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Sign Language Studies, Volume 82, Spring 1994, pp. 1-54 (Article)

Published by Gallaudet University Press

DOI: 10.1353/sls.1994.0008



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EFFECTIVENESS COMPARED: ASL INTERPRETATION VS. TRANSLITERATION

**Sue Livingston
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Abstract

Two kinds of interpretation are currently used to make the spoken language accessible to deaf students in regular college programs; namely, ASL Interpretation and Transliteration. To test the effectiveness of each kind, 43 students from several colleges of the City University of New York were divided into two groups by their preference for one or the other kind, and the groups divided according to level of education. Matched groups then received a narrative presentation and a lecture presentation, interpreted either one way or the other by experienced certified interpreters, and then answered questions on the material so received. The results showed that subjects achieved significantly higher scores when the material was interpreted into ASL than when it was transliterated (i.e. kept in English order by using manual signs for individual words and concepts). This was true even of those students who expressed preference for the latter kind of signing but received the material in ASL interpretation. Other factors addressed in this study— education level, question type (literal or analytic), communicative competence (judged by qualified interviewers), and background knowledge (about the subject of the lecture)—did not affect scores as much as the kind of interpretation used and the kind of information presented (narrative, lecture) The implication is clear: Interpretation into ASL works better for all deaf students in mainstreamed college classes.

Introduction

The seed for this research study was planted over seven years ago at LaGuardia Community College, a branch of the City University of New York. At the time LaGuardia was the only college within the University to offer a program for Deaf adults. Most vital among the program's offerings was provision of interpreters for all classes that Deaf students would take with hearing students. Walking down the hallways of LaGuardia College on almost any day and observing five to ten classrooms in which hearing and Deaf students were learning together gave one a very gratifying feeling.

But then a subtle sense of disillusionment surfaced. Deaf students were not agreed on what kind of sign language they needed. Interpreters were not content with the "fit" between the kind of signing students requested and the competence the interpreters observed. Classroom teachers were beginning to express concern over the difficulties some of their Deaf students were having keeping up. A committee was formed to look into ways that education of Deaf students at LaGuardia could be made more effective and at the very first committee meeting the topic of classroom interpretation surfaced.

First, interpretation itself in this context is complex: Research in the recent past has shown that American Sign Language (ASL) is a language with its own semantic and semantic subsystems, and the task of interpreters has been re-conceptualized. It has become apparent that there are distinct differences between ASL Interpretation and what is referred to as Transliteration. The former requires an interpreter to work between two different languages, spoken English and ASL. Transliteration requires an interpreter to work between spoken English and one of several contact varieties that incorporate linguistic features from both English and ASL.

Interpreters rendering spoken English into ASL need to "digest" the meaning of the source language (the language needing interpretation, in this case spoken English) in order to produce the meaning in the target language (ASL). They must, as Isham (1985) says, "listen for the meaning and not the individual words." Digesting the meaning of spoken English allows the interpreter to convey more accurately a speaker's intentions, but they must listen long enough to know what the speaker's intentions are and how best to re-encode them in the target language. ASL provides interpreters with grammatical features that save execution time and so enable them to "catch up" with the speaker. Most of these features capitalize on the visual-spatial nature of the language and include simultaneity, verb directionality, nonmanual markers, use of classifiers, localization in space, and indexing. For example—

"Are you interested in participating in an intensive training course in California to learn how to interpret in the American Judicial System?"

—an interpreter rendering this sentence in ASL must localize California to the right of signing space, topicalize “course” and place it and the sign ESTABLISH at that same location, off to the right, question the reason for the course with a distinct facial expression, question the how-to nature of learning to interpret with a different facial expression, substitute the sign COURT for “judicial system,” and DEEP (with intensifying facial expression) for “intensive,” perform reduplicative movements for the sign STUDY to indicate duration, and finally question interest in all of this by tacking on another distinct facial expression that signals a yes/no question is being asked simultaneously with the signs INTEREST and JOIN—the latter being executed at the signers right. The result would look like as below in conventional transcription (facial expression above the sign gloss line, indexing and body shifting beneath it):

```

          _____t_____rhet-q
CALIFORNIA COURSE ESTABLISH FOR-FOR AMERICAN COURT
      rt - - - - -
          _wh-q _nodding _intens _____y/n-q
INTERPRET HOW STUDY+++ DEEP INTEREST JOIN

```

When transliterating, interpreters work between spoken English and a contact variety of English and ASL, providing signs as glosses for words or phrases. Their rendering tends to be nearly simultaneous with and in the exact word order of the spoken message. To varying degrees transliterating interpreters (translitterators) set locations up in space, use sign choices from the lexicon of ASL and from English sign lexicons, and mouth either the words of the text or the words for the signs they choose to gloss the text words (Winston 1989). A transliterated version of the example above might look like this:

```

          "participate" "intensive"
YOU INTEREST JOIN DEEP COURSE CALIFORNIA LEARN

INTERPRET FOR AMERICAN J-U-D-I-C-A-L SYSTEM

```

The signs follow the order of the English text; the transliterator may use the ASL signs JOIN and DEEP, and may or not speak or mouth the English words so signed. The word “judicial” is finger-

spelled, and a manual sign depicting a question mark is used instead of the “yes/no” facial expression of ASL.

The problem of the mainstreamed student

The committee meeting to discuss more effective education for mainstreamed Deaf students was attended by Deaf students and several professors, interpreters, and staff members of The Program for Deaf Adults. The predominant type of classroom interpretation at LaGuardia then was Transliteration—much as it is in most classrooms nationwide (Johnson 1991). When a member of the committee asked rhetorically how much Deaf students were understanding their interpreters, the discussion focused quickly on this particular issue. Her feeling was that more information could be made understandable for students if interpreters used ASL Interpretation. Some students agreed; others felt that they needed more English (i. e. Transliteration), as they had come from mainstreamed high schools and were essentially English-sign dominant.

Some interpreters expressed genuine concern that if they used ASL students would not be able to share the same pool of vocabulary available to the hearing students in the classes, and they wondered therefore how Deaf students would fare on tests. Some also felt strongly that receiving information in transliteration would help Deaf students learn English. Through further discussion, however, it became more and more apparent that the key mission of classroom interpreters was to facilitate an exchange of meaning among Deaf students, their teachers, and their hearing classmates. The word “understanding” was used over and over again, but which kind of interpretation would make classroom content more understandable for the students?

In the spring of 1988, and then again in the winter of 1989, the first two authors did two different pilot studies from much was learned, although the first erred by being over ambitious. We assigned students of mixed sign preference (as determined by themselves) at random to two groups. Each group received the same lecture either by Transliteration or by ASL Interpretation. The plan was to ask each group the same questions after the lecture and to use the number of questions answered correctly as an indication of comprehension. The problem was that the content

of the lecture was well beyond the experience of the students, their low scores made it impossible to determine the effect of interpretation type.

The second study used more appropriate material and yielded highly intriguing results: Students who received the lecture via ASL Interpretation understood nearly 80% more than those who received it via English Transliteration. In addition, those students who requested transliterators for their courses at the College but were assigned to the ASL group understood nearly all the points on which questions were asked. The sample size in this pilot study, however, was only nine, and only one transliterator and one interpreter were used—hardly the numbers needed to speak confidently of the finding; nevertheless, the implication was compelling.

If, as has been stated, Deaf students mainstreamed in college classrooms usually receive transliterated lectures, but if, as our second pilot study showed, they appear to understand interpreted lectures better than transliterated, there is discrepancy between interpretation services given and understanding gained. This discrepancy led us to seek funding for a much larger study that would enable us to draw Deaf students from the whole City University of New York System: Lehman College, The College of Staten Island, New York Technical College, as well as LaGuardia Community College. It would also allow interpreters from the whole New York City area to be used in an attempt to determine which kind of interpretation allows Deaf students to understand better what is being conveyed in educational settings.

It also became apparent in our pilot investigations that specific factors could interact with interpretation type to affect understanding. These factors are listed below and were taken account of in our research plan:

Presentation type: Do students understand better Narrative Presentation (stories) or Lecture Presentations (i.e. the explanation and exemplification of concepts) in ASL Interpretation or Transliteration? Within Interpretation Types, is one Presentation type better understood than the other?

Education level: Does the number of years the student has been in college affect understanding of Presentation Types within In-

terpretation Types? Within Presentation Types, does number of years in college affect understanding when Interpretation Types are compared?

Question type: Within Interpretation Types, are Literal Questions (straightforward requests for information contained in the presentation) better understood than Analytic Questions (requiring students to infer an answer by using information given in the presentation) when Presentation Types are compared? Within Presentation Types, are Literal or Analytic Questions better understood when Interpretation Types are compared?

Sign preference: Do students whose Sign Preference (as determined by six Deaf interviewers) is ASL and are placed in an ASL group understand Presentation Types better than students whose Sign Preference is ASL but who are placed in a Transliteration group? Do students whose Sign Preference is English-like sign who are placed in a Transliteration group understand Presentation Types better than those whose Sign Preference is English-like sign and are placed in an ASL Interpretation group?

Communicative competence: Does Communicative Competence affect understanding of Presentation Types within Interpretation Types? Within Presentation Types, does Communicative Competence affect understanding when Interpretation Types are compared? (See "Initial testing" below.)

Background knowledge: Does the amount of students' Background Knowledge (related to the topic of the Lecture Presentation) affect understanding of the Lecture Presentation within Interpretation Types? Does Background Knowledge affect understanding when Interpretation Types are compared?

A further aim in the research was to find and describe what made specific Interpretations more successful than others and what made specific Transliterations more successful than others. Here we wanted to understand the "whys" of effective work within both Interpretation Types by checking "consumer comprehension." In essence we wanted to know what interpreting and transliterating strategies conveyed meaning more effectively for CUNY Deaf students.

Related literature

Little reported research addresses either the process of sign language interpretation or the effectiveness of interpretation as an exchange of meaning between speakers and consumers via interpreters. Cokely has investigated interpreter miscues (mistakes) in relation to lag time (the amount of time between delivery of the source message and delivery of the target message and found that longer lag times produced fewer miscues: "The greater the lag time, the more information available [to the interpreter]; the more information available, the greater the level of the comprehension [for the interpreter]" 1986:374—and most likely the comprehensibility for the consumer.

