

C r i t i c a l L i t e r a c y I s s u e s i n D e a f E d u c a t i o n

i n t h e U n i t e d S t a t e s

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A b s t r a c t

Current issues related to reading achievement of deaf students in the United States relate to whether signed or traditionally-spoken languages should be the deaf child's first language, how traditionally-spoken¹ languages should be conveyed, the role of phonics in the reading curriculum, and the role of tests in reading instruction. These issues cannot be resolved until parents and educators have a shared understanding of reading and reading comprehension. This paper presents a particular view of reading comprehension, describes the different positions on the issues, and discusses positions on those issues which can be defended with this view of reading.

R é s u m é

Aux Etats-Unis, les problèmes actuels posés par l'apprentissage de la lecture par les élèves sourds sont de savoir si c'est une langue des signes ou une langue parlée de manière traditionnelle¹ qui devrait constituer la première langue de l'enfant sourd, de quelle manière les langues parlées de manière traditionnelle doivent-elles être transmises, quel est le rôle de la phonique dans les programmes scolaires de lecture et quel est le rôle des tests dans l'enseignement de la lecture. Ces problèmes ne pourront trouver de réponse tant que les parents et les éducateurs ne partageront pas une même conception du processus de lecture et de la compréhension de la lecture. Le présent exposé présente un aspect particulier de la

¹ English, Spanish, French, etc. are referred to here as « traditionally » spoken languages because speech is not a requirement when Cued Speech is used (Beaupre, 1986; Cornett, 1973; Fleetwood, 1994; Fleetwood & Metzger, 1998)

compréhension de la lecture, décrit les différentes positions sur ces problèmes et examine celles qui peuvent être défendues à la lumière de cet aspect de la lecture.

C R I T I C A L L I T E R A C Y I S S U E S I N D E A F E D U C A T I O N
I N T H E U N I T E D S T A T E S

Few topics generate as much emotion in parents, educators, and others interested in academic development of deaf children in the United States and other countries as those related to literacy. Deaf students' standardized reading achievement scores in the United States today remain virtually unchanged from those 30 years ago - with the average 18-year old deaf student in the United States scoring like the average 8-9 year old hearing student (Moore, 1996; 1996 SAT Norms).

Low reading achievement among deaf students persists today despite: (1) widespread concern of parents, teachers, and program administrators about reading levels of deaf students, (2) broadly-disseminated results of two federal government-sponsored committees citing reading problems of deaf students as a critical national need (Babbidge, 1965; COED, 1988), (3) the development and extensive usage of manually-coded English (MCE) systems for three decades (Moore, 1996), (4) widespread usage (LaSasso & Mobley, 1997) of Reading Milestones, a highly structured basal reading program specifically developed for deaf students, for a decade and a half, (5) increased usage of approaches to reading instruction framed within a whole language philosophy (Abrams, 1991, 1995; Dolman, 1993), and (6) numerous studies conducted during the past 25 years to try to explain why deaf students do not perform as well as normal hearing students on measures of reading comprehension (See King and Quigley, 1985 and Paul, 1997 for a review).

Among the issues currently being debated among parents and educators in the United States in the context of improving reading achievement of deaf students are the following: (1) should a deaf child's first language (L1) be a _____ language or _____ language, (2) _____ should traditionally-spoken languages be conveyed to deaf children (oral-aural methods, signs, fingerspelling, or Cued Speech), (3) what is the role of phonics in reading programs with deaf children, and (4) what is the role of tests in reading instruction?

Discussions about critical issues related to reading achievement of deaf students are often prolonged or unresolved due to a lack of a mutual understanding about the nature of the reading process and the variables that impact on that process. For example, recently, a college professor, who works with deaf students, lamented that if his students could only "read" the textbooks for the course, the professor would be able to "teach his content" (i.e., history). This professor is typical of many college professors who view reading to be merely a decoding or "sounding out" process. While many parents and educators understand that reading is a more complicated process than merely decoding words - one that involves both linguistic and

cognitive abilities as well as background knowledge - many parents and educators lack a understanding of the variables impacting on the reading process including the reader, text, and task variables (Paul, 1997).

