The Gap Between Guidelines, Practice, and Knowledge in Interpreting Services for Deaf Students

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In this article, we examine the literature on educational interpreting for information related to optimal interpreting in school settings. This literature review is coupled with an examination of 15 guidelines for educational interpreters in school districts and programs for the deaf and hard of hearing across the United States. With this information, we then explore discrepancies between what guidelines recommend, what actually occurs in classrooms, and what research on the process of interpreting has found on the basis of three major areas of concern: the production of the message by the interpreter, the reception of the message by the student, and additional responsibilities required of interpreters working in school programs.

For a long time interpreters have been shortchanged by the education system. Whether interpreting for students, working as teacher aides, or performing other noninterpreting duties, they have received poor pay and uncertain status (Kluwin, in press). The dismal picture of the professionalism among American educational interpreters painted by Stedt (1992) and the precarious state of educational interpreting in Alberta presented by Schein (1990, 1992) point to a need to improve the professionalism of educational interpreters through precise role definition, training and incentives for the improvement of skills, and better systems of ac-

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countability. The urgency of this need is highlighted by an overall shortage of qualified interpreters working in schools (Stuckless, Avery, & Hurwitz, 1989).

The growth of educational interpreting as a field corresponds with the increase in the number of deaf students receiving an education in public schools. Clearly, the movement to educate deaf students alongside their nondeaf peers has been facilitated by interpreters: "Interpreting provides the linchpin holding together the integration of deaf students" (Schein, 1992, p. 1). Although acknowledged, the critical nature of the role that interpreters play in the education of deaf students has not been met with efforts to nurture the growth of that role professionally. Instead, as their numbers have grown rapidly, educational interpreters essentially have been left to their own devices in trying to adjust to the interpreting demands of each student and ensure their effectiveness in facilitating the exchange of information. As a result, "many aspects of educational interpreting are vague and lacking in research data" (Stedt, 1992, p. 96).

Despite the increase in the number of interpreters employed in schools, demand continues to outweigh supply, which exacerbates efforts to monitor and improve the work of educational interpreters (Stuckless, Avery, & Hurwitz, 1989). As schools struggle to fill positions in interpreting there are times when the only available person is someone who knows little signing and nothing about the actual task of effectively inter-

preting for students but who is willing to undertake the responsibility (Kluwin, in press; Schein, 1992). Faced with a some-or-nothing situation, school administrators are forced to sacrifice interpreting standards in an effort simply to fill positions. In a survey of 158 school administrators in Alberta, Schein, Mallory, & Greaves (1991) found that most never mentioned "signing ability among the qualifications necessary" for educational interpreters (p. 32). Following up on this omission, the authors discovered that interpreters could be hired "who have no knowledge of sign—any type of sign— but who are willing to learn" (p. 32.), a finding recently reiterated by Kluwin (in press) about the United States.

Even when interpreters are formally trained, they may not be prepared to work in schools. The Commission on Education of the Deaf ([CED], 1988) observed that only two interpreter training programs were involved specifically in preparing interpreters for work in an educational setting. This finding has found support from a survey of directors of interpreter training programs, who indicated that 69% of their programs had no specific course on educational interpreting (Dahl & Wilcox, 1990).

From a deaf student's perspective the effectiveness of interpreting in a classroom can be highly variable. Optimal interpreting should involve communication use that allows the student to fully participate in classroom discussions as well as to attain a comfortable personal level of involvement with others in the classroom. Now, however, because of an inadequate research base, it is not possible to define adequately the steps to achieve optimal interpreting in school settings. Nonetheless, it is possible to identify some of the parameters necessary for thinking about interpreting in classrooms and how deaf students process interpreted messages.

Rittenhouse, Rahn, and Morreau (1989) delineated some of these parameters in their examination of effective interpreting from a deaf student's perspective. Specific factors that were related to successful interpreting included the pacing of interpreting; the general intelligence of an interpreter; interpreting skills as demonstrated by the ability to select appropriate signs, to perform reverse interpretation, and to adjust to situation-specific interpreting; physical skills such as manual dexterity and hand coordination; and knowl-

edge of interpreting etiquette, such as their physical positioning, which included adjustment to lighting and background. There is, however, little research to support or expand upon the findings of Rittenhouse et al.