Rudser (1986) noted an increased use of ASL grammatical features (facial expressions and body shifts) in the signed interpretation of two interpreters who signed two texts in 1973 and signed the same texts again in 1984. He attributes this increased use of ASL to linguistic interest in ASL as a natural language over the past decade. Strong and Rudser (1985) developed an objective assessment of sign language interpreters that compared interpreted propositions with units of meaning from the source message for accuracy of transmission. Although this assessment measure speaks to the need to evaluate accuracy and completeness of transmission, it fails to capture those aspects of interpretation that affect comprehension on the part of consumers.

Studies by Fleischer (1975), Fleischer and Cottrell (1976), and Murphy and Fleischer (1977) are the only ones to investigate the effect that interpretation type has on the amount of information understood by consumers. In the first two studies, material related to deaf students of ASL at California State University, Northridge resulted in significantly higher test scores on material presented in ASL than on material interpreted in Signed English. However, these two studies made no attempt to determine and control for the sign language preference of the students involved in the study. As the investigators themselves state: "It might have been possible that a predominant number of students preferred Ameslan [ASL]" (1976:16).

In the 1977 study Murphy and Fleischer controlled for sign language preference and found no statistically significant differ-

ences based on the differential treatment. Those students who preferred Signed English and received ASL did as well as those who preferred Signed English and received Signed English, and vice versa. These three studies, however, have serious methodological flaws. Students were asked to attend to lectures well outside their experience, so that effectiveness of interpretation type could have been confounded by a disproportionate amount of new information to make sense of. Second, interpreters practiced the lectures, which were on audio tape, before interpreting them, which creates an aura of artificiality, as interpreters in post secondary settings do not practice a teacher's lectures before entering a classroom. Third, asking students to read and answer questions based on the lectures added a literacy dimension to the study; it is highly possible that information understood via sign was not recognized in print and vice versa, thus obscuring the effect of interpretation type.

Llewellyn-Jones (1981) asked 13 interpreters [of British Sign Language] to interpret a 3-minute spoken passage into the form of sign language they would normally use with a group of profoundly and prelingually deaf adults. Three passages were used and were controlled for linguistic complexity and content. The signed interpretations were videotaped and comprehension measures in the form of multiple-choice questions were administered in sign language, with responses marked on answer sheets. Those interpreters who were most successful in conveying the intent of their passages extracted the meaning from the original message and restructured it into a very much simplified transliteration; e.g.: "... the original message was, ... who will be accompanied by up to 50 relatives;" and the transliterated version was, 'WITH ABOUT 50 R-E-L-A-T-I-V-E-S BROTHER, SISTER, MOTHER AND-SO-ON.'

Llewellyn-Jones concludes that only by concentrating on the meaning of the passage were the two successful interpreters able to have their consumers comprehend the message. There are, serious problems with this study as well. First, the passages were linguistically controlled, which means that interpreters were transmitting very simple English—hardly the situation that interpreters face in university and college classrooms. Also the inter-

preters could not see their consumers, who watched them via videotape, and as the investigator says, this bothered the interpreters greatly because they felt that it prevented them from using audience feedback to modify their performance. In addition, no mention was made as to the interpreting skill or possible credentials of the interpreters. It is possible that lack of comprehension by consumers was directly related to lack of skill in the interpreter.

The literature review shows that research on the effectiveness of ASL interpretation versus transliteration is limited, poorly designed, and contradictory. More important is the finding from the present authors' second pilot study, which suggests that assigning the kind of interpretation students profess to understand better may not be in the best interest of some students. The present study therefore addresses the need to examine systematically the question of appropriateness of interpretation type for Deaf students in post secondary mainstreamed settings. Without appropriate interpretation Deaf students cannot have access to the kind of instruction their hearing classmates have. Sitting in a classroom and understanding only some part of what is being interpreted is not only intellectually and emotionally debilitating—it also wastes huge amounts of taxpayers' dollars.

In addition, none of the studies mentioned considered factors that can interact with interpretation type to affect student comprehension. It is crucially important to understand as many as possible of the variables that must be considered when students seek interpreters for their courses so that an accurate assignment of resources can be made.

The data gathered for this study will also allow the question of effective Interpretation and Transliteration to be more adequately studied. By analyzing those Interpretations and Transliterations that afforded students more understanding than others, we and other researchers can begin to see which strategies appear to assist students in understanding an interpreter and which do not. These findings will be of vital importance for programs that train interpreters for educational settings and for committees that develop certification standards. Since most interpreters today are

found within the educational arena, these findings will speak to a large number of academic interpreters.

Participants in the study & initial testing

The participants were Deaf students registered in degree and/or non-degree (Pre-GED and GED) programs at LaGuardia Community College, Lehman College, The College of Staten Island, and New York Technical City College. A meeting was held at each of the colleges to familiarize interested students with the study and its goals. They were told that they would need to come to LaGuardia Community College on two separate occasions—once for an interview and some initial testing; the other for the experiment itself. All appointments were made through the mail. There were 43 participants, all of whom used sign language as their primary means of communication.

Each participant was interviewed individually by either two or three bilingual Deaf adults to determine their sign preference and communicative competence in expressing and receiving either ASL or English-like signing. The measure used was an adaptation of Lou, Fischer, and Woodward's (1987) Measure of Communicative Competence for Deaf Adolescents and Adults which, based on an interview, assigns first a descriptive rating for sign preference and then a rating of communicative competence based on ease of understanding the interviewers, fluency and clarity of ideas expressed, and correctness of particular language used. The interview is designed to tap a variety of linguistic functions, such as describing, offering an opinion, and telling an anecdote (See Appendix A for the Interview Protocol, Appendix B for the Sign Preference Rating Scale, and Appendix C for the Communicative Competence Rating Scales).

A training session was held in order to establish inter-rater agreement among the five interviewers. Five CUNY Deaf students were interviewed individually by the group of interviewers using the Interview Protocol. All interviews were videotaped. After each interview, raters worked individually to assign either a 1 or a 2 Sign Preference Rating (See Appendix B) based on their knowledge of ASL and English-like Sign as well as the characteristics of each language as exemplified for them on separate sheets of paper. After an initial period of calibration for each

interview, inter-rater agreement for Sign Preference was 0.96. In order to establish inter-rater agreement for the Communicative Competence Rating (See Appendix C), a rating of 1 or 2 for each sub scale was considered a Low rating and a rating of 3 or 4 was considered a High rating. Inter-rater agreement was the average agreement in sub scale ratings for each student: 1.00, 0.90, 0.85, 0.80 and 0.75.

After training, the Sign Preference Rating for each student was the rating agreed upon by the majority of the interviewers. When only two interviewers worked together, if negotiation failed to evoke agreement (which was the case only once), the opinion of the Project Director was sought. The Communicative Competence Rating for each student was the sum of the average scores within each sub scale multiplied by 10 to obviate the need to work with decimals. Communicative Competence Scores ranged from a high of 160 to a low of 100 with a median split at 140. For this study, students whose scores were 140 or better were considered to have High Communicative Competence and those with scores of 139 or lower were considered to have Low Communicative Competence.

Also at the time of the interviews students were given a 10-item multiple choice test on "Gender and Sexism"—the topic of the Lecture Presentation—to ascertain the degree to which previous background knowledge might influence understanding of the Lecture (See Appendix D). Students were allowed to have the questions signed if they could not read them. Background Knowledge scores ranged from a high of 60 (out of 100) to a low of 10 with a median split at 40. For this study, students whose scores were 40 or better were considered to have High Background Knowledge and those with scores of 30 or lower were considered to have Low Background Knowledge.

Stratification and assignment into groups

Once the initial testing was done, students were stratified into two groups—ASL Preferred and English-sign Preferred—and then again into groups reflecting education level. Pre-GED, GED, and those students in either a College Preparatory program or in their first year of a Basic Skills program were considered to have Low Education. Those students in their second year at a junior college

or attending a four-year college were considered to have High Education. The stratified groups looked as follows:

ALS Preferred

Low Education

ASL Preferred
Pre-GED
College Prep
Basic Skills
(first year)

High Education

Junior College
(second year)
Four Year College

Eng. Sign Preferred

Low Education

English-Sign Preferred
GED
College Prep
Basic Skills
(first year)

High Education

Junior College
(second year)
Four Year College

Once stratified, students were numbered consecutively within each education level and by the flip of a coin it was decided that all odd-numbered students would receive ASL interpretation and all even-numbered students would receive transliteration. In this way both treatment groups were balanced according to the Sign Preference and the Education Level of their members. The students were then assigned to one of seven ASL groups or one of eight transliteration groups.

Although we had hoped to have the same number in each of the 15 groups, some students did not keep their appointments and others came late so that we ended with four groups of 3 students each, three groups with 2, one group with 5, and seven groups with 4 students.

Each of the ASL groups was assigned an interpreter certified in ASL interpretation (Certificate of Interpretation, or Comprehensive Skills Certificate, RID), and each of the transliteration groups was assigned an interpreter certified in transliteration or with Comprehensive Skills Certificate. All interpreters and transliterators had an average of at least 10 years experience. When hired for the project they were told which group they would be interpreting or transliterating for. Most transliterators requested further clarification of what was expected of them and were told that there could be individual flexibility within the parameters of what is considered transliteration. All interpreters and transliterators were given written instructions detailing the procedures for

the experiment as well as a sentence summarizing the gist of the Narrative and the Lecture Presentations.

ASL Group		Transliteration Group	
<i>Interpreter A1</i>		<i>Interpreter T1</i>	
Narrative	Lecture	Narrative	Lecture
1 3 5 7	1 3 5 7	2 4 6 8	2 4 6 8
<i>Interpreter A2</i>		<i>Interpreter T2</i>	
Narrative	Lecture	Narrative	Lecture
9 11 13 15	9 11 13 15	10 12 14 16	10 12 14 16
<i>Interpreter A3</i>		<i>Interpreter T3</i>	
Narrative	Lecture	Narrative	Lecture
17 19 21 23	17 19 21 23	18 20 22 24	18 20 22 24

The task

Depending on the groups they were in, students watched live either an ASL interpretation or a transliteration of a videotaped 10-minute narrative (See Appendix E) as told by a professor in the Communication Skills Department at LaGuardia Community College. At the conclusion of the narrative, students taking alternating turns were individually asked six questions related to the story. The first three questions were literal questions (See Appendix E: Questions 1-12), which asked students for specific information mentioned in the story. The last three questions were analytic questions that asked them to take what they had heard in the story and carry it further—to infer an answer based on information given in the story (See Appendix E: Questions 13-24). Each group's interpreter interpreted the questions, either in ASL or transliteration. At the conclusion of each question, the videotape was turned off until a student's answer was completed before moving on to the next question and the next student. Students signed their answers, and these also were videotaped.

