When possible, the source text was included in the research materials. Analysis was based on a visual record of the signer, the voice of the interpreter producing the target message and a verbatim transcription of the English interpretation. In this way the lag time, that is, the interpreter's processing time, could be assessed.

Pilot studies and expert panel reviews

Two pilot studies were conducted in Alberta. Three expert panel reviews were conducted in Minnesota, Oregon and Colorado. A total of 44 deaf and non-deaf people were involved in the reviews. All of them were from Canada and the United States and had two to thirty-five years of experience teaching interpreters. They were either nationally certified interpreters in Canada or the United States, or certified instructors with ASLTA (American Sign Language Teachers Association).

After each line-by-line review, the panelists' comments were documented and incorporated into the successive versions of the instrument.

It was agreed by all reviewers that interpreters had problems with the source language, ASL, and this affected the interpretation outcome, separately from skills in the interpretation process. First and foremost, interpreters must be fluent in ASL and English.

Results

The significant amount of data collected, made it possible to develop a useful diagnostic assessment tool to categorize ASL-to-English interpretation skills and their possible associated errors. These include skills at lexical and at discourse levels. The lexical level refers to knowledge of individual signs and English words. The discourse level refers to elements of meaning expressed when lexical units are joined into phrases, sentences, paragraphs and entire texts.

The research led to identification of six major features of interpretation from ASL to English:
- o   two pertain to ASL comprehension
  - comprehension: ASL lexicon
  - comprehension: ASL discourse
- o   three pertain to English production and delivery
  - production: English lexicon
  - production: English discourse
  - delivery: public speaking
- o   one pertains to the image the interpreter projects
  - composure and appearance

ASL comprehension

The research for the textbook, *Interpretation Skills: English to American Sign Language,* showed ASL competency was a key area of concern. The same phenomenon showed clearly in the 1995 - 2001 research, which provided evidence that many interpretation errors were due to lack of comprehension of the source language, ASL. Therefore, effectiveness and accuracy in the interpretation needed to be analyzed in relation to the signing comprehension skills of the interpreter.

Analysis of the research material showed that accuracy of interpretation was affected by factors like the speed with which ASL was delivered, the signing style of the signer, such as left-handedness, and regional differences between signer and interpreter.

The lack of ASL comprehension that appeared regularly in the research, made it clear that ASL lexicon and ASL discourse are two important features of interpretation that need to be addressed in analysis and assessment.

English production and delivery

The research showed that skill levels in the production and delivery of spoken English varied among the interpretations analyzed. The better the command of English at both the lexical and discourse levels, the better the final product. Lack of public speaking skills also impacted the effectiveness of the interpretation.

Interpreter's image

Listeners can grasp the signer's message most easily when the interpreter's appearance and mannerisms are not distracting. For example, an interpreter may be frowning with concentration even while interpreting a joke. In the research samples this kind of inappropriate addition of information occurred frequently.

Categorizing knowledge-lean and knowledge-rich skills

The research lead to an analysis of the interpretation process in terms of knowledge-lean and knowledge-rich skills. "Knowledge-lean" skills are basic and fundamental language skills. In the ASL-to-English interpretation process, knowledge-lean skills are related to ASL comprehension at the lexical and discourse level. Basic knowledge of English at the lexical level is also a knowledge-lean interpretation skill. These three kinds of lean skill must be present before an interpreter can move to complex interpretation tasks.

"Knowledge rich" refers to context-sensitive interpretation skills that allow an interpreter to communicate the subtle differences in meaning and tone that the signer is expressing. Knowledge-rich skills give access to a more complex level of meaning than verbatim (word for word) interpretations. English production at the discourse level, delivery, and composure and appearance are all knowledge-rich skills.

An example of knowledge-lean and knowledge-rich skills can be drawn from the field of construction. A building can not be constructed before an appropriate site is located, a plan is drawn, materials are gathered and qualified workers are available. These preparatory steps are knowledge-lean, or foundational skills. Only with such resources in place can the actual construction begin. The final product and the quality of the completed construction depend on the overall expertise – knowledge rich skills – contributed during each step of the process. For example, if the site is too small for the building planned, then the entire project will be weak and the outcome less than desirable. If, on the other hand, the site is well chosen, the architectural plan is suitable to the site (e.g., appropriate to the neighborhood in terms of appearance and size), if the materials are of

good quality, and the workers are highly skilled, then the final structure will be well made.

MAJOR FEATURES	COMPLEXITY LEVEL
o Comprehension: ASL lexicon o Comprehension: ASL discourse o Production: English lexicon	KNOWLEDGE-LEAN SKILLS
o Production: English discourse o Delivery: public speaking o Composure and appearance	KNOWLEDGE-RICH SKILLS

Relationship to the Textbook, *Interpretation Skills: English to ASL*

Similarities

When the original research was conducted for *Interpretation Skills: English to ASL*, it was recognized that ASL-to-English interpretation uses similar skills but requires a different diagnostic approach. For this discussion of ASL-to-English interpretation new data was collected. The same research methodology was used for each text. A literature review was done; a task and error analysis was conducted of live and videotaped interpretations; and finally, pilot studies and expert panel reviews were done.

The most significant finding in both pieces of research was that many of the errors demonstrated in the interpretation samples were caused by deficiencies in interpreters' ASL skills. When interpreting from English to ASL, it was ASL signing skills that were lacking. With ASL-to-English interpretation, it was ASL comprehension skills that were lacking.