In this article, we will examine the literature on educational interpreting in terms of three major areas: the production of the message by the interpreter, the reception of the message by the student, and additional responsibilities required of interpreters working in school programs. We will then present information on recommended practice by reviewing 15 sets of guidelines for educational interpreters in school districts and programs for the deaf and hard of hearing across the United States. Finally, we will explore the discrepancies between what guidelines recommend, what actually occurs in classrooms, and what research in the process of interpreting has found, for each of the three categories.

Reviewing the Research

The Production of a Comprehensible Message

Interpreting for deaf students in an educational setting requires a unique set of skills that allows an individual to facilitate communication in the auditory and visual channels. A consideration of the available research suggests that three main components relating to the production of a comprehensible message are appropriate sign communication use, performance criteria, and personal traits of the interpreter.

Appropriate sign communication use. Appropriate sign communication use refers to the use of a type of sign English or American Sign Language (ASL). In addition to sign communication use, issues such as appropriate sign selection and sign/concept correspondence affect the production of a comprehensible interpretation (Stedt, 1992). Performance criteria during interpreting include the physical position of the interpreter, lag time between utterance and interpretation, and the general pacing of the interpretation. Personal traits of the interpreter include factors such as the interpreter's educational background, intelligence, sociability, and manual dexterity (Rudser & Strong, 1986).

Acquiring proficient sign communication skills consumes much of the effort of interpreter preparation

programs. Schein et al. (1991) transcribed the messages delivered by one interpreter working at the elementary level and by another interpreter working at the secondary level. The interpreter at the elementary level did not attempt to provide simultaneous interpretation of what the teacher was saying, whereas the secondary level interpreter did provide simultaneous interpretation. Neither interpreter was successful in consistently conveying what the teacher was saying. Interviews with the interpreters indicated that both of them were aware of their shortcomings.

Among the many skills that interpreters need are the ability to translate English to ASL and ASL to English and the ability to transliterate English from speech to signs and signs to speech using a form of English-based signing. Rudser (1986) found that experience attained by two interpreters over a 12-year period led to an increase in the number of ASL features used in their interpreted message, a finding duplicating Kluwin's (1981) description of teachers learning to sign and the need to incorporate the use of ASL or ASL features in all types of interpreting situations, including those where English is being expressed in signs.

Winston (1989) has examined the effectiveness of transliteration. Using videotaped observations, she described and analyzed the transliterated message of an interpreter conveying content delivered in a university-level course. The transliterated message featured both English-like signing and many ASL features, such as the omission of pronouns once the subject has been established in a discourse. This finding concurs with the research of Newell, Stinson, Castle, Mallery-Ruganis, and Holcomb (1990) who found that deaf instructors working at a postsecondary institution used ASL features to enhance their sign English communication. The ASL features used included providing nonmanual linguistic information such as those incorporated in facial expressions and altering the speed and movement of a sign to specify the meaning of a sign (e.g., ago, long ago, a very long time ago). Thus, Winston's (1989) research has implications for interpreting situations where a student requires messages to be conveyed in English and where a particular English sign code such as Signing Exact English (SEE 2) is mandatory.

Dahl and Wilcox (1990) reported that 91% of the interpreter preparation programs they surveyed used a form of Pidgin Signed English (PSE), 29% used Signed English, and 13% used SEE 2. While the majority of programs advocate the use of SEE 2 or Signed English, most interpreters (91%), according to Dahl and Wilcox, are trained to use a generic PSE type of signing (Woodward, 1973). The authors said that they did not inquire about the use of ASL because they assumed that ASL would be included in the curricula of all interpreter preparation programs surveyed.

Educational interpreters must be prepared to use a variety of sign communication in order to meet the diverse communication needs of students. Mertens (1991) surveyed 28 deaf students who had participated in a four-week workshop where interpreters were used. Several students from residential schools made a specific request for the interpreters who knew ASL, yet "many of the other students came from mainstreamed schools and did not use ASL" (p. 50). Mertens concluded that "the sticky problem of the heterogeneity of the deaf population remains, and requests for different languages in the classroom must be addressed" (p. 52).

Differences in signing systems between the interpreter and the deaf student can create problems for both. Stedt (1992) estimated that an interpreter using a generic PSE system with a student using SEE 2 would probably have recognition or production problems with somewhere between 21% and 39% of the signs used. The student would likely be confused and frustrated until she and the interpreter found a common ground for communication. Possibly, interpreter-student mismatch in signs may create a problem, although research is needed to determine what the problem, if any, might be.