Students were given a 15-minute break at the completion of the narrative, after which they watched live either a ASL interpretation or transliteration of a videotaped 10-minute introductory lecture on the topic of gender and sexism (See Appendix F) given by a professor in the Social Science Department at La-

Guardia. The exact same procedure followed for the narrative presentation was followed for the lecture presentation.

The table above shows schematically the assignment of interpreters and students into ASL and transliteration groups (students are represented by the numbers assigned to them):

Interpretation check & scoring

Prior to scoring the students' answers to the questions, it was imperative that information needed to answer the questions had been interpreted accurately; therefore, all interpretations were checked for completeness and accuracy, and if any information was deleted or misinterpreted that prevented a student from correctly answering a particular question, the question was eliminated from the students' group of six questions and scores were converted to percent correct or standardized scores for further analysis.

Student answers were rated on a five-point scale for accuracy according to the following descriptors:

4 points for a perfectly accurate answer

3 points for a mostly accurate answer

2 points for a partly accurate answer (which might have been more accurate with a follow-up question)

1 point for a mostly inaccurate answer (a follow-up question would not have helped)

0 points for a totally inaccurate response

Accordingly, it was possible for each student to receive maximum scores of 24 points for the Narrative Presentation and 24 points for the Lecture Presentation. (This scoring presumes six questions and 4 members per group; however, some groups had other than 4 members. All student scores were transformed to percent correct. When a group had only 2 students, each answered 12 questions, 6 literal and 6 analytic, but only the first three of each kind were scored. Any other procedure would have required skipping questions on the videotape and skewed results. Three-member group students answered 8 questions but again only the first three of each kind were scored. In the group composed of 5 students, four received 5 questions, two of them answered 3 literal and 2 analytic questions, two of them 2 literal and 3 analytic, and the last one answered 4 questions, 2 of each

kind. For this group scores were adjusted to percent correct or standardized scores.)

A training session was held to establish inter-rater agreement between the two raters of student answers. Raters viewed answers from student group A3 (ASL Interpretation) and individually applied the above criteria to score them. After an initial period of negotiation, inter-rater agreement was 0.86. Thereafter, differences in scoring were resolved through use of the Project Director's opinion.

To determine effectiveness of ASL interpretation versus transliteration in general, scores obtained for the ASL groups for both narrative and lecture presentations were statistically compared with those scores obtained for the transliteration groups. Thereafter, as described in the Results section, student scores were analyzed using a variety of statistical procedures to discern the effects of Presentation Type, Education Level, Question Type, Sign Preference, Communicative Competence and Background Knowledge on student understanding.

To answer the question regarding which specific interpretation strategies made meaning more apparent for Deaf students, the scores of students in each interpretation group were averaged by the researchers and interpretations and transliterations achieving the top two or three scores were compared with those that receiving the lowest scores. Only those groups composed of students who were balanced in terms of Sign Preference and Education Level were used for this part of the study. We describe strategies that either did not appear or appeared with less frequency in the lower scoring videotaped interpretations for both narrative and lecture presentations and we hypothesize that these strategies were instrumental in enabling Deaf students to understand more of what was being conveyed. This part of the research was exploratory in nature.

Results:

Effectiveness of interpretation type & factors that affected understanding

The data were analyzed in a number of ways, going from simple to more complex, in order to parallel the hypotheses being tested. Table 1 presents global comparisons of ASL Interpreta-

tion and English Transliteration groups and comparisons of Narrative and Lecture Presentations within each of these Interpretation Types.

There was a highly significant difference in favor of the ASL group when both the Narrative and Lecture scores were included in the analysis ($t = 3.02$, $df = 84$, $p < 0.003$). When the data were examined by Presentation Type, the difference in favor of ASL ($t = 2.66$ $df = 41$, $p < 0.011$) was found for the Lecture presentation but not for the Narrative Presentation ($t = 1.81$, $p < 0.077$). However, the 12.64 mean difference favoring ASL approached significance.

The data were also analyzed using correlated t-tests across Presentation Types within Interpretation Types. Within the Transliteration group there was a significant difference ($t = 2.63$, $df = 21$, $p < 0.016$) in favor of the Narrative Presentation, but the 9.81 mean difference between the Narrative and Lecture Presentations received in ASL Interpretation was not significant.

Table 1: Comparison of means: Interpretation/Presentation

	ASL Interpretation			Transliteration			t
	N	M	S.D.	N	M	S.D.	
<i>Narr</i>	21	74.00	23.72	22	61.36	21.99	1.81
<i>Lect</i>	21	64.19	14.51	22	50.59	18.68	2.66*
<i>Total</i>	42	69.10	20.05	44	55.41	21.84	3.02**
		* p <	0.011	** p <	0.003		

Table 2: Comparison of means: High vs. Low Education

	High Education			Low Education		
	N	M	S.D.	N	M	S.D.
ASL						
<i>Narrative</i>	12	74.42	23.49	9	73.44	25.45
<i>Lecture</i>	12	67.83	16.07	9	59.33	11.17
Translit						
<i>Narrative</i>	13	64.77	21.49	9	56.44	23.03
<i>Lecture</i>	13	59.00	18.52	9	38.44	11.01

The effects of Education Level on Interpretation Type and Presentation Type were analyzed using a three-way ANOVA (2x2x2) with one repeated factor after the data were split into High and Low education groups (see Table 2). Although there were no significant interactions, two main effects were highly significant: F (interp.) = 8.29, $df = 1,39$, $p < 0.006$; F (present.) = 9.67, $df = 1,39$, $p < 0.003$; i.e. ASL was significantly higher than Transliteration, and the Narrative Presentation was higher than the Lecture Presentation. The Education factor, though favoring those with more schooling, as expected, was not quite as strong as predicted. When the data were further analyzed between Interpretation and Presentation via independent and correlated t-tests, the only significant differences were for the Low Education Transliteration groups ($t = 3.07$, $df = 8$, $p < 0.015$) in favor of the Narrative Presentation and for the Low Education Lecture groups ($t = 4.00$, $df = 16$, $p < 0.001$) in favor of ASL Interpretation.

To examine the effects of the types of questions that were posed, the data were subjected to a three way ANOVA with two repeated factors (Table 3). The three main factors were significant (F (ques.) = 8.59, $df = 1,41$, $p < 0.006$; F (present.) = 8.56, $df = 1,41$, $p < 0.006$; F (interp.) = 7.13, $df = 1,41$, $p > 0.002$), but there were no significant interactions. Outcomes obtained on analytic questions were superior to those resulting from literal questions and, as shown below, ASL outperformed Transliteration. and Narrative was superior to Lecture. Within each Presentation Type the data were also analyzed as a two way ANOVA with Question Type as the repeated measure. Within the Lecture Presentation, the Interpretation Type F-ratio (F (interp.) = 9.26, $df = 1,82$, $p < 0.003$), favoring ASL; and Question Type F-ratio (F (quest.) = 6.18, $df = 1,82$, $p < 0.015$), favoring analytic questions were significant. Other one-way analyses again confirmed that, for analytic questions, ASL outperformed Transliteration (F (interp.) = 12.57, $df = 1,84$, $p < 0.001$).

Table 3: Mean scores by question type

	<i>Literal</i>	<i>Quest-</i>	<i>tions</i>	<i>Analytic</i>	<i>Ques-</i>	<i>tions</i>
ASL	N	M	S.D.	N	M	S.D.
<i>Narrative</i>	21	68.10	34.87	21	79.57	26.35
<i>Lecture</i>	21	55.77	20.16	21	73.67	22.131
Translit						
<i>Narrative</i>	22	59.86	30.61	22	63.00	24.89
<i>Lecture</i>	22	46.55	25.26	22	52.68	24.31

The data describing outcomes in terms of Sign Preference are shown in Table 4. The English-like Sign Preference group receiving the Lecture Presentation via ASL Interpretation scored significantly higher than the English-like Sign Preference group receiving the Lecture via Transliteration ($t = 3.12$, $df = 8$, $p < 0.018$). Differences favoring ASL Interpretation over Transliteration approached significance for English-like sign preference students receiving the Narrative ($t = 2.13$, $df = 8$, $p < 0.066$), and for ASL sign preference students receiving the Lecture Presentation ($t = 1.89$, $df = 31$, $p < 0.068$).

Table 4: Mean scores: by preference & interpretation type

	<i>ASL</i>	<i>Trans.</i>	<i>Prefer'd</i>	<i>English-</i>	<i>like sign</i>	<i>Prefer'd</i>
ASL	N	M	S.D.	N	M	S.D.
<i>Narrative</i>	16	67.75	23.56	5	94	8.69
<i>Lecture</i>	16	61.19	14.84	5	77.00	8.49
Translit						
<i>Narrative</i>	17	55.65	21.28	5	80.80	10.78
<i>Lecture</i>	17	49.47	20.12	5	54.40	13.80

The effects of Communicative Competence (Table 5) were analyzed as a 2x2x2 ANOVA with one repeated factor. The only significant findings were that ASL Interpretation outperformed Transliteration ($F(\text{interp.}) = 4.16$, $df = 1,39$, $p < 0.048$), and better outcomes were obtained under the Narrative Presentation than under the Lecture Presentation ($F(\text{present.}) = 5.63$, $df = 1,39$, $p < 0.023$). When the data were examined within Presentation

Types (2x2), ASL Interpretation was significantly higher than Transliteration ($F(\text{interp.}) = 5.27$, $df = 1,39$, $p < 0.023$) for the Lecture Presentation. Only within the Low Communicative Competence Transliteration group was the Narrative Presentation significantly higher than the Lecture Presentation ($t(\text{corr.}) = 3.21$, $df = 10$, $p < 0.009$).

Table 5: Mean scores by competence & interpretation type

	<i>High</i>	<i>Comm.</i>	<i>Comp'ce</i>	<i>Low</i>	<i>Comm.</i>	<i>Comp'ce</i>
ASL	N	M	S.D.	N	M	S.D.
<i>Narrative</i>	16	76.69	23.62	5	65.40	24.49
<i>Lecture</i>	16	64.81	14.13	5	62.20	17.24
Translit						
<i>Narrative</i>	11	59.82	25.18	11	62.91	19.39
<i>Lecture</i>	11	54.91	24.18	11	46.27	10.36

Within the Lecture Presentation, the question of the effect of prior Background Knowledge on Interpretation Type was analyzed as a 2x2 ANOVA (Table 6). Both main factors ($F(\text{bckgnd.}) = 6.14$, $df = 1,38$, $p < .018$), ($F(\text{interp.}) = 7.57$, $df = 1,38$, $p < 0.009$) were significant, favoring the High Background knowledge and ASL Interpretation groups, respectively. The Interaction ($F(\text{bkgnd} \times \text{interp.}) = 3.47$, $df = 1,38$, $p < 0.07$) approached significance.