Reading is a highly complex process involving perceptual, linguistic, cognitive, and metacognitive abilities. The process is influenced by a reader's background knowledge, working memory, interest in the subject matter, motivation, and the reader's purpose for reading. A recent national survey of instructional programs serving deaf children in the United States (LaSasso & Mobley, 1997) asked program administrators to rate the knowledge of their teachers in areas related to reading instruction. In that survey, only 22% of the programs rated teachers' being "up-to-date" and 15% rated teachers as having "little knowledge" in this area. Further, only 24% of the programs rated teachers' as being "up-to-date," and 14% rating teachers as having "little knowledge" in this area. While it is unrealistic to expect most parents and practitioners to be familiar with the research and theoretical literature related to literacy and deaf children, it is essential that parents and practitioners have a global understanding of the major variables impacting on reading achievement. Such knowledge is needed in order to structure the deaf child's home and school environment to facilitate the child's acquisition of knowledge and abilities needed for fluency in reading.

A popular psycholinguistic view of the reading process conceptualizes reading comprehension as a process that goes forward or breaks down in terms of the reader's questions. In this view, comprehension occurs when readers get answers to questions (Smith, 1997). If a reader has questions, there is simply no basis for comprehension. Further, a reader who has questions will be overwhelmed or confused, and comprehension will break down. Most readers' questions fall into one of five categories related to (1) the language, (2) the content, (3) the written code, (4) the instructor's purpose for reading, and (5) the format of the post-reading test (LaSasso, 1994).

The purpose of this paper is to illustrate the types of questions readers have in these five categories, describe the different positions on major literacy issues currently being debated in the United States, and discuss these issues in light of the view of reading described here.

R e a d i n g V i e w e d i n T e r m s o f R e a d e r s ' Q u e s t i o n s

Most questions of readers who are reading for their own purpose (i.e., are not in instructional situations, and thereby, are reading for the purpose) fall into one of three categories related to (1) language, (2) content, or (3) code. Two additional categories of questions, for readers in instructional situations, relate to (1) the teacher's purpose for reading and (2) the nature of the test or other post-reading task the teacher will use to make judgments about what the reader comprehended.

Q u e s t i o n s a b o u t t h e L a n g u a g e

Readers' questions about the language typically relate to the vocabulary, syntax (including question forms), or figurative expressions used in text. A deaf reader might have vocabulary-related questions while reading: "A warm-blooded, feathered vertebrate is pursued by the domesticated, feline quadruped," however, have no vocabulary-related questions with "The cat is chasing the bird," or "Le chat chasse un oiseau" which have virtually the same meaning.

Syntax refers to word order or how words are assembled in a language to convey meaning. A deaf reader who is unfamiliar with passive voice construction in English who reads "The bird was chased by the cat" might have a question about whether the bird or cat was chased. A deaf student who has difficulty with question forms might misunderstand the question "Who made the cake?" and respond with "Eggs, oil, flour, and water" (LaSasso, 1990).

Figurative expressions can be especially problematic for literal readers, including young readers, readers whose L1 is different from that used in printed materials being read, and deaf readers (Rittenhouse & Kenyon, 1990; Fruchter, Wilbur, & Fraser, 1984). Examples of figurative expressions in American English are: "He drives me up the wall" (i.e., He makes me crazy); "She opened a can of worms" (i.e., She made a problem for herself); "It's raining cats and dogs" (It is raining hard); "You seem to be down in the dumps today" (You seem to be sad); and "I am fed up with you" (I am not happy with you).

Q u e s t i o n s a b o u t t h e C o n t e n t

Readers may have questions about the content of the text which are separate from questions about the code or language. For example, in Figure below, it is not uncommon for a foreign college student in an American university to select (A) as the response to the inferential question.

TEXT : Mrs Jones, the 3rd grade teacher, sent Johnny to the Principal's Office.

QUESTION : Why did Mrs Jones sent Johnny to the Principal's Office ?

A. To get a pencil

B. To be reprimanded

Foreign readers' lack of background knowledge about the role and normal functions of a school principal may prevent them from selecting (B) as the intended answer while English readers, more familiar with the role of a school principal, have no trouble selecting the "correct" answer. Similarly, deaf students' lack of background knowledge often prevents them from making appropriate inferences while reading. The classic example illustrating the power of relevant background knowledge is that of Bransford and Johnson (1972) :

If the balloon popped, the sound would not be able to carry since everything would be too far away from the correct floor. A closed window would also prevent the sound from carrying. Since

Contextual analysis involves skipping an unfamiliar word and using other words in the sentence or paragraph as clues to the meaning of the unfamiliar word. The meaning of FLAD, SMISH, HALKS, KOFE, and GRIF can be determined through contextual clues in the sentences in Figure below.