However, Hatfield, Caccamise, and Siple (1978) reported in a study of 219 students at the National Technical Institute for the Deaf (NTID) that for highly and moderately skilled deaf signers, there was no difference between their comprehension of information presented in ASL or in sign English—that is, the type of sign communication used was not a factor for these two groups. Earlier, Caccamise and Blaisdell (1977) compared nearly 300 NTID students on their comprehension under five different communication situations. While the students could be differentiated on their ability to process speech under various conditions, the use of manual communication with voicing did not

differentiate within the group. In a later study, Cokely (1990) did not find statistically significant differences between the comprehension of presentations in sign English signed with voice, ASL, and an interpreted lecture. Although the processing of the information might be different, depending upon the language used to convey the lecture material, it is possible that the type of signing is of secondary importance in the comprehension of interpreted messages and that other features relating to presentation exert more of an influence than the type of signing used.

Performance criteria. Cokely (1986) examined one of the more obvious production problems for interpreters—lag time. Lag time is the length of time between a speaker's voiced information and the signed counterpart produced by an interpreter (Cokely, 1986). When training interpreters, lag time is often one of the factors that is used for evaluation, with short lag times being highly desirable. Cokely (1986) found that there was an inverse relationship between lag time and errors made during interpreting. That is, when lag time increased, errors decreased. Interpreters with a 2-second lag time made twice as many mistakes as interpreters with a 4-second lag time who, in turn, had twice the amount of errors of interpreters with a 6-second lag time. It appears that the longer lag time is needed for interpreters to properly process the linguistic features of one language and transmit them into the second language. It has been pointed out that this inverse relationship would not continue with extremely long lag times (Stedt, 1992). An interpreter with a lag time of 20 seconds for example, would most likely produce many errors due to short-term memory constraints.

The issue of optimal lag time involves not only interpreting performance but situational constraints as well. Rowe (1974) pointed out that the wait time between a teacher's question and the students' responses in a classroom is measured in fractions of seconds. Lag times of four to six seconds would mean that an interpreter could be starting a teacher's question by the time the response had been given and the teacher was giving feedback on a specific response. Such discrepancies would produce confusion for the deaf student in a discussion-oriented classroom. This issue is little recognized in that only one of the guidelines we examined referred to how important it is that interpreters monitor their lag time for any adverse affect on the production and comprehension of interpreted messages.

Personal characteristics. We mentioned earlier Rudser and Strong's work (1986) which suggests that personal factors such as educational level, intelligence, manual dexterity, and sociability will impact the quality of the message. Unfortunately, this study suffered from some serious shortcomings including a small sample of interpreters and data that were collected at a time (1973) when interpreting was just beginning to become a profession. We could find no other studies that actually tested hypotheses relating to personal characteristics in an interpreting situation.

In summary, current theoretical research and research in practice in the area of production issues is unsatisfactory. Some sign communication use studies exists, but there is more controversy in the field than research to support the controversy. Studies of performance criteria appear to be limited to a single study of a single variable—lag time—which has tremendous potential to disrupt the comprehension of the deaf student in the interpreted classroom. No one as yet, however, has pursued this area of concern. We have one study of the personal characteristics of the interpreter from the client's perspective, but we have no independent verification of the impact of these personal perceptions on actual learning in the classroom.

Reception of an Interpreted Message

Administrators and teachers in general education often make the false assumption that deaf students fully comprehend the information being conveyed by interpreters. Although data are limited, many deaf students have admitted that they do not understand everything an interpreter might be signing to them (Schein, 1992). Yet, they will persist in using an interpreter because they do understand more than they would have understood in the absence of an interpreter. From the perspective of the deaf student, more effective interpreting might be facilitated with a better understanding of those factors that affect deaf students' reception of an interpreted message.

Although little is known about the relationship be-

tween interpreters and the students for whom they interpret, it is reasonable to assume that not every student will perceive each interpreted message in an identical fashion. Deaf students have diverse needs requiring a high degree of flexibility in the interpersonal, instructional, and communication expertise of teachers, interpreters, and other support personnel in the schools (e.g., CED, 1988; Lerman & Vila, 1984; Lucas, 1989; Quigley & Paul, 1984). At present, we simply do not know how much information is lost to the student during the process of interpreting (Stedt, 1992); however we can assume that two major categories of factors will influence the process: student characteristics and general psychological problems in information processing.