Table 6: Mean scores by background knowledge & interpretation type

	<i>High</i>	<i>Backg'd</i>	<i>Knowl.</i>	<i>Low</i>	<i>Backg'd</i>	<i>Knowl.</i>
	N	M	S.D.	N	M	S.D.
ASL	9	65.89	16.62	12	62.92	13.33
Translit.	10	61.60	20.95	11	40.64	10.39

Strategies evident in successful interpretation: Narrative

Successful interpretations were judged to be those Narrative and Lecture presentations to student groups that achieved the top three scores among the ASL and Transliteration groups tested. (Scores, again, were an average of the students' comprehension scores within each interpreter's group and only those groups that were balanced according to Educational Level and Sign Preference were considered). Focusing first on the Narrative, we offer the breakdown of scores for the ASL Interpretation groups as seen in Table 7.

Table 7: Average scores: Narrative interpreted into ASL

<i>ASL Interpretation Group</i>	<i>Av group comprehension score</i>
A7	84
A3	82
A4	76
A5	67
A2	59
A6	50

Interpretations A7, A3 and A4 were analyzed for recurring strategies that did not appear or appeared less frequently in the interpretations for groups A2 and A6. The strategies are described below and we considered them interpretation techniques that made the difference between greater and less student understanding of the narrative presentation.

Explicitness

One strategy exhibited frequently in the top scoring interpretations was explanation by the interpreter that went beyond the surface level of the text supplying what was only implied in the text. Successful interpretations also provided information for understanding the intent of the speaker and stated overtly underlying feelings. First is stating in the interpretation what is implied in the source text.

Text: And the caller said, "Yes, he's conscious. He gave his name and his phone number." (Whew)

The interpreter added to the interpretation, D-A-V-I-D ALL RIGHT ... SAFE

In another instance, the text is,

... and today I think back upon those events, the day before Thanksgiving, and I have something to be truly thankful for.

Here the interpretation follows the rendering of this with the reason for the narrator's thankfulness: "SON STILL LIVE."

In the next example the interpretation includes background knowledge the text does not make explicit—

... but in my head I knew I had to bring insurance cards to the hospital because I've had some experience with that before.

The interpreter adds that an insurance card is needed, "SHOW PROOF I PAY," which is not in the text.

In another instance the interpretation adds to the text statement that the doctor came from the x-ray (room) a depiction of looking at x-rays, using spread-hand classifiers to show the films and intensifying nonmanual activity to indicate close scrutiny, portraying what happens in x-ray rooms.

The successful interpretations also stated an affect that is implied in the text, for example, the text:

I still continued to kick the dishwasher.

The interpretation inserts STILL ANGRY before KICK and then concludes with STILL STUBBORN.

Use of rhetorical questions

In Interpretation A7 there was pronounced use of rhetorical questions. This syntactic structure occurred throughout the interpretation at key points within the text. The first examples of rhetorical questions occur at the beginning of the text and serve to set up the reason for and time of the story. The next set occurs when the narrator states that he was near the house and saw his son riding his bicycle. The interpreter puts it thus:

ME NEAR HOUSE SEE SON **NOTICE WHAT RIDE-BICYCLE**
THINK WHAT

The sign glosses shown in boldface are accompanied by the facial signs used for rhetorical questioning. Another key point in the story is the narrator's learning on the telephone that his son

has been in an accident. The interpretation adds again with facial questioning:

SCARED WHY ME #D-O WHAT

When the narrator is telling about how business-like hospitals are, the interpretation contains another rhetorical question:

KNOW HOSPITALS ALWAYS THINK WHAT.

Stepping into character

Interpreter A3, the most dramatic of the ASL interpreters, consistently created conversations when the text reported or used indirect and non-conversational style. Through her use of body shifts and eye gaze, she made portions of the narrative become two-person interchanges as she actually became one of the characters that the narrator only talked about. The text runs:

So hospitals being a business, I had to go to the business office to check in. Of course I had remembered to bring my insurance cards. So the person asked me the questions sometimes two or three or four times before her question would sink in and before I could think of a way to respond.

The interpreter with eye gaze and body shift assumes the character of the narrator and the person in the office, making it a brief dramatic scene. In another place Interpreter A3 assumed the character of David, the injured son of the narrator, gazes upward when addressing his father and downward when the narrator father is addressing the son.

Adding sign synonyms

Successful interpretations contained repetitions in the form of alternate signs or sign phrases to give more weight to or to emphasize certain concepts. The use of alternate signs to describe the bike emphasizes the severity of its condition. In the text:

... the bike was a real wreck. It was impossible to drive it. It was twisted, broken...

In the interpretation:

TWISTED LUCKY [points] BIKE ITSELF IMPOSSIBLE FIX
MESSED-UP RUIN SOON N-G [one letter each hand]

In Interpretations A4 and A7, alternate signs and sign phrases were also frequently used—i.e. repetition with lexical variation—to convey the emotional undertone or affect of particular events and characters. E.g. in the text:

: ... and he was very upset. He was crying.
 The interpretation adds the signs glossed in italics:
 HIMSELF UPSET CRY *BREAK-HEART++ HURT FEEL BAD.*

Referring back

The top scoring interpretations included asides, often indicated by a body shift, to bring the listener back to an early portion of the text, thus connecting a new idea with an old one and tightening the story's cohesion. According to the text:

... and as the Doctor predicted he had a very sore head and shoulders...

The inserted recapitulation is shown below in italics:
 HAPPEN RIGHT DOCTOR *REMEMBER RECENT STORY SAY*
SHOULDER HURT HEADACHE TRUE-BUSINESS HAPPEN
 HEADACHE SHOULDER HURT.

In two of the interpretations, use of the signs REMEMBER and RECENT pulled parts of the narrative closer together for the students, facilitating a more direct path to meaning and, in this following case, the point of the story. The narrator of the text made the connection to Thanksgiving at the beginning and at the conclusion of his story, but the interpretation pulled the end and the beginning tighter together and thereby reiterated its point:

REMEMBER I TOLD YOU THAT TOMORROW IS WHAT SPECIAL DAY/ THANKSGIVING.

Creating contrast with negation

Throughout the higher scoring ASL interpretations (i.e. those seen by the students making the higher scores), interpreters would create opposite meanings by stating the opposite of what the text states, and then negate those meanings, sometimes, though not always, following with a positive statement of the original meaning. By creating such contrast, meaning appeared to be made more emphatic. For example, in one instance, the text says:

So we got in the car and I drove as carefully as I've ever driven.
 CAR ME V: DRIVE HOME *ME DRIVE [SLOPPY] CAREFUL DRIVE*

The first italicized sequence is signed with jaw extended and exaggerated sloppy movements of the arms, but immediately the pointing up to the shaking head emphasizes that this was *not* the case. The second sequence is signed slowly, and while executing DRIVE the interpreter looks all around as if apprehensive.

Visual sign choices

There were several instances of particularly effective sign choices—signs or sign phrases that encoded the narrator’s meaning in an image-creating, dynamic, or pictorial way. E.g. for the text’s “insurance card” the interpreter signs BOOK, then uses one hand to depict a book or wallet that might hold a card while pointing to it with index of other hand.

Even more descriptive is the rendering of this text:

(... like a suit) that they use to put accident people in.

The interpreter uses classifiers on both hands, H-hand for body and C-hand moved to represent the body-suit’s cocoon-like wrapping.

ASL interpretation of the questions

Several interesting strategies were revealed when we analyzed the way the comprehension questions were interpreted for the students. One strategy noted was that interpreters would take the students back to the time, episode, or scene within which the answer to a question could be found and used that as the setting for the asking of the question. We are calling this Contextual Hook Up, as this strategy essentially provides the students with the context of the event in question. It resembles the strategy discussed above used in the interpretation of the text when old and new portions of the text were brought together. At one point in the narration, the speaker had said:

I started to pull into the parking spot down at the end of the lot, but out of the corner of my eye I could see by her reactions that her feeling about David was unfortunately true.

The question asks:

Why was the worst moment for me seeing my son on the stretcher being taken from the ambulance into the hospital?

The interpretation of the question refers back to that earlier text by reproducing the sign sequence used there, then asks why.

In the next example the interpreter once again reminds the students of an earlier moment in the narrative before framing the question. The question text is:

Why did I kick the dishwasher before rushing to the hospital emergency room?

REMEMBER TELEPHONE RING PICK-UP-PHONE SON ACCIDENT TERRIBLE WHAT FOR MYSELF DISH MACHINE KICK+++ WHY++ ME WHY

Adding sign synonyms

The use of sign synonyms was seen in the questions as well as in the interpretation of the text. The interpreters seemed to be trying to give the students a clear understanding of the point of the question by using alternate sign choices for the key word of the question; e.g.,

What would be a good title for this story?

MY STORY/ IMAGINE YOURSELF THOUGHT-BUBBLE POP-UP
 "called"
 TITLE T-I-T-L-E TITLE NAME WHAT NAME STORY/ WHAT.

Here in addition to the sign TITLE and fingerspelling of it, the signs THOUGHT-BUBBLE and NAME and the lip movement for "called" were added as well. A shorter example follows:

Why was David so upset
 DAVID PT FORWARD SON UPSET WORRY SORRY++ WHY.

Transliteration receivers' scores, narrative presentation

Table 8 shows the average comprehension scores for those groups who received the narrative presentation via transliteration. Because of the tightness of the scores, contrasting groups was not feasible. We could not look at the transliteration for group T1 and say that the strategies inherent in that interpretation seemed to be facilitating student comprehension more so than strategies used with Group T7. What we can say, however, is that the lack of variation in the scores most likely attests to the damping effect of the transliteration process, which inhibits individual interpreter differences. In fact, transliterators seemed to be doing much of the same kind of work. A detailed transcription of the work of Transliterator T1 and T7, for example, revealed that both chose sign glosses for words or word groups primarily from the lexicon of ASL and mouthed the words profusely. There was nothing that we could point out as being different or appearing with greater or less frequency that would have differentiated the two transliterations.