A closed figure with three straight sides is a FLAD
You don't have to walk - You can SMISH
Oranges, pineapples, and grapefruit are some of the HALKS grown in florida.
Jack gave his dog a steak KOFE to chew
They look like girls, but they are really GRIFS.

Structural analysis involves using word parts (e.g., prefixes, suffixes, root words, syllables, etc.), to provide clues to word meaning. The usefulness of this strategy is more limited than that of phonics and contextual analysis.

It should be noted that no single word attack strategy works in all situations. For example, some words are phonically irregular (i.e., rules regarding the phoneme-grapheme relationship do not apply). Further, context does not always provide enough clues about the meaning of an unknown word. Also, many words do not contain helpful structural units to assist in attacking a new word. Thus, sometimes the way a reader can determine the meaning of an unfamiliar word is via the dictionary.

The alternative to written words via phonics, contextual or structural analysis or via the dictionary is to use whole word or sight method techniques. Sight methods involve having students print forms of words. Initially, words are distinguished on the basis of (1) shape or the gestalt of the word, (2) initial letter, (3) word length, or (4) unusual internal detail such as double letters. With sufficient exposure (30-35 times for an average learner), the word becomes permanently memorized and part of the reader's lexicon. It is unreasonable, however, to rely on sight methods alone to develop reading vocabulary. The average reading vocabulary of 18-year old hearing students is 50,000 words. If one divides 50,000 by 12 years in school, the deaf child would need to memorize approximately 4000 words a year, 100 words a week (4000/36 weeks in school) or 20 words a day (100 words a week/5 days). If the reader reflects back to junior high school or middle school years and remembers the challenge of memorizing the spelling or definitions of 20 words a , one can appreciate the difficulty of memorizing 20 new words daily.

Questions about the Teacher's Purpose for Reading

or What the Reader will be Required to Do after Reading the Text

According to the view of reading comprehension described in this paper, a student who reads a text in a way to answer his questions is comprehending; however, readers in instructional situations or when taking standardized tests, need to read in a way

. Students are not always good predictors of:

(1) questions teachers or test constructors will ask, (2) the format of the comprehension measure that will be used (e.g., written/oral test, essay/short answer/multiple-choice format, lookback/no lookback condition, timed/untimed condition, etc.), and (3) the criteria to be used in grading (e.g., the need for correct spelling, to include dates in an essay, or to answer 90% of the questions correctly for a grade of "A"), and/or (4) immediate and long-term consequences of not performing well on a reading test. To the extent that the reader's questions while reading differ from those the teacher wants the reader to answer and to the extent that the child predicts a different type of testing format, there is likely to be a mismatch between what the child understands and what the child can demonstrate to the teacher.

Critical Issues Related to Deaf Students Reading Achievement

□ Literacy Issue #1: What is the Appropriate L1 for a Deaf Child: A Signed or Traditionally-Spoken Language?

Most of the current discussions about the appropriate L1 for deaf children in the United States occur within the context of bilingual-bicultural (BiBi) education. Essentially, there are two current positions on this issue. In one view, a signed language (e.g., ASL) is supported as the appropriate L1 for deaf children. In the second view, the home language is supported as L1. A discussion of each of these views follows.

The View for A Signed Language.

The bulk of the literature related to BiBi education supports the position that a signed language (e.g., ASL) should be the deaf child's L1 (Hoffmeister, 1990; Johnson, Liddell, & Erting, 1989; Lane, Hoffmeister, & Bahan, 1996; Livingston, 1997; Paul, 1990, 1992, 1993; Quigley & Paul, 1984; Strong, 1988; and Vernon & Andrews, 1990). Lane et al. (1996) state that ASL and other signed languages are the only "natural" languages for deaf children because of their visual accessibility. As partial support for this view, the authors note that deaf children of deaf parents typically develop signed languages naturally.