Student characteristics. Schein (1990) identified characteristics of students deemed to be critical in processing an interpreted message. These characteristics were degree of hearing loss, age at onset of deafness, and additional disabilities. Students with a severe to profound hearing loss typically have different communication needs than those with a mild to moderate hearing loss, and the needs of both groups of students may be affected by other disabilities. For example, persons with a hearing loss are more likely to have visual impairments than the general population (Schein, 1986). Schein (1990) suggested that when determining interpreting or other support services to be provided, students should be divided into two levels, where one level represented those students with a mild or moderate hearing loss and the second level consisted of students with a severe or profound hearing loss. An additional educationally significant factor is the student's age, a point made by Kluwin (in press) when looking at interpreters in elementary and high schools and community colleges.

Processing needs of the student. The degree to which a deaf student is able to use prior knowledge to assist in processing the interpreted signal and to comprehend the underlying content will also influence comprehension and retention. An example of the familiarity issue is provided by Kluwin (1985) in a study of the comprehension of a signed lecture by deaf adolescents. Those subjects who failed to access the initial structure of the

presentation were required to retain the information in the lecture as a list rather than as a structure—a tremendous demand on memory. Given that memory is finite, the list strategy meant that only a few of the total elements could be held, and if these elements had no additional referential information attached, recall was severely limited. The subjects who employed a structured strategy, that is, were able to perceive and retain the structure of the information, could acquire more information through the process of using recalled elements as indices for other content. In both list and structure processing, the most salient features of the discourse were recalled, but in the latter the salient features could then be used to access deeper levels of information because the salient features contained relational information. By connecting the relations at each level with lower level information, the subjects were able to rebuild larger structures in recall.

The deaf adolescents in Kluwin's (1985) study behaved as previous research predicted. Recall of the structure of information is essential to the quantity of information recalled. The recognition of structure during the presentation of information permits the viewer both to store the incoming information more efficiently and to retrieve it in greater detail later. Stinson (1981) has also demonstrated that structural features of lectures were a determining component of comprehension during an interpreted lecture.

Jordan (1975) studied nondeaf and deaf subjects in a referential communication task. He found no real differences between nondeaf subjects who were speaking and receiving spoken directions and deaf subjects who were signing and viewing signed directions. Both groups successfully completed their identical tasks, although they used different modes of communication. In fact, Jordan showed that the stimulus for the referential communication—the content of the information—was a larger source of difference within individual subjects' performances than was mode of communication between groups of subjects' performances.

Clearly, students' familiarity with the content and students' access to structural information about the topic impact their ability to process signed presentations. As regards the issue of the reception of the signed communication, there is speculation as to pos-

sible student characteristics based on clinical experience and current practice, but currently there is no empirical data to support any of these speculations. There is some research related to the processing needs of deaf students receiving a signed lecture that suggests that generic psychological processing issues such as familiarity with the subject matter and the perception of the structure of the information prior to beginning the message impact comprehension, but there are no classroom studies to support this area of concern.

Classroom Adjustments and Additional Duties

In addition to the actual task of facilitating communication, interpreters are often called upon to act as tutors, classroom aides, liaisons between the deaf and nondeaf student body, sign language instructors, and monitors of a deaf student's work and to fulfill many other roles (Kluwin, in press; Schein et al., 1991; Stedt, 1992; Stewart, 1988; Zawolkow & DeFiore, 1986). While Stewart (1988) has suggested that diversifying the roles of interpreters might enhance their marketability, little research is available that has specified the extent of these roles in the field and even less research has examined the impact of these roles on interpreter performance and student learning.

Additional duties. Schein et al. (1991), in a survey of administrators, found that in practice interpreters have many additional responsibilities including sign language instruction, speech/language instruction, personal attendant services, social support for deaf students, maintenance of amplification equipment, assistance with behavior management, and rearrangement of the classroom to accommodate deaf students. Other tasks included teaching age-appropriate concepts and teaching new signs (Schein et al.). Comments from the interpreters themselves indicated that they functioned as part of an educational team.