Table 8: Average scores: Narrative transliterated

<i>Transliteration Group</i>	<i>Av group comprehension score</i>
T1	69
T8	69
T6	67
T2	63
T7	63

As Table 9 shows, the case was different for the groups seeing the lecture in ASL interpretation. We analyzed Interpretations A2, A6, and A7 for recurring strategies that did not appear or appeared less frequently in interpretations for groups A5 and A3. These strategies are presented below and, for this study, are being considered interpretation techniques that made the difference between more and less student understanding of the Lecture Presentation.

Table 9: Average scores: Lecture ASL interpreted

<i>Transliteration Group</i>	<i>Av group comprehension score</i>
A2	73
A6	71
A7	71
A4	65
A5	58
A3	54

Rhetorical questions

In Interpretations A2 and A7 rhetorical questions were used in three ways: to emphasize key points of the lecture, to show contrast, or to exemplify. In A7 the main points of the lecture (on gender and sexism) were presented as rhetorical questions, calling special attention to them; e.g. the main text topic “gender characteristics” was introduced in interpretation as a definition, thus:

CALLED WHAT? G-E-N-D-E-R CHARACTER.

Such questions also emphasized contrasts; text:

In addition, in the home, girls are bought dolls and boys toy guns as presents.

GIRL [located right] CHRISTMAS GIVE DOLL PLAY PAT-DOLL-ON SHOULDER/ BOY [located left] GIVE WHAT? GUNS...

And rhetorical questions were used to introduce examples:

In addition, when women do work, they tend to cluster in pink collar jobs, which means the women tend to work in jobs that reflect stereotypes or traditional female roles; for example, elementary school teachers, cashiers, nurses, librarians, receptionists, secretaries, and typists.

WOMAN GO WORK TEND WHAT-KIND WORK? TITLE WOMAN WORK GROUP LIKE SECRETARY SECOND SCHOOL TEACHER...

Rhetorical questions, then, seek to call attention to specific aspects of the text. They function to partition text visually, in perhaps much the same way that intonation and stress patterns emphasize and pattern portions of spoken text.

Summaries

At times in both Interpretations A2 and A6, either just before the lecturer would begin a new topic or at the conclusion of a specific point, interpreters made a very brief synopsis or summary of the preceding section. These interpreter summaries carried the theme forward, creating tighter connections between related ideas.

Explanation before label

It was the tendency of the lecturer in this study, as it is for most lecturers perhaps, to label a particular concept first and then explain it. In Interpretation A2, labels without explanation in close proximity were not introduced until after some explanation was provided and then they were added at the end of the explanation. For example, at the beginning of the lecture: "We will be talking about gender and sexism in our society;" but the term gender is not explained until the middle of the subsequent paragraph, and the term sexism is explained only several paragraphs later. Interpreter A2 omitted both terms until enough information was presented to explain their meaning and also withheld labels for terms that were explained immediately after they were mentioned by the lecturer, adding them after the explanation.

To some extent this strategy resembles the one we have called Summaries. In both techniques, the interpreter explains the idea

first and then either gives a new way of stating it or reiterates it using more abstract ways of expressing the meaning.

Omission

In all the more successful interpretations of the lecture, it appeared that more was not necessarily better than less, since all three of the highest group scores were achieved by those receiving interpretations that deleted ideas or whole sentences. The following are examples of omissions from Interpretation A2, the text omitted from interpretation shown in italics:

School is deliberately designed by society to train children in skills and values ... while the men just sit by and watch and then take the harvested crops to market a job much less physically demanding.... Boys are often called upon to answer more questions more often than girls and often textbooks present a narrow view of girls ... Likewise, boys who do not act or dress according to what their peers think is appropriate are often called sissies and even suffer physical abuse. In addition, when women do work, they tend to cluster in pink collar jobs, which means that women tend to work in jobs that reflect stereotypes or traditional female roles; for example, elementary school teachers ... They pay less than jobs that are normally held by men such as lawyers ... and they reflect the traditional role of a woman as ... subservient to a man ...

There are a few reasons why this information was omitted. First, the interpretation did reflect processing transpiring at a much deeper level than just the surface, and perhaps the time constraints that this imposes naturally forced the interpreter to delete segments. It is also possible that the interpreter made these decisions to delete consciously, perhaps feeling that an equivalent message would be difficult to come up with, based on her estimation of what would be meaningful to the particular audience she was serving. It also might be the case that, since in three of the excerpts above deleted information was in the form of a further example of a point already made, deletion may have been a time-saving measure adopted because the interpreter felt they were redundant. In any event, we saw that omissions were not necessarily indications of a poor interpretation. For this interpretation, it appeared to be just the opposite.

Explicitness

The more successful interpretations often filled in the sub-text of the message (additions shown in italics). Text:

For example, girls who don't wear dresses or put on make-up—that is who do not act or dress according to what their peers think is feminine —are often called tomboys and made fun of.

GIVE EXAMPLE/ GIRL+++ GO-IN WITH FRIEND/ DRESS DIFFERENT MAKEUP NOTHING [points forward]/ GIRL MOCK FORWARD T-O-M BOY [points forward] MOCK KNOW-NOTHING MOCK/ "FEEL INSULTED" *GIVE-UP CHANGE*

In this example the sub-text is that peer influence can cause girls who aren't necessarily into wearing dresses and makeup to run to the nearest dress store and cosmetics counter.

Stepping into character

Much as in the narrative presentation, when sections of the narrative reported the interaction of two or more people, in the lecture presentation also, interpreters would step into the role of persons named, using shifts of eye gaze, head, or body or a combination, thus creating a dramatized interaction. Thus for the following text the interpretation creates two characters:

Teachers often discourage girls from pursuing careers and often textbooks present a narrow view of girls—keeping with the traditional ideas of femininity such as becoming housewives and mothers.

The interpreter, looking upward is first a girl:

GIRL GOAL ME WANT WORK PROFESSION...

The text is interpreted more literally:

TEACHER TEND PUSH-ASIDE++...

Then the teacher is dramatized:

"yeah yeah" WHY NOT BECOME MOTHER TAKE-CARE HOUSE YOUR++...

Use of negation

Again as with the narrative, points were often emphasized by offering an opposite meaning, usually through negation of an utterance.

Visual sign choices

The explanation of "gender characteristic" was interpreted in a variety of ways, but in Interpretation A2 the choice of signs created more of a visual image.

If you are a boy or a man, society expects you to be mascu-

line—to behave like “a man:” to be brave, strong, tough, unemotional, fearless and independent. If you are a girl or a woman, society expects you to be feminine—to act like “a woman:” to be weak, soft, emotional, fearful, dependent and sexy. These expectations that society places on males and females are called gender characteristics.

4-CL (many look at one)
 BOY [point left] 1-CL ----- MUST ACT MAN
 brrr
 BRAVE TOUGH EMOTIONAL STILL NONE FEAR MUST INDEPEN
 4-CL 1-CL
 DENT 1-CL - - ALL MAN THAT// GIRL 4-CL - - - [point rt] MUST
 QUIET WEAK SOFT EMOTIONAL CRY/ FEAR S-E-X-Y/ ALL PEO
 1-CL
 PLE 4-CL THAT TITLE NAME G-E-N-D-E-R TENDENCY C-H-A-R-
 A-C-T-E-R

The interpreter makes visible the expectation placed on males and females by social pressure with classifiers on two hands [spread 4 fingers pointing at upright index finger, ‘many look at one’], which shows the eyes of many directed at the individual, with left and right hands reversed to indicate the male and later the female is being looked at.

ASL interpretation of the questions on the lecture

The more successful interpretations of these questions also used some of the strategies noted above for the questions that followed the narrative presentation: Referring back was used both for contextual hook-up and for lexical hook-up. Some interpretations also included asides telling the students (*italics*) what the question required them to do. Text:

What would be a masculine gender characteristic?
 YOU FEEL REAL MAN CHARACTERISTIC YOUR
 MAN BEHAVIOR YOUR WHAT? *FOR EXAMPLE WHAT?*

Again:

Which of the four agents of socialization do you think has the most effect on children and why?
 SOCIALIZATION SOCIALIZE INFLUENCE 1/4-CL WHAT 1/4-CL
 INFLUENCE MOST++ PERCENT 1/4-CL WHAT INFLUENCE [pt
 forward] MOST WHY? [pt forward] INFLUENCE *PICK ONE THEN
 EXPLAIN WHY?* [pt forward] *STRONG INFLUENCE.*

(Here the index-hand (1-CL) and 4-hand change roles, the index finger pointing successively to the fingertips of the stationary 4-hand.)

Adding sign synonyms

Interpreters also repeated with similar signs in the questions:

How can we eliminate sexism in our society?

THAT IDEA S-E-X-I-S-M DISCRIMINATE [left] DISCRIMINATE [right]/
HOW CAN DESTROY PUSH-ASIDE [right] DISSOLVE WORLD/ HOW
CAN [shrug]?

Table 10: Scores: Lecture in transliteration.

<i>Transliteration Group</i>	<i>Av group comprehension score</i>
T8	62
T6	54
T2	53
T7	47
T1	41

Transliteration of the lecture presentation

Table 10 presents the average comprehension scores for student groups that received the lecture presentation via English transliteration. Again, groups listed are those composed of students balanced for educational level and sign preference.

Admittedly 62 out of 100 is not what we could call a high score, but it was the top score achieved by those who received the lecture in English Transliteration, and 21 points separates it from the lowest score. Yet a comparison of the transliterations T8 and T1 revealed little if any difference between them. Both adhered to English word order, set locations up in space, used sign-for-word glosses from the lexicon of ASL, mouthed profusely, and included almost every piece of information. Both even used a strategy that we refer to as Lexical Backup, wherein a more visual or familiar sign was offered immediately following the production of a more customary, English-like sign to reinforce it. Since this strategy was used by both T8 and T1 approximately the same number of times, we cannot attribute the difference in comprehension scores to it.

Conclusions

Effectiveness of interpretation type

The driving force behind this research was the need to determine which kind of interpretation better enables Deaf students in mainstreamed college classrooms such as those in the City University of New York to understand what is being conveyed. Quite clearly the answer is ASL Interpretation. When both Narrative and Lecture presentations were considered, students receiving ASL interpretation understood significantly more—as shown by their test scores—than students receiving transliteration.

Factors that affected understanding

The solid findings of this study are that across the board, ASL Interpretation and the Narrative Presentation were consistently and significantly better understood than Transliteration and the Lecture Presentation.