Research often cited to support the view that a signed language should be L1 for deaf children (Jensema & Trybus, 1978; Schlesinger & Meadow, 1972; Vernon & Koh, 1970) suggests that deaf children of deaf parents who (presumably) use a signed language (e.g., ASL, BSL, or LSQ) at home with their deaf children, score higher on standardized achievement tests than deaf peers with hearing parents (See Marschark, 1993, however, for a discussion of whether existing research supports the view that deaf children of deaf parents are necessarily higher achievers). Additional studies supporting ASL as L1 are those of spatial and sequential memory abilities of deaf individuals (Belmont, Karchmer, & Bourg, 1983; Belmont, Karchmer, & Pilkonis, 1976; Blair, 1957; O'Connor & Hermelin, 1972; Stuckless & Pollard, 1977; Withrow, 1968). These studies indicate superior performance of deaf subjects on spatial memory tasks compared to that on sequential memory tasks. The significance of such studies is that ASL and other signed languages tend to rely more on spatial memory while traditionally-spoken languages, including English, rely more on sequential memory.

Theoretical support often cited to support ASL as L1 for preparing deaf children for BiBi programs and reading instruction is Cummins (1989) Linguistic Interdependence Theory (Hoffmeister, 1990; Israelite, Ewoldt, & Hoffmeister, 1992). According to this theory, competence in L1 provides the basis for developing competence in L2. (See Mayer and Wells, 1997, however, for a discussion of the appropriateness of Cummins' theory when L1 is a signed language and has no written form so that beginning reading of the L1 cannot be achieved and applied to the development of the written form of L2).

The View for the Home Language

Support for the second view about the appropriate L1 for deaf children is provided by Cornett (1991) and LaSasso and Metzger (1998). Cornett (1991) emphasizes the important role of parents in developing a deaf child's L1. LaSasso and Metzger (1998), underscore the importance of parents for preparing deaf children for BiBi programs. They focus on hearing parents who elect for their home language to be L1 for their deaf children; and they compare the _____ and the _____ in terms of how completely each conveys English, the memory required to learn each system, and cognitive demands while using each system. They cite three advantages of cueing English versus signing MCE systems. First, while MCE systems convey no phonological information about English except what can be lipread, cueing clearly and completely conveys phonological information visually. Second, while extensive memory is involved in learning MCE signs, cueing involves learning only 8 hand shapes and 4 hand placements to cue the 40-or-so American English phonemes. Third, while _____ a traditionally-spoken language (e.g., MCE systems) involves cognitively-demanding _____ decisions, at least at the lexical level, _____ a traditionally-spoken language does not.

Literacy Issue #2: How Should Traditionally-Spoken Languages be Conveyed to Deaf Children?

A major issue related to reading achievement of deaf students pertains to how parents and practitioners working with deaf children should convey conversational forms of the written language deaf children will be expected to read. More than ninety percent of deaf children in the United States have _____ parents whose first language is English, Spanish, or another traditionally-spoken language (Moore, 1996). Research shows that typically the L1 of deaf children in the United States is that of the mother (Kluwin and Gonter-Gaustad (1991). Ideally, methods for conveying traditionally-spoken languages (e.g., English) to deaf children in face-to-face conversations should be visual, practical (in terms of the time needed to learn the system and energy needed to use it), and capable of clearly and unambiguously conveying all aspects of the language, including the phonological, morphological, and syntactic aspects.

There are essentially four options currently available to parents and others in contact with deaf children for conveying traditionally-spoken languages to deaf children

conversationally in face-to-face interactions: (1) oral/aural methods, (2) fingerspelling, (3) Pidgin Sign English (PSE)³ and MCE systems and (4) Cued Speech. Of those, MCE systems are used most extensively (Moores, 1996). The strengths and limitations of these methods for conveying spoken languages are described below.

Oral/Aural Methods. Oral/aural methods incorporate speech, speech reading (or lip reading), and the use of residual hearing to interact with deaf children. The major advantage of these methods, compared to other available methods, is that minimal linguistic accommodation is required by the adult language model except to be sure the deaf child is attending visually while the information is being conveyed. The major limitation of oral/aural methods is that they cannot visually convey distinguishable phonemes in all instances. For example: many phonemes (e.g., /t/, /d/, /n/; or /p/, /b/, /m/ are indistinguishable on the lips of the speaker. Whether or not the child identifies the correct phonemic information is more a function of the child's special abilities than the inherent visual access of the system. While oral-aural methods are successful for deaf children, they are not successful with prelingually, profoundly deaf children.

Fingerspelling. Fingerspelling, is a visual method of conveying the orthography (spelling) of written language in face-to-face interactions. English fingerspelling consists of 26 hand shapes representing the 26 English graphemes, or letters of the alphabet. Fingerspellers spell each letter in each word (i.e., t-h-e-y s-p-e-l-l e-a-c-h l-e-t-t-e-r o-f e-a-c-h w-o-r-d). In the 1960s, the use of fingerspelling solely was referred to as the Rochester method (Moores, 1996). Today, fingerspelling is rarely used alone in the United States to convey English. Instead, it is incorporated within MCE systems (See Grushkin, 1998 and Padden, 1991 for a discussion of how fingerspelling functions within signed languages, e.g., ASL).