In an investigation of high school programs, Moores, Kluwin and Mertens (1985) reported that interpreters are expected to be a part of the education team working with deaf students. This function distinguishes them from interpreters in other settings (e.g., mental health, legal) whose participation is limited to the act of interpretation and does not involve consulta-

tion on a team (e.g., a group of lawyers) working with their clients (see also Stedt, 1992). Kluwin (in press) reiterates the range of additional responsibilities for educational interpreters as well as the diversity of their skills. Without research support, it is unclear if these additional responsibilities hinder or enhance the overall performance of interpreters.

Classroom adjustments. In a survey of high school programs for deaf students in three large city systems, Moores et al. (1985) reported that there are three basic ways that a deaf student and an interpreter can be placed in the classroom: line-of-sight, sideline, or in some special situation. Line-of-sight placement means that the interpreter is positioned in a direct line between the deaf student and the teacher so that the deaf student only has to shift eye gaze to see the teacher, the board, or the overhead display. Sideline placement means that the teacher occupies the central portion of the classroom and the interpreter and student are off to one side. In this configuration the deaf student would have to look away from the interpreter to see either the teacher, the board, or the overhead. Finally, some situations are peculiar to the subject matter, such as auto mechanics.

The importance of positioning in the classroom was illustrated by Saur, Popp, and Isaacs (1984) in a study of the action zone in classrooms where deaf college students were mainstreamed. In situations where action zones or areas of intense classroom activity could be identified, they found that the deaf student was generally located outside of this zone. Possibly, the positioning outside of an action zone might have been prompted by the placement of the interpreter in a position that was the least disruptive to the rest of the class's view of the teacher. Research is needed to delineate any possible educational effects that placement of students in or out of the action zone might have and how these effects are influenced by the presence of interpreters.

Reviewing the Guidelines

Given the information on educational interpreting revealed in the literature, we now turn to another knowledge base—guidelines for educational interpreters

developed by various school systems. What we are interested in is the extent to which the guidelines cover the areas relating to the production of interpreted messages, the reception of interpreted messages, and other duties assigned to interpreters. This task is not as clearcut as the review of the research literature because of idiosyncrasies associated with each guideline. For instance, one of the guidelines we reviewed had a Health Tips section, in which it stated, "prior to interpreting in a cold classroom, run hands under warm water or a hand dryer" (Hinsdale South High School, 1986, p. 7), a pointer that was not to be found in any of the other guidelines. In fact, none of the other guidelines contained a section relating to health, although most did mention the health risk of repetitive motion on the wrist.

Also, guidelines are not usually written for general distribution to people outside of a school system or for the purpose of disseminating comprehensive information about what they contain. Most of the guidelines consisted of rules and suggestions without an accompanying rationale or explanation. One of the guidelines stated that it was the interpreter's responsibility to "encourage student to participate in class discussion" and to "encourage student to use voice at all times" (Ann Arbor Public Schools, 1987) but offered no reason why the interpreter was expected to do something that is usually thought to be under the domain of the teacher. Therefore, given the idiosyncratic nature of the guidelines and the apparent lack of congruity across the areas each addressed we could only provide a summary of some of the major areas covered.

In all, we reviewed 15 guidelines for educational interpreters for a nonrandom sample from around the United States. We cannot say whether or not these guidelines are representative of the entire pool of guidelines from all school systems. Our review, however, spanned all major regions of the United States and included programs and schools for deaf and hard-of-hearing students, commissions on the education of deaf children, and agencies at both the grade school and college level. The guidelines reviewed were from the Alaska State School for the Deaf/Anchorage School District; Ann Arbor Public Schools, Michigan; Broward County Schools, Florida; Coast Community College District, California; Dakota County Area Vo-

cational Technical Institute, Minnesota; Florida Bureau of Education for Exceptional Students: Division of Public Schools; Golden West College, California; Hinsdale South High School, Illinois; Lacrosse School District, Wisconsin; Massachusetts Commission for the Deaf and Hard of Hearing; Mesa County Valley School District, Colorado; Pasadena Area Community College District, California; Sedalia School District, Missouri; Umatilla Education Service District, Oregon; and Virginia Beach City Public Schools, Virginia.

A content analysis of the guidelines suggested several major points of concern, including basic duties such as voice-to-sign interpreting, reverse interpreting (sign-to-voice interpreting), and the disciplining of students by the interpreter. Production issues primarily covered the selection of a particular form of sign communication. Reception issues or requirements that the interpreter be able to receive information in whatever language and modality form the student uses were·· never covered in any of the guidelines we reviewed. We do not know, for instance, whether, if a student uses SEE 2 in a program that does not endorse the instructional use of this form of sign communication, the interpreter will be required to understand the student's use of SEE 2 sign affixes and initialized signs.

