this case may be due to the small sample size. More research is needed in this area and should include use of a larger sample with a narrower range

of SAT reading levels. Passages for a study of this type should be at a level slightly above the established reading level of the subjects to allow for increased reading skill with ASL questions. More specific selection criteria should be employed, such as age at which ASL was learned, etiology of deafness, and hearing status of parents.

CHAPTER IV

SUMMARY AND CONCLUSIONS

Summary

This study examined the use of ASL questions in a reading comprehension assessment for deaf students who were proficient in ASL. Twelve high school students between fifteen and nineteen years of age read 5th and 6th grade level passages from the Stanford Achievement Test. Then, some questions were read in written English and some questions were viewed in ASL on videotape. No significant difference was found between the mean scores of the English questions and the ASL questions. Students with higher SAT-HI reading levels scored higher with both English and ASL questions. Some students whose SAT reading level was at or below the level of the passages scored higher in ASL, their primary mode of communication. This indicated a possible need for some deaf students to be assessed both with English questions and ASL questions in order to obtain a complete measure of their abilities.

Conclusions

Conclusions of this study were as follows:

1) Neither ASL nor English questions resulted in significantly better scores for the entire group of subjects.

2) Some deaf students, who have lower reading scores, demonstrated better ASL scores than English.

3) Test and retest reliability was inconsistent for two subjects.

4) Most subjects scored better on the first set of test passages than the second set of test passages.

5) For some deaf students, testing with both English and ASL may reveal a more complete assessment of reading skills.

Limitations

The following limitations need to be considered in interpretation of this study:

1) The size of this sample was small and could be a factor.

2) No consideration was given to the age at which the subjects learned ASL.

3) Ten of the twelve subjects scored lower on the second set of questions than on the first. It was not clear why this occurred.

4) Some subjects concentrated and worked diligently. Other subjects cooperated but with very little interest. The effort was not equal for all subjects. This could have affected the test results.

5) Subjects were unfamiliar with the ASL task. Deaf students use ASL to communicate, but they are unaccustomed to being testing with ASL.

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APPENDICES

APPENDIX A
ASL PROFICIENCY RATING

Name_____Date_____Completed by_____

Circle the level of skill noted in everyday conversation or individual interviews. Add the total of all circled numbers and divide by 10. This is the composite Proficiency Score.

0 - No skill
1 - Minimal skill
2 - Intermediate skill
3 - Advanced skill
4 - Superior skill

Proficiency Score _____

Grammatical Features:

1)	Use of space/present referent	0	1	2	3	4
	Indexing					
	Eye-gaze					
	Non-dominant hand as referent					
2)	Directionality	0	1	2	3	4
3)	Facial Expression	0	1	2	3	4
	Negation					
	Affirmative/Assertion					
	Time adverbial					
	Conditional					
	Manner adverbs (carelessly, routinely)					
	Degree and Intensity					
4)	Reversal of Orientation/Negation (DON'T-WANT, DON'T-KNOW, DON'T-LIKE)	0	1	2	3	4
5)	Yes/No Question Expression	0	1	2	3	4
6)	Rhet-Question Expression	0	1	2	3	4
7)	Time-line/Tense	0	1	2	3	4
8)	Incorporation of number	0	1	2	3	4
9)	Plurality	0	1	2	3	4
	Horizontal and vertical sweep					
	Reduplication					
	Cluster					
	Indexing					
10)	Classifiers	0	1	2	3	4

Add total of all circled numbers and divide by 10. This is the composite proficiency score.

Adapted from: Newell, W., Caccamise, F., Boardman, K., and Holcomb, B. (1983). Adaptation of the Language Proficiency Interview for assessing sign language competence. Sign Language Studies, 41, 311-331.