The major strength of fingerspelling, relative to the other systems for conveying conversational English, relates to the ease of learning to fingerspell. Less memory is involved in learning to fingerspell 26 letters of the alphabet than in memorizing how to cue the four positions and eight hand shapes for the 40-or-so American English phonemes or the numerous MCE signs.

The major limitation of fingerspelling for conveying information about conversational forms of traditionally-spoken languages, including English, relates to its inability to clearly and unambiguously convey information about English. As Hirsh-Pasek (1987, p. 461) notes, "fingerspelling provides only a partial phonological representation." Further, while

³ A discussion of Pidgin Sign English (PSE) is being eliminated here because this paper is primarily concerned with ways of interaction linguistically which are intended to result in the use of English; thus, the focus here is on MCE systems and Cued Speech. Varieties of signing that are not specifically and consistently intended to result in English interaction but that exist as a result of contact between signed and spoken languages, include what was once thought to be PSE as well as code switching, CODA speak, and so fourth. See Lucas & Valli (1992) and Johnson & Erting (1989) for a discussion of these phenomena and their relationship to the acquisition of English.

fingerspelling "enables connections between individual words in the deaf child's [conversational] vocabulary and printed text, fingerspelling stops short of providing a means for decoding all vocabulary or a means of moving beyond words to an understanding of the grammar represented by the text" (Hirsh-Pasek, 1987, p. 472).

Manually-Coded English Systems Manually-coded English systems, in widespread usage for the past three decades in the United States, combine English syntax (i.e., word order), ASL signs, and invented MCE signs to represent English inflections and derivations (Lane et al., 1996, p.49). The major MCE systems include: Seeing Essential English, or SEE I (Anthony, 1971); Signing Exact English or SEE II (Gustason, Pftzing, & Zawolkow, 1972); Linguistics of Visual English (Wampler, 1971); and Signed English (Bornstein, Saulnier, & Hamilton, 1973-84).

The major strength of MCE systems, at the time they were proposed, was their intent to convey: (1) the function words of English, including determiners (e.g., the, a, some) and auxiliaries (e.g., is, was), (2) English word order, and (3) inflectional and derivational morphemes of English (e.g., -s, -ing, un-, -ment).

Despite the current widespread usage of MCE systems in the United States, an issue today is whether MCE systems can and do convey enough information about English to warrant their continued usage. Drasgow and Paul (1995) question the effectiveness of MCE systems. They conclude from their review of research related to MCE systems that, while it is possible to infer that some students exposed to MCE systems reach a high level of English literacy, "most students are still not reading and writing on a level equal with their hearing peers, and many are still functionally illiterate" (p. 84). Schick and Moeller (1992) conclude from a similar review of MCE research that "while some aspects of English appear to be learnable via MCE systems, other aspects (e.g., English morphemes) might indeed be difficult to learn (p. 337).

Recent research suggests that a major structural limitation of MCE systems for developing English language competence, including reading, relates to the inherent inability of MCE systems to convey English at the phonemic level (Fleetwood & Metzger, 1991, 1998; Leybaert & Charlier, 1996). The most basic unit of English intended to be conveyed by MCE systems is the syllable⁴; thus, deaf individuals do not visually receive complete linguistic information about English (i.e., phonemic information) via MCE systems⁵ (See LaSasso and Metzger, 1998, for a discussion of the importance of phonological information for acquiring traditionally spoken languages and reading).

⁴ It is arguable whether MCE systems convey information about English morphemes except for those individuals who know the correspondence between the MCE sign and the English word. See Fleetwood & Metzger (1991).

⁵ Some people believe that if you mouth English while you sign MCE or some portions of ASL signing, that the non-manual information on the mouth may provide some minimal information similar to that provided by speech reading and residual hearing; however, as with oral/aural methods, not all phonemes are distinguishable on the mouth of the speaker.