When the data were analyzed further, several factors were seen also to significantly influence student understanding:

The effect of Education Level on interpretation and presentation types was that students with low education levels understood the narrative presentation significantly better than the lecture presentation when both were transliterated but understood the lecture presentation significantly better when it was in ASL than when it was transliterated.

Analysis of Question Types revealed that analytic questions on the lecture presentation were significantly better understood via ASL interpretation.

With respect to Sign Preference, those students who preferred English-like signing but received ASL interpretation understood significantly more of the lecture than the English-like sign preferring students who received the lecture in transliteration.

Students with low Communicative Competence understood the narrative presentation significantly better than the lecture presentation via transliteration, and the lecture significantly better through ASL interpretation. These results paralleled the effects of low education level.

Students of both high and low Background Knowledge understood significantly more of the lecture presentation through ASL interpretation than through transliteration.

There were also results that "approached significance." The narrative presentation was better understood through ASL than transliterated. In ASL interpretation, analytic questions on the narrative were better understood, and the narrative was better understood by English-like sign preferring students who received it in ASL interpretation. ASL preferring students understood more of the lecture via ASL interpretation than in transliteration, and within both interpretation types students high in background knowledge understood more than those low.

Implications

The consistent evidence that interpretation into ASL better conveys meaning for mainstreamed Deaf students at City University of New York leads us to question the widespread use of transliteration in such settings. Although students receiving material via transliteration did better when the material was narrative, stories are the exception not the norm in college classrooms. Average understanding of lecture material at 50% is barely understanding at all.

The difference between narrative and lecture scores when the material was transliterated was not as significant as it was when the material was interpreted into ASL, which implies that ASL interpretation is better able to convey more complicated material. This finding was corroborated when the lecture presentation was compared across interpretation types. It should be borne in mind also that an average score of 61% for the narrative presentation in transliteration is not something that should be considered satisfactory. It would appear that there are problems inherent in transliteration for both simple and complex text.

The power of interpretation type and presentation to affect understanding was consistently greater than that of education, question type, sign preference, or communicative competence. Interactions of these factors could not alone account for better understanding, although in deeper analyses of the data significant interplays were noted.

Of interest was the effect of low education. For students with low education the lecture was made clearer in ASL than in transliteration, and when received via transliteration, the narrative yielded better scores than the lecture. This was also true for stu-

dents with low communicative competence; lectures in transliteration left both groups of students unable to answer questions well.

Analytic questions were particularly difficult for those who received the lecture transliterated and were difficult also with the transliterated narrative. Longer, more complex language in questions were not understood by students in the transliteration groups, but this was not a problem for students in the ASL groups.

Perhaps the most intriguing result of this study was that students who expressed preference for English-like signing did significantly better when the lecture was interpreted into ASL, and better understanding of the narrative in ASL approached significance as well. This leads us to believe that the characteristics of ASL and some of the strategies employed by ASL interpreters are basic to visual/gestural language—that even being perhaps somewhat unfamiliar with ASL did not preclude understanding it; and that in fact the unique characteristics of the language and the way it was interpreted served to clarify concepts and make them more memorable for English-preferring students. The reverse, however, was not found to be the case. Quite clearly ASL preferring students did more poorly with the transliterated lecture. English-preferring students understood more with ASL interpretation, and ASL-preferring students understood less with transliteration.

As expected, students with high background knowledge related to the topic of the lecture understood more of the lecture with either type of interpretation, and when both high and low background knowledge was compared across interpretation types, the ASL group did significantly better. Here we see ASL interpretation bringing greater understanding, even for those students with rudimentary knowledge about the topic of the lecture.

Although we realize that this is only research study, we hope that its results will enlighten those who educate interpreters and assign them, and most importantly, will awaken students to the benefits of ASL interpretation in the classroom. As educated consumers, students need to make informed decisions about in-

terpretation that will allow them to make the most of their college opportunities.

Strategies used in successful interpretations

It was not surprising to see that strategies that accounted for increased student comprehension were evident in the ASL interpretations and not in the transliteration. The strategies used by the transliterators did not appear to succeed in conveying the full meaning to the students, primarily because they were not as interpretive of the text as were the interpretation strategies. The key reason for this appears to be the amount of processing time or lag time (Cokely 1986, 1992) that ASL interpreters allowed themselves.

Transliterator, needing to follow the text closely in time to maintain the order of the information presented and its wording, were constrained to interpret only at the surface level. Without the benefit of processing time, they replaced words or word groups with equivalent signs or sign groups—that is, before they had a grasp of the whole idea to let them reformulate the meaning at a deeper level. Under this constraint, better interpretations, formulations that make more sense in the target language could not be achieved. Selecting target language structures that make sense required processing time; the more complex the meaning (and source language structure expressing it), the more processing time required. This alone could account for the finding that superiority of the narrative presentation approached significance in terms of understandability when interpretations were compared with transliterations, but that the superiority of the lecture presentation was highly significant when interpretations were compared with transliterations. Less complicated text, requiring less processing time was *manageable* in transliteration, but not as understandable as in ASL interpretation, but more complicated text was barely understandable in transliteration. The crucially important point here is that in college settings lectures, more complicated texts, are the norm and stories are not.

The time and order constraints transliteration imposes were difficult for the transliterating interpreters to observe, as can be seen in their debriefing comments:

I found the lecture portion most demanding and had to constantly remind myself to stay within English-like boundaries.

In order to fit the pace of the speaker, from time to time I had to use one sign for an entire sentence; e.g. "pulled the car into the parking lot."

It was hard to stay with English when audience feedback indicates dubious comprehension. Even the woman who was obviously English oriented had to really pay attention to the Wh-word at the beginning of the question and retain it long enough to get the context of the situation about which he [the narrator] was asking.

Because there was so little variation in the group comprehension score averages for the narrative presentation in transliteration, we cannot say that any specific strategy enhanced student comprehension; and interestingly, although there was a difference in scores for the transliteration of the lecture, a detailed examination of the highest and lowest scoring transliterations revealed similar use of strategies, with no strategy or strategies differentiating one transliteration from another. We are left thinking that the difference in scores here was more attributable to the lower scoring group containing more students with low communicative competence than did the higher scoring group. (Recall that students were stratified into groups according to education level and sign preference only.) In other words, for the lecture, successful transliterations appeared to depend more on the communicative competence of the student than on the techniques of the transliterators. This was not the case for the ASL interpreters. In a manner of speaking, transliterators' hands were tied by the constraints of the transliteration process itself.

Unconstrained by the time and order requirement of transliteration, the ASL interpreters had the luxury of using processing time to formulate target language expressions of the meaning that made more sense to their consumers. These expressions used the linguistic features of ASL: Stepping into character, Structured use of rhetorical questions, Repetition through adding sign synonyms, Creating contrast through negation. Even more interesting, perhaps, was the interpreters' use of specific interpretational strategies, which seemed to answer such questions as these:

What does it take for me (the interpreter) to understand this point? How can I convey that point based on what I think makes the most sense to the audience at hand?

Thus we have seen and discussed above strategies that we have called Structured use of rhetorical questions, Explicitness, Referring back, Summaries, Explaining before labelling, Use of analogy, Question aids, and even Omission. These interpretation strategies functioned to alert students to key points in the text, information that was implicit or "between the lines," information that had been given earlier and was being alluded to, and even information that made explicit the different demands of different question types. The depth of processing that these strategies required was something that could not be achieved without time.

Interpreter education

The strategies found in this study were not created by an official association of certified interpreters nor a national organization of interpreter educators; they were actually done by interpreters regularly engaged to enhance understanding for Deaf college students. Therefore they have significant implication for teachers of interpreting. Probably the most important point is the question of defining interpretation and what should be included in teaching it as an art. Interpretation has been defined (Isham 1986) as providing message equivalence between ASL and English. This study raises the question what is equivalence and how can students of interpreting be prepared to discover equivalence and produce it. As we have seen, providing equivalence of meaning includes the use both of linguistic features of ASL and interpretation strategies. Together these require an interpreter in an academic setting to:

- have total fluency in both languages
- be aware of the differences and similarities in discourse style and structure in both language languages
- be aware of Deaf students' educational background, life experiences, world knowledge, and exposure to the culture of the hearing community
- be adept at recognizing what is implied in an utterance and in making it explicit
- have a good memory able to recall specifics of a source text

and its interpretation in order to duplicate portions of it when necessary

- have wide and diverse knowledge of a variety of topics.

To be more specific, interpreters *must* be fluent in both ASL and English. Though this is basic and obvious, it cannot be emphasized enough. The results of this study indicate the necessity of interpreters' being able to analyze—on their feet—discourse in both languages. Several of the strategies found in this study that added to student understanding—Stepping into character, Rhetorical questioning, Repetition through use of sign synonyms, Creating contrast through negation, Visual sign choices—relied heavily on the interpreter's knowledge of the lexical and grammatical differences between ASL and English. It is therefore not enough to teach vocabulary or semantic equivalents, and interpreter education programs must include linguistics courses (covering discourse analysis as well as grammar) in both ASL and English and also comparative linguistics courses in which the two languages are studied.

For interpreters to be able to employ the interpretation strategies discussed here it is evident that they must take the time to understand the presenter's message and to make the necessary adaptations to convey the meaning in the target language. This processing, or lag, time is not a prescribed number of seconds or minutes but depends on whatever amount of time is needed to interpret the ideas of the text and to create the semantic and structural equivalence. The processing time needed will vary with each interpreter, according to a variety of factors, including speed of presentation, complexity of and familiarity with material in the text as well as with the presenter and audience, and the interpreter's skill and experience in managing these strategies. It is crucially important, then, that interpreter educators teach their students these strategies and ways of monitoring them during the interpretation process. This requires knowledge of a model of interpretation so that students of interpreting become able to break down the process into its requisite components. It also requires superior translation ability and skill and familiarity with diagnostic analyses of successful and unsuccessful interpretations. Inter-

preter education programs must include courses that provide interpreting theory, models of interpreting, diagnostic analysis and feedback use, text analysis, and translation.

In our brief review of interpreter education curricula it was evident that most programs include the study of one or both languages. The courses, particularly ASL courses, teach conversational skills for the casual user of the language and do not prepare students of interpreting to handle a variety of content of the kind they will encounter in their professional careers. Therefore, the language studied in interpreter education programs must go beyond the conversational. Wider contexts for language use must be found, preferably from Deaf adults with areas of expertise to share. Language curricula must be developed to embrace this broader scope.