Considerable space in the guidelines was devoted to additional duties such as training the student in using an interpreter, knowing the code of ethics, handling- - sensitive situations, explaining the role of the interpreter to the teacher, positioning students in the classroom, and so on. Sections relating to the personal behavior of the interpreter included guidelines such as not interjecting personal opinions during interpreting, maintaining confidentiality, and professional demeanor.

As Kluwin (in press) points out, in practice there have evolved several different types of interpreters in the schools. This differentiation is reflected in the guidelines for these positions. The various guidelines identify two basic types of interpreters: interpreters and interpreter/aides. Interpreters have interpreting as their primary responsibility while interpreter/aides have additional educational responsibilities that alter not only their role but also their relationship with the student. The various rules within the guidelines of school districts can be lumped into three categories,

namely, overlapping rules or rules that apply to both categories of interpreters, interpreter-only rules, and interpreter/aide rules.

Overlapping rules contain specifications for voice-to-sign interpretation, reverse interpreting, and maintaining professional confidentiality, in other words, the basic job description. In addition, overlapping rules include the criteria for selecting assignments and for response to student variation. In both cases, the guidelines almost universally leave the decision up to the interpreter. On the surface this would appear to be a reasonable decision if one assumes that the interpreter is a highly trained professional; however, as we have seen in our consideration of both research on practice and theoretical research, there are two glaring problems with this assumption. First, clearly not all interpreters are professionally equal (Kluwin, in press; Schein, 1992); and second, even if all interpreters were highly trained professionals there are enough gaps in the theoretical research, particularly in the areas of differential client response to interpreting based on characteristics such as his or her age and degree of proficiency in signing, to give one pause.

Interpreter-only rules tend to involve detailed issues regarding the task of interpreting, for example, code selection. Guidelines break into three categories on the basis of directions for selection of type of sign communication: none, flexible, and specific. School districts that emphasize the interpreter/aide model either have no guidelines for code selection or make it flexible. School districts in which the "straight" interpreting model is being followed tend to emphasize a particular type of sign communication or have a preferred type of sign communication and leave latitude in sign selection to the interpreter. As we saw in a consideration of the research, for all practical purposes the type of sign communication may be irrelevant for a skilled signer; however, that is a strong assumption to make about a younger school child. While there are many advocates of diverse methods of signing, there is relatively little research guidance in this area.

In school systems where the interpreter/aide model is used, there are requirements that the interpreter know the educational needs of the child, perform other duties, and convey personal information about the child to other adults. Confidentiality, in particular, differentiates the interpreter/aide from the interpreter and puts the field into totally uncharted territory. In the first place, we could not locate any information about how the personal relationship between the interpreter and the student would influence the process. This role of being a responsible member of an adult educational team puts the interpreter/aide in potential conflict with the confidentiality expectation. After all, interpreters who abide by the Registry of Interpreters for the Deaf Code of Ethics are committed to keeping all assignment-related information confidential, including information gained while interpreting. Over time this role conflict must have an impact on how the student views the interpreter and the utility of the interpreter to the student. For example, will deaf and hard-of-hearing students be less likely to seek an interpreter for assistance in making social contacts because of the ambiguous role of the interpreter, thus reducing their access to hearing peers?

Another important issue in the interpreter/aide model is the relationship of the interpreter to the instructional process. We do not normally expect interpreters in any setting to alter in any way the message that they are interpreting. An interpreter/aide, on the other hand, may be expected, or at least might assume, that the need for the student to comprehend the instructional material allows him or her to expand upon a message in the hope that the student will have a better understanding of it.

State of Knowledge Versus Knowledge of Practice

Using our earlier three-by-three organization of categories of concern (production, reception, other classroom applications) and types of knowledge (guidelines, practice, and research), we can draw some general conclusions from our review. Table 1 provides a summary of the degree to which our concerns are addressed in each of our knowledge bases.