C u e d S p e e c h . Cued Speech was developed by Orin Cornett in 1966 and has been adapted to more than 56 languages and major dialects (Cornett, 1994). Cued Speech is neither a language nor an MCE system, but, rather, is a mode of communication for visually conveying traditionally-spoken languages at the phonemic level (i.e., the same linguistic level conveyed via speech to hearing individuals). The American English form of Cued Speech uses eight hand shapes corresponding to groups of consonants and four hand placements to convey vowels and diphthongs (See Figure 5). The different placements and hand shapes, combined with non-manual signals (e.g., mouth shapes), clearly distinguish the 40-or-so phonemes of English visually. For example, the bilabials /p/, /b/, /m/ are visually indistinguishable without voice for hearing individuals or without cues to deaf individuals; however, bilabials are fully visible when cued. Further, Cued Speech also visually conveys prosodic information, rhyme, and alliteration which are conveyed by speech auditorially and are so important to reading (Cornett & Daisey, 1992; Kipila & Williams-Scott, 1990). In addition, Cued Speech conveys regional dialectal speech differences, e.g., the Boston "I pahkt the cah" (I parked the car).

During the past decade, research conducted with deaf children exposed to Cued Speech, both at home and school or solely at school, suggests that English and other languages (e.g., French, and Thai), can be conveyed as completely visually to deaf individuals via cueing as these languages are conveyed to hearing in

children can and do use phonics (See LaSasso & Metzger, 1998 for a review of phonics research conducted with deaf children). LaSasso and Metzger conclude from their review of the research that deaf children do use phonics; however, it remains to be determined how they do it. Hanson (1989) speculates that deaf readers use a whole language feedback system, while LaSasso (1996) speculates that deaf children use a skills feedback system. LaSasso (1996) suggests that deaf readers apply knowledge of the relationship between the phonemes and graphemes of the language; however, readers do so on the basis of how the phonemes sound instead of how they look. As in the example of "catch," above, the deaf reader experiments with as many pronunciations as possible of each of the phonemes represented by graphemes in the word, combines them in as many ways possible, and discards those that are not in the reader's tactile-kinesthetic experience (as opposed to auditory experience for hearing readers) as being part of spoken language.

The second issue related to phonics and deaf children is whether phonics instruction is compatible with a whole language orientation to reading instruction. For perspective, this issue is not limited to deaf children. Americans have been debating the relative merits of "whole language" versus "skills" (e.g., phonics) orientations to reading for decades. Instructional programs indicating they have a whole language orientation to reading instruction typically view themselves as student-centered, rather than teacher-centered. They tend to incorporate thematic approaches to instruction, and they typically utilize "authentic" literature instead of basal readers to develop students' reading abilities (Searfoss & Readence, 1994). Some teachers (both of deaf and hearing children) with a whole language orientation believe it is inconsistent with the whole language philosophy to emphasize phonics and other skill instruction in their reading programs (LaSasso & Mobley, 1997). Although whole language programs have prevailed in the United States for the past several decades, recently, there has been a shift to include more phonics and other skills in instructional programs.

Research regarding the extent to which teachers working with deaf children have a "skills" orientation versus a "whole language" orientation with deaf students is sparse (LaSasso 1996); however, LaSasso and Mobley (1997) found that many teachers of deaf children are currently incorporating skill instruction, including phonics instruction, within programs described as embracing a whole language philosophy (LaSasso & Mobley, 1997). In that survey, thirty-three percent of instructional programs serving 5-8 year old deaf students and twenty-five percent of the programs serving 9-12 year old deaf students cited whole language (as opposed to basal reader and other frameworks) as their umbrella framework for reading instruction.

□ Literacy Issue #4: Should Deaf Students' Performance on Reading Tests be Compared to that of Hearing Readers?

Views differ about whether deaf students' reading achievement should be compared to that on reading tests designed for hearing readers. In one view (Nover & Andrews, 1998),