One finding in this study was that more successful interpretations were those that spoke to students in their own language; they included familiar language—Visual sign choices, Use of analogy, Repetition through use of sign synonyms—that student participants could identify with more readily. Administrators of interpreter referral services must recognize the necessity of gathering as much information as possible about the Deaf students they will provide with services, and of passing this information on to interpreters. It should be incumbent upon interpreters to begin requesting this information in order to serve their student clients better.

It has become apparent to us that *transliteration is interpretation that has not gone far enough*. Although there were instances of use of some features of ASL in the transliterations and some use of interpretation strategies used in the ASL interpretation, they did not occur as frequently. Because of the time and order constraints mentioned above, the transliterators did not have the processing time to reformulate meaning by using such strategies. Therefore students in interpreter education *must learn interpretation*, perhaps even to the exclusion of learning transliteration.

Given the complexity of the interpreting task as we have known it, and now with the additional information about the importance of linguistic and interpreting strategies garnered from this study, it seems that two-year interpreter education programs

must be expanded. Indeed, with many current two-year programs students are accepted with little or no knowledge of ASL. If these strategies are to be employed successfully, interpreters must be fluent in ASL. Can such fluency be achieved within a two year time span, especially since programs expect students to acquire interpretation skills? Programs of interpretation education must consist of a minimum of four years of study and must include the curricular modifications suggested above. Entering students must also be required to have already advanced study of English and at least conversational fluency in ASL

It is crucial that the study of these strategies, which have proved to be effective in facilitating greater comprehension, be included in interpreter education because most new graduates of interpreter education programs are employed within the educational setting, and often in colleges or universities with populations similar to those of CUNY. If the students in this study represent the population that new interpreters will encounter, as seems likely, then these interpreter graduates must be prepared to work effectively with them.

Appendix A

Interview protocol for the sign preference & communicative competence scales¹

Introduction

We're going to talk a little now, so we can learn about each other. I'm interested in you and what you like to do. So, I'll ask you some questions, and you can ask me questions if you want, OK? If you don't feel like answering a question, that's OK; you don't have to. Do you want to ask me anything before we start?

Description of family

Let's start by telling me about your family. Who are your family members and what are their personalities like? Do you have a favorite sibling? If so, why? Are you living with family members now? How does that work out? What's the communication like between you and your family members? (I live alone . . . I have two brothers . . . never got along . . .)

Description of house/apartment

What does your house/apartment look like? Can you describe it

1. Scales in Appendices A, B, & C are adapted from Lou et al. 1987.

for me? Outside? Inside? (That's different from my apartment . . .)
 What's the neighborhood like? Do you feel safe living there? Has anything happened to you or someone that you know while you were living there? (Once I was walking)

Personal opinion

I would like to ask your opinion on a couple of topics: Deaf people should only marry other deaf people and not hearing people. Do you agree? If yes, why? If not, why not? (Well personally, I feel that)

It is important for Deaf children to have speech training when they are young. Do you agree? If yes, why? If not, why not? (Well, my opinion is)

Personal incident

Do you remember a time when you felt really happy about something? Can you describe what happened to make you happy? (Or describe the funniest thing/saddest thing that ever happened to you.)

Appendix B

Sign preference rating scales

1. The participant used or mostly used ASL. If English-like Sign was used, it was not used as much as ASL.
2. The participant used or mostly used English-like Sign. If ASL was used, it was not used as much as English-like Sign.

Appendix C

Communicative competence rating scales

Participant Name:

Interviewer Name:

Participant's ease in understanding the evaluator

1. There was much difficulty in understanding the tasks.
2. There was noticeable difficulty in understanding the tasks.
3. There were just a few difficulties in understanding the tasks.
4. There was no difficulty in understanding the tasks.

Quantity of information conveyed by participant

1. No relevant information was conveyed.
2. Very little relevant information was conveyed.
3. A fair amount of relevant information was conveyed.
4. Much relevant information was conveyed.

Clarity of information conveyed by participant

1. Most or all comments were illogical and off track. Most or all signs did not mean what they were supposed to mean given the context. Most or all information needed to convey certain thoughts was not conveyed.
2. Many comments were illogical and off track. Many signs did

not mean what they were supposed to mean given the context. Many pieces of information needed to convey certain thoughts were not conveyed.

3. Most comments were logical and on track. Most signs meant what they were supposed to mean given the context. Most necessary information needed to convey certain thoughts was conveyed.
4. All comments were logical and on track. All signs meant what they were supposed to mean given the context. All necessary information needed to convey certain thoughts was conveyed.

Correctness of language use

1. No comments were rendered correctly.
2. Very few comments were rendered correctly.
3. Most comments were rendered correctly.
4. All comments were rendered correctly.

Appendix D

Test of background knowledge for the lecture presentation

Please answer the following questions as best you can by circling a letter. If you do not understand a question or a word, you may ask [one of the assistants] to sign it for you.

1. Ideas about “masculinity” and “femininity” are about:
 - a. sex, b. gender, c. sexuality, d. human nature.
2. “Socialization” means
 - a. the fact that human beings are basically self-centered
 - b. how people acquire their personality and learn what are socially acceptable and socially unacceptable behaviors
 - c. people interacting with one another in social situations
 - d. strangers becoming socially familiar with one another
3. People of the same age and other social characteristics are called:
 - a. collectives
 - b. social others
 - c. reference groups
 - d. peers
4. Which of the following is a gender characteristic?
 - a. female breasts
 - b. female high-heeled shoes
 - c. male sex organs
 - d. female uterus
5. “Women are inferior to men in many ways. No wonder men are more successful than women.” This statement shows:

- a. heterosexism
 - b. sexism
 - c. biological fact
 - d. something found in all cultures
6. The different roles played in society by women and men are
- a. due to human nature
 - b. the result of sexual drives
 - c. inherited; d. learned
7. As an infant, Andrew lost his penis in an accident. His parents decided to change Andrew's name to Andrea and to raise the child as a girl. Which of the following is the best conclusion about this decision?
- a. Raising the child as a girl will fail because of critical biological differences.
 - b. The child can be socialized into female identity because gender differences are learned
 - c. No doctor would suggest raising the child as a girl.
 - d. The child can be raised as a girl if gender socialization begins after the age of five, so that the child can understand what is going on.
8. Groups of young people are formally socialized into the values of society by
- a. the peer group
 - b. the family
 - c. the mass media
 - d. the school
9. Which of the following statements is true?
- a. Women and men are equal in our society.
 - b. The two sexes are different and suited for different roles in society.
 - c. Women and men are unequal because of how society has taught them.
 - d. Women and men are unequal because of their different physical abilities.
10. Tomboys and sissies are
- a. homosexuals
 - b. people who don't always do what society expects of males and females
 - c. inferior to normal people
 - d. born that way

Appendix E

Narrative presentation

Hi. My name is Ernie Nieratka and I'm going to be telling you a story about my son David. This is a true story and I think it's very appropriate. It's the right time to tell the story, the day before Thanksgiving. When I finish, I think you'll understand why.

This story occurred last summer and I teach summer school. And summer school ends on Thursday. So Thursday afternoons I drive out of New York City to spend some time with my family. They have vacations outside of New York City. It takes about three hours to get where we are and I was on the last little bit of the journey, only a couple blocks from my house, I saw my son riding his bike. And I thought at that moment, I'll honk the horn and say, "Come home and say "Hi" to your poor tired Dad who's worked all week in the city while you've been enjoying yourself." But I knew we had visitors and I thought he was just riding his bike around the block so I didn't honk and I just continued on. I pulled in our driveway, and sure enough our visitors were there. My wife, my wife's sister—uh she had brought one of her students with her—she teaches violin, and my son Eric were all out in the yard. We tried to talk a little bit but Eric uh didn't want that to happen. He wanted me to push him on the swing and tell him a story and he wasn't quite sure which should come first. So it was about lunch time and we walked in the house to try to decide what we would eat and have our lunch plans. And then the phone rang, and my wife, Antoinette, answered the phone. She said, "Yes, I have a son named David." And then she cried out. She said, "David's been hit by a car!" On hearing this I immediately panicked and I started kicking the dishwasher. I've hated the dishwasher since the day we bought it and I was kicking it. My wife was calmer, she stayed calmer. And she had enough sense to ask if David was still conscious. And the caller said, "Yes, he's conscious. He gave his name and his phone number." (Whew!) I still continued to kick the dishwasher but in my head I knew I had to bring insurance cards to the hospital because I've had some experience with that before. So my wife who had been very cool and calm throughout the phone conversation hung up the phone and began immediately to scream at her sister for what had happened over the past week. She demanded that her sister take care of Eric, our three-year-old. We jumped in the car, and raced to the emergency room at the hospital which is about six blocks away. Pulling up to the hospital emergency room there was an ambulance unloading a uh person at the same time we were pulling in. My wife said, "Pull up next to the ambulance that will be