The production of interpreted messages remains a moderately researched, highly discussed area in which practice is far from stable. Kluwin (in press) summarizes some of the current controversy by describing educational interpreters in schools who advocate conceptually appropriate signed English and professional

Table 1 Synthesis of guidelines, research on practice, and theoretical research

Categories of concern	Types of Knowledge		
	Guidelines	Research on Practice	Theoretical Research
Production	Some	Some	Some
Reception	None	None	Very little
Classroom applications	Highly variable	Some	None

interpreters who espouse greater use of ASL. Perhaps what is more daunting is not the controversy over the mode of communication or type of sign communication used, but the general lack of quality in the signing skills of many interpreters (Kluwin, in press; Schein, 1992). Our brief review of studies of the efficacy of signing systems suggests that the type of signing may not significantly influence comprehension. Nevertheless, it may be important from the interpreters' perspective because as their signing becomes more ASL-like, it may become easier for them to produce signed interpretations. While in either case there is little certainty at the moment as to which type of signing evokes the best comprehension, language choice (e.g., ASL or English) is becoming a critical issue in the education of deaf children because there is a strong movement to make ASL a language of instruction (Stewart, 1993).

What is not readily apparent from either experimental research or from descriptions of actual practice is the issue of the pace and timing of the interpretation. While Cokely's (1986) study on lag time and error rates has significant implications for the quality of the interpreted message, it has not been tested under the interactive conditions found in many classrooms. It is entirely possible that increased lag times in interpreting would improve the quality of portions of the message, but it is also possible that the interpreter could fall so far behind the action that other critical information could be lost. Given the importance of understanding interpreted messages, it is regrettable that the ability of the viewer to process the message has not been considered.

Theoretical research has barely touched the issue of reception of the message, and studies of practice are nonexistent. Thus, we should make no recommenda-

tions until the theoretical and practical research base is considerably expanded. In ASL, as with any other language, the interpretation of both the form and the intent of the message is dependent on context. The absence or ambiguity of rhetorical cues can produce processing errors, but we do not know to what degree this process functions in classroom interpretation and its impact on the child's understanding.

Our knowledge of the necessary classroom or school-based adaptations to interpreting that will ensure a successful experience for the deaf child is very limited. A lack of theoretical research in this area, very little description of actual practice, and a plethora of very different and sometimes contradictory positions represented by existing guidelines indicate the need for a real knowledge base in this area.

Conclusion

At present we suffer from no lack of guidelines for educational interpreting. We have a middling and slowly growing amount of information on actual classroom or school practices. We have hardly reached the saturation point in field-based observations of practice, but a reasonable body of information is growing. What the field lacks is research into the theoretical underpinnings of the process of interpretation, both at the laboratory and the field level. For example, replications of Cokely's (1986) findings on lag time are needed if only to verify his original findings; however, we also require field studies of interpreting in classrooms to see the effects of longer and shorter lag times on comprehension of the message. Given previous research on information processing of signed messages (Jordan, 1975; Kluwin, 1985, Stinson, 1981), it is entirely likely that we will find that longer lag times improve the comprehension of the content and structure of lectures but degrade the ability to understand discussions. Such a finding would in itself suggest a need for a greater degree of sophistication and training for effective classroom interpreting.

There appear to be a wide range of expectations placed upon educational interpreters with respect to their responsibilities within the school (Schein et al., 1991; Stedt, 1992; Stewart, 1988). As yet, no attempt has been made to determine the impact on interpreting when interpreters are expected to assume noninterpre-

ting responsibilities such as tutoring and teaching sign language. As a case in point, how might interpreters resolve conflicts that might arise with the code of ethics if they are expected to report on a student behavior in their role on that student's educational team?

Deaf students will always have the option of being educated in a setting requiring the use of an interpreter. Yet, placement in such a setting does not necessarily ensure success for these students. Deaf students bring a diverse set of characteristics to the classroom that influence the way in which members of an education team can assist in their learning. In addition, teachers' instructional behavior, subject matter content, and other features of classroom instruction not under the control of interpreters or students may affect the production and reception of interpreted messages. Recognition of student and situational diversity in the classroom requires that educational interpreters be equipped with the knowledge and skills to accommodate the individual needs of those for whom they are facilitating communication.

The literature speaks clearly to the need to improve the current status of interpreters working in school settings. Delineation of job responsibilities, educational opportunities for improving interpreters' knowledge and skills, and more adequate remuneration for the work of interpreters appear to be the major concerns of educational interpreters and their administrators; however, there is little research or guidance with regard to the needs of the client: the deaf child in the local public school. While we need to improve the quality of interpreting and the status of educational interpreters, we also need to define through more careful and more abundant research precisely what quality means in this situation.

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