reading achievement of deaf and hearing students should be compared because findings of such comparisons will inevitably be "degrading and not substantially researched or explained" (p. 35). Nover and Andrews suggest it would be more appropriate to compare deaf students to hearing students learning a foreign language. LaSasso (1987) provides some support for this view when cautioning parents and teachers about assuming that "reading levels" (e.g., third grade reading level) are valid. LaSasso notes that reading levels are based on hearing norms. Further, results of one test will not automatically predict reading levels on another test. LaSasso (In Press) summarizes a compelling body of research suggesting that variables more significantly influence a deaf reader's test (or task) performance than that of comparably aged hearing readers. Specifically, numerous studies of deaf students' performance on reading tests, conducted over the past 20 years, indicate that reading test performance of deaf readers, compared to that of hearing readers, is more likely to fluctuate as a function of differences related to: (1) the reinspection condition (Davey, LaSasso & Macready, 1983; LaSasso & Davey, 1983), (2) production versus recognition aspect of the task (Davey, LaSasso & Macready, 1983; LaSasso, 1979; McKee & Bondi-Wolcott, 1982; Osguthorpe, Long, & Ellsworth, 1977), (3) multiple-choice test format related to the form or position of the correct answer, the number of options, the number of items on the test, or the type of question stem (WH question or incomplete statement stem) (DiFrancesca & Carey, 1972; Jones & Kaufman, 1975; LaSasso, 1979; McKee & Bondi-Wolcott, 1982, McNamara & Weizman, 1945; Trybus & Buchanan, 1973), (4) type of information assessed (LaSasso & Davey, 1983), and (5) the length and complexity of question stems (Bornstein, 1971; DiFrancesca & Carey, 1972; Rudner, 1978; Trybus & Buchanan, 1973).

LaSasso (In Press) argues that research related to task variables can be used to make a strong case for _____, rather than _____, the emphasis on tests and test-taking abilities for deaf students. First, it is inevitable that deaf children will eventually need to compete with hearing children on tests such as college entrance exams. Second, for accountability purposes, it is not likely that instructional programs will soon discard standardized tests. It can be speculated that part of deaf students' fluctuations on tests measuring the construct of reading level relates to deaf students' general lack of exposure to tests varying in terms of the different task variables. It can further be speculated that there would be a reduction in score fluctuation with direct instruction and practice in taking different types of tests.

A second issue related to reading tests and deaf readers relates to whether tests or portfolios are the more appropriate measure of reading achievement. Currently, standardized tests and informal reading tests, developed for hearing readers, are used routinely and extensively with deaf readers in the United States (LaSasso & Mobley, 1997). Increasingly, however, portfolio assessment (Abrams, 1991, 1995) is being proposed as an alternate means of assessing reading achievement for deaf students. LaSasso and Mobley (1997) found in their national survey that portfolios were cited more often than standardized tests as being the "most

accurate measure of reading achievement." It was unclear from survey results, however, whether standardized test results are currently being included as part of portfolio assessment.

P o s i t i o n s a b o u t C r i t i c a l I s s u e s i n R e a d i n g I n s t r u c t i o n f o r D e a f S t u d e n t s
B a s e d o n t h e V i e w o f R e a d i n g D e s c r i b e d i n t h i s P a p e r

Reading comprehension is described here as a process driven by reader's questions. Readers who have no questions have no basis for comprehending. Readers who have too many questions about the language, content, code, or post-reading task will be overwhelmed, and comprehension will break down. Positions on the different issues related to reading instruction of deaf readers below are framed within this particular theoretical view of the reading process.

□ L i t e r a c y I s s u e # 1 : F o r P u r p o s e s o f P r e p a r i n g a C h i l d f o r R e a d i n g I n s t r u c t i o n ,
W h a t S h o u l d b e a D e a f C h i l d ' s L 1 ?

Reading comprehension breaks down when readers have too many questions about the language in text. Children who can map their knowledge of the conversational form of a language to its corresponding written form will have fewer questions about what they are reading and can concentrate more on other questions related to the content, code, and post-reading task. Given that conversational forms of a language are most easily acquired during the preschool years (Curtiss, 1977; Lane, 1976; Rymer, 1992), it follows that deaf children should have clear and complete access to the conversational form of the written language during the preschool years. Full access and ample opportunities to converse with fluent users of that language, other things being equal, will reduce the deaf reader's questions about the language encountered in text. On the other hand, deaf children who have limited or no exposure to the conversational form of written language during the preschool years are likely to have too many questions about written language and find beginning reading to be a daunting task.

If the language of the home is different than that of the language the child will be expected to read, parents can be encouraged to do all that they can, as early as possible after birth, to afford regular opportunities for the child to interact with fluent users of the conversational form of that written language.

□ L i t e r a c y I s s u e # 2 : H o w S h o u l d T r a d i t i o n a l l y - S p o k e n L a n g u a g e s b e C o n v e y e d t o
D e a f C h i l d r e n D u r i n g t h e P r e s c h o o l Y e a r s ?