David." And I said, "No, it's not possible, it's too, it's too soon for them to be here. They'll be coming in a little bit." Well, she got out of the car and I started to pull into the parking spot down at the end of the lot but out of the corner of my eye I could see by her reactions that her feeling about David was unfortunately true and that's when I felt I had the wind knocked out of me. It's like getting hit in the stomach. Because David was wrapped from the waist up in this body brace. This very thick pad orange uh suit, like a suit, that they use to um put accident people in. And that's when I thought he has a broken back or he has a concussion or he has internal bleeding or some terrible thing. So I parked the car and I raced into the emergency room. By the time I found where David uh was being treated they had already looked at him. They had given him his first examination and they were sending him to X-ray. And I wasn't really surprised because I had been to the uh Berkshire Medical Center on three different occasions over the past couple of years and I knew that they were fast and very efficient. So I was very pleased about this. The doctor came out and uh told us that things looked okay. And he'd have to be going on, on to X-ray to check. So hospitals being a business, um I had to go to the business office to check in. Course I had remembered to bring my insurance cards. So the person who asked me the questions was nice and friendly but she had to ask me questions sometimes two or three or four times before her question would sink in and before I could think of a way to respond. Um. So I finished my business there and I went back to the emergency room where they were keeping David. And he had come out of um the X-ray and he was very upset. He was crying and very sorry that he had caused us a problem. Um He was sorry he broke the car's windshield uh and messed up the car and he was sorry that he had ruined the bike; and I thought to myself, such little things and here he is worried about the bike and the car he could be in much worse shape. So the doctor uh came from the X-ray a few minutes later and said um to us and we could tell before he actually said it that it was good news. He said, "You're a very lucky guy. You have no broken bones, uh there's no internal bleeding that we can see or discover at this point uh there's not even a serious uh sprain. You're going to have a very sore shoulder where you hit the windshield and you'll have a headache but other than that uh everything should be fine and you should fully recover." So I thought to myself, a true miracle. Not even a broken uh bone from this experience. So we got in the car and I drove as carefully as I've ever driven. We got David home very slowly. We helped him up the stairs, got him into bed and propped him up with pillows and made him comfortable and by this time the shock of the acci-

dent was wearing off and as the doctor predicted he had a very sore head and shoulders so he started complaining of pain and he was very uncomfortable. And all afternoon we asked him all kinds of questions of how we could help with more pain killers, we got ice cream, this and that. And he couldn't put the accident out of his mind so early in the evening he said to, to us, "Could we, can I go to a movie?" (Whew!) I thought to myself . . . a movie. Well, I don't like them for two reasons: they cost too much money and I don't like to go and see all the violence and car crashes but this was an important request. On the other hand, the doctor said, "Go home and rest." He didn't say, "Go to a movie." So I started thinking what happens, if in the movie theatre, somebody bumps his shoulder, is it worth the risk? So anyway after some discussion with my wife and seeing David's state, I said, "Okay let's go." So we again got carefully in the car, drove to the movie and on the way there, my wife and I looked at the paper and we tried to pick out something which we thought would be uh light for David. Some kind of comedy, some funny movie that would get his mind off events. We didn't want anything depressing, anything violent, uh and anything that was rated R, cause he's only 12 years old. So that rather limited our choices but we did pick out a film. And we got to the movie without the arm being injured again and I, as I was sitting there with the lights turned out I could see David's face in the reflection from the light from the screen and I could see that he was happy and he was smiling. Probably for the first time uh, from the movie, he was enjoying himself and he wasn't trying to um pretend. And I wished I could have um enjoyed the film. Because I sat there now replaying the accident in my mind because um on the way there he told us, or my wife asked him what was going through your head. And he said, "While I was in mid-air I thought to myself . . . Goodbye World." Uh the miracle of this, of the accident uh is that he broke the windshield, flipped totally over the car, landed on his head and didn't have a helmet on. Also when we had gotten the bike back from the police station early on that afternoon the, the bike was a real wreck. It was impossible to drive it. It was twisted, broken and the pedal, was so pushed in that you couldn't turn it. And I thought to myself, had his leg been there when the car hit it would have been crushed. So I don't really know what, much went on with the movie. I do know that I thought how precious life is and how we are tied to it sometimes only by a second or two and I today think hack upon those events, the day before Thanksgiving, and I have something to be truly thankful for.

Now that you've heard my story I'd like to ask, (er—) some

questions about uh what you've heard.

Literal questions

1. What kind of day was it? What was the weather like?
2. Where did the story take place?
3. What time of day does the event happen?
4. What happened to David?
5. How did my wife and I react?
6. Even though I panicked, what did I remember to bring to the emergency room?
7. Where was David taken after the accident?
8. What was the scariest moment for me?
9. Why was David so upset?
10. What happened in the emergency room?
11. (Which has two parts to it) What did the X-rays show and what did the doctor say about them?
12. What did David do the evening of the accident?

Analytic questions

1. Why did I kick the dishwasher before rushing to the hospital emergency room?
2. Why was the worst moment for me seeing my son on the stretcher being taken from the ambulance into the hospital?
3. David turned out not to be seriously hurt. Why did the ambulance medics, and sometimes we call those people EMT's, have him bound in a support cushion?
4. Why did the admitting clerk in the hospital have to repeat questions to me?
5. Why would I recommend the Berkshire Medical Center to my friends if they needed a hospital?
6. Why did I drive home from the hospital carefully?
7. Why did my wife and I suggest seeing a funny movie?
8. Did the movie make me feel any better? (clears throat) Let me do that one again. Did the movie make me feel any better?
9. For some time after the accident, David had trouble sleeping even though he had no physical problems or pain. Why do you think this could be?
10. Why might I blame myself for my son's accident?
11. What would be a good title for this story?
12. If David were Deaf, what might have happened differently?

Appendix F

Lecture presentation

My name is Mark Blasius and I'd like to talk to you today about how males and females learn through a process called socializa-

tion to play unequal roles in society. We'll be talking about gender and sexism in our society.

Society places different expectations on males and females. If you are a boy or a man, society expects you to be masculine—to behave like “a man”: to be brave, strong, tough, unemotional, fearless and independent. If you are a girl or a woman, society expects you to be feminine—to act like “a woman”: to be weak, soft, emotional, fearful, dependent and sexy. These expectations that society places on males and females are called gender characteristics. They are not part of being biologically male or biologically female. They are not present at birth in a newborn child. They are learned later on in life as ways that boys should act and as ways that girls should act.

We know that gender characteristics are learned because sometimes children are raised as members of the opposite sex when for example, a boy's penis is dismembered through an accident or circumcision and then is raised as a girl. This child will develop feminine characteristics, and after the age of 3 or 4, will resist any attempts to return back to the gender characteristics of a male. We know also that specific gender characteristics are learned within the context of one's culture. In cultures other than our own, males sometimes have gender characteristics that we would call feminine and females have gender characteristics that we would call masculine. For example, in some rural African societies, women do all the heavy manual labor of farming through the eighth month of pregnancy while the men just sit by and watch and then take the harvested crops to the market, a job much less physically demanding. These behaviors are learned.

The way in which society teaches us what is expected of us is called socialization. We are not born masculine or feminine but become that way through structured situations in which society teaches us what is appropriate behavior for males and for females. There are four such structured situations: the family, the school, the peer group and the mass media. These four situations are called agents of socialization. Let's look at the family.

Children often imitate older family members of the same sex. This is how gender characteristics, those behaviors that are appropriate for males and females, are passed on from one generation to the next. Girls imitate the domestic work of their mothers and boys the car-fixing, carpentry and plumbing work of their fathers. In addition, in the home, girls are bought dolls and boys toy guns

as presents.

Let's look at school. School is deliberately designed by society to train children in skills and values. The child is socialized by someone who represents society, the teacher. However, research shows that teachers pay less attention to girls and more to boys. Boys are often called upon to answer more questions more often than girls. Teachers often discourage girls from pursuing careers and often textbooks present a narrow view of girls—keeping with traditional ideas of femininity such as becoming housewives and mothers.

The third situation, peer groups, are where you learn society's expectations from your social equals, your friends, rather than from your social superiors such as parents or teachers. Think about how you have been socialized by your friends through their approval or disapproval of how you dress or behave. For example, girls who don't wear dresses or put on make up; that is, who do not act or dress according to what their peers think is feminine are often called tomboys and made fun of. Likewise, boys who do not act or dress according to what their peers think is appropriate are often called sissies and even suffer physical abuse from others.

Finally, the mass media teaches us what are appropriate behaviors for males and females. Children learn gender by watching what roles females and males play on TV. Females are usually housewives, especially in TV advertising, and males in general play the more masculine roles that involve responsible jobs and often violence. Women are seldom seen as violent on TV. Look at the advertising in magazines yourself and you will see many examples of the different and unequal roles or images of men and women.

What this all adds up to is sexism. Sexism occurs when males and females are socialized, from a very early age, to play not only different roles, but unequal roles in society. This inequality is often justified as based upon biological differences between the sexes—as if women cannot do the same work as men because they are born with breasts—but as we have seen, other than biological differences between the sexes are learned. Gender, ideas about what is masculine and what is feminine, is learned and not given at birth.

Some of the results of sexism are as follows. Women, on the

average, earn 58 to 60 percent of what men earn. That means that for every dollar that a man earns in our society, a woman only earns 60 cents. In addition, women receive unequal pay for the same work as a man. Men are often called administrative assistants while women who do the same work are called executive secretaries and are paid less. Women, if they become pregnant while holding a job, or try to raise children, lose seniority. In addition, when women do work, they tend to cluster in pink collar jobs which means that women tend to work in jobs that reflect stereotypes or traditional female roles; for example, elementary school teachers, domestic help, nurses, librarians, receptionists, secretaries and typists. They pay less than jobs that are normally held by men—such as lawyers, doctors, pilots and dentists—and they reflect the traditional role of a woman as either subservient to a man or as taking care of children and the home.

In addition, women experience what are called glass ceilings in the

workplace. Women professionals tend to be promoted only up to a certain level and not promoted above that. The idea here is that women look up and see executives above them on a higher floor, but can't break through the ceiling to get the better job because of sexism—society's image of women as being unequal to men. Let me give you an example. There's a very well known business magazine called Fortune magazine. Every year they list the top 500 richest corporations in terms of assets. Of these top 500 corporations, only two are headed by women and one of these women inherited that position from her father.

But again let me remind you that sexism, inequality between men and women, has no basis in human nature. It is purely a product of how society has socialized us as individuals and therefore this inequality between men and women can be eliminated.

And now, I'd like to ask you some questions about what you have learned.

Literal questions

1. What would be a masculine gender characteristic?
2. What would be a feminine gender characteristic?
3. Are children born behaving either masculine or feminine?
4. What is the name of the way in which society teaches us what behaviors are expected of males and females?
5. How are gender characteristics learned in the family?

6. How are gender characteristics learned at school?
7. How are gender characteristics learned from peers?
8. How are gender characteristics learned from TV?
9. What is sexism?
10. What are pink-collar jobs?
11. What is the glass ceiling?
12. Can sexism be eliminated?

Analytic questions

13. Is wearing lipstick a gender characteristic?
14. If you were raising both a boy and a girl child, and you wanted them to grow up to play equal roles in society, how would you raise them?
15. How have you been socialized?
16. Why do you think teachers pay more attention to boys than girls in the classroom?
17. A teacher in a high school dissuades a female student from going on to college and pursuing a career. What is this an example of?
18. Which of the four agents of socialization do you think has the most effect on children and why?
19. Based on this lecture, should women do the same things as men in the military?
20. Would being an accountant be an example of a pink-collar job?
21. Suppose a man was a lawyer's assistant and a woman was a paralegal. They both did the same exact work. Who would most likely be paid more?
22. Why do you think there is a glass ceiling?
23. What would society be like without sexism?
24. How can we eliminate sexism in our society?

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Note:

The project described here was supported by a grant (No. H133C20084) from The National Institute on Disability & Rehabilitation Research.

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