APPENDIX B

ANSWER SHEETS

SECTION A SUBJECT #____

ENGLISH

FIRST STORY:

1) A B C D

2) A B C D

3) A B C D

4) A B C D

5) A B C D

6) A B C D

SECOND STORY:

1) A B C D

2) A B C D

3) A B C D

4) A B C D

THIRD STORY:

1) A B C D

2) A B C D

3) A B C D

4) A B C D

5) A B C D

CORRECT____X 4 = ____
SCORE

ASL

FOURTH STORY:

1) A B C D

2) A B C D

3) A B C D

4) A B C D

5) A B C D

6) A B C D

FIFTH STORY:

1) A B C D

2) A B C D

3) A B C D

4) A B C D

5) A B C D

6) A B C D

7) A B C D

8) A B C D

SIXTH STORY:

1) A B C D

2) A B C D

3) A B C D

4) A B C D

5) A B C D

6) A B C D

CORRECT____X 3 = ____
SCORE

SECTION B SUBJECT #____

ASL

FIRST STORY:

1) A B C D

2) A B C D

3) A B C D

4) A B C D

5) A B C D

6) A B C D

SECOND STORY:

1) A B C D

2) A B C D

3) A B C D

4) A B C D

THIRD STORY:

1) A B C D

2) A B C D

3) A B C D

4) A B C D

5) A B C D

CORRECT____X 4 = ____
SCORE

ENGLISH

FOURTH STORY:

1) A B C D

2) A B C D

3) A B C D

4) A B C D

5) A B C D

6) A B C D

FIFTH STORY:

1) A B C D

2) A B C D

3) A B C D

4) A B C D

5) A B C D

6) A B C D

7) A B C D

8) A B C D

SIXTH STORY:

1) A B C D

2) A B C D

3) A B C D

4) A B C D

5) A B C D

6) A B C D

CORRECT____X 3 = ____
SCORE

APPENDIX C

SUBJECTS' SCORES

TABLE 5

SECTION A SUBJECTS' SCORES FOR EACH STORY

	ENGLISH					ASL				
Subject	First Story	Second Story	Third Story	Number Correct	Total Score	Fourth Story	Fifth Story	Sixth Story	Number Correct	Total Score
2	4/6	3/4	5/5	12/15	48	5/6	5/8	4/6	14/20	42
4	3/6	4/4	5/5	12/15	48	2/6	5/8	6/6	13/20	39
5	4/6	4/4	5/5	13/15	52	6/6	8/8	2/6	16/20	48
6	1/6	3/4	5/5	9/15	36	4/6	2/8	4/6	10/20	30
7	6/6	4/4	5/5	15/15	60	3/6	8/8	5/6	16/20	48
8	5/6	4/4	4/5	13/15	52	6/6	7/8	5/6	18/20	54
Mean:	3.8/6	3.7/4	4.8/5	12.3/15	49.2	4.3/6	5.8/8	4.3/6	14.5/20	43.5
Range:	1-6	3-4	4-5	9-15	36-60	2-6	2-8	2-6	10-18	30-54

TABLE 6

SECTION B SUBJECTS' SCORES FOR EACH STORY

	ASL					ENGLISH				
Subject	First Story	Second Story	Third Story	Number Correct	Total Score	Fourth Story	Fifth Story	Sixth Story	Number Correct	Total Score
1	1/6	4/4	5/5	10/15	40	2/6	7/8	2/6	11/20	33
3	6/6	4/4	4/5	14/15	56	4/6	4/8	5/6	13/20	39
9	1/6	3/4	5/5	9/15	36	2/6	3/8	1/6	6/20	18
10	4/6	3/4	3/5	10/15	40	1/6	3/8	1/6	5/20	15
11	1/6	3/4	4/5	8/15	32	4/6	3/8	4/6	11/20	33
12	4/6	4/4	4/5	12/15	48	1/6	5/8	3/6	9/20	27
Mean:	2.8/6	3.5/4	4.2/5	10.5/15	42	2.3/6	4.2/8	2.7/6	9.2/20	27.6
Range:	1-6	3-4	3-5	9-14	32-56	1-4	3-7	1-5	5-13	15-39

APPENDIX D

SUBJECTS' COMMENTS TO THE INVESTIGATOR
on the question
"Why do you prefer ASL to English?"

1) Because my parents are deaf and we can communicate better.
2) It's my deaf language.
3) It's my native language.
4) It's visual and easier to communicate.
5) English is harder. I have to read it (English) again and again.
6) For a test, I prefer English, but for explanations, I prefer ASL to understand better.

VITA

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The next year and a half was spent as a volunteer full-time representative for The Church of Jesus Christ of Latter-Day Saints. She was called to serve in the Deaf Program and there developed her interest in American Sign Language. After serving both in Chicago, Illinois and in Anaheim, California, she returned to Alabama and worked as a speech clinician in a public school system.

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