All children, regardless of their hearing status, language (signed or spoken), or national origin, are biologically predisposed to acquiring a language (Gee & Goodhart, 1988; Goldin-

that language in remarkably similar patterns related to: (1) the phonological contrasts of the language and (2) rules governing its morphology, syntax, semantics, and pragmatics (Lenneberg, 1967). Specifically, children in different parts of the world tend to: (1) utter their first word around the time they take their first steps, (2) lose the ability to produce phonemes not in their native language by the time they are two years of age, and (3) acquire the major components of their native language by the time they are three or four years of age (Berko Gleason, 1993). For example, by the age of six years, children regularly exposed to the English language typically have mastered all of the regular morphological inflections of English; use compound and complex sentences, and have receptive vocabularies estimated to be as large as 25,000 words (Just & Carpenter, 1987).

Ideally, given that it is the unusual child, anywhere in the world, with early and consistent exposure to "the continuous phoneme stream" and opportunities to interact with it who does not develop linguistic competence in a relatively short period of time (Lenneberg, 1967), the method selected to visually convey conversational forms of traditionally-spoken languages should be capable of conveying phonological information. Of the available methods (i.e., oral-aural methods, fingerspelling, MCE systems and Cued Speech), Cued Speech conveys phonological aspects of traditionally-spoken languages, including English, most completely and clearly. Support for this view comes from research showing that children exposed to Cued Speech at home and at school perform more like hearing readers than deaf readers from oral and signing backgrounds on phonological tasks related to rhyming, phonological recoding, and phonics (Leybaert & Charlier, 1996).

□ Literacy Issue #3: What is the Role of Phonics in the Reading Curriculum for Deaf Children? _

Based on the view of reading described in this paper, reading will be laborious if the reader has too many questions about the code or if the total number of questions, (about the language, code, content, and post-reading task) are too numerous. On the other hand, readers who have few questions about the code can focus on their questions about the language, content, or post-reading task. There is a finite number of strategies for deciphering unfamiliar written words forms of words in one's conversational vocabulary. One of these strategies is phonics. Children who can apply their knowledge of phoneme-grapheme relationships can phonically decode phonically-regular words. Many deaf children, including prelingually, profoundly deaf children, can and do use phonics (See LaSasso, 1996 and LaSasso & Metzger, 1998 for a review of research). Speech intelligibility has not been found to be a requisite for using phonics; however, there appears to be a correlation between the amount of early speech instruction a deaf child receives and the ability to use phonics (LaSasso, 1996).

Phonics instruction need not be considered incompatible with whole language frameworks for instruction. In fact, findings from a recent national survey of instructional programs in the United States (LaSasso & Mobley, 1997) suggest that many teachers working with deaf children in programs characterized as operating within a whole language framework do incorporate phonics and other skill instruction.

Tests are routinely used by teachers to indicate what the reader comprehends. Many teachers assume that a high test score indicates the student has comprehended, while a low score indicates the student has not comprehended (See LaSasso, In Press, however, for a discussion of this assumption). Based on the view of reading described in this paper, readers who have few questions about the language, content, or code, but have too many questions about the teacher's purpose for reading or format of the test, may have read for different purposes or prepared for a different test format; and, thus, they may not be able to demonstrate comprehension. For this reason, teachers need to be cautious when interpreting test performance as being a clear indicator of what the child has or has not comprehended. In addition, teachers need to understand that readers' questions about the post-reading task can be reduced, in advance, if the teacher's questions are clear and the questions about the test format are reduced.

It is clear that reading programs must assume greater responsibility for developing deaf students' test-taking abilities. Some specific test-taking abilities can be taught, while others can only be developed by practice. Among the strategies for developing questioning abilities are Rafael's (1986) Question-Answer Relationships (QAR) strategy, self-monitoring strategies such as: SMART (Vaughan & Estes, 1986), Reciprocal Questioning, also known as ReQuest (Manzo & Manzo, 1993) and Reciprocal Teaching (Palinczar, 1984).

Although some argue that tests designed for hearing students should not be used with deaf students (Nover & Andrews, 1998), it is inevitable that deaf children will need to compete with hearing readers on college admissions tests and other examinations. This inevitability, coupled with extensive research showing the impact of task variables on deaf students test performance (See LaSasso, In Press, for a review of that literature), compels schools to be more accountable for developing deaf students' test-taking abilities. Ideally, programs would include a formal test-taking component to the curriculum which would systematically address test-taking abilities of deaf students. As part of that instruction, deaf children should learn the importance of determining, in advance, as much information as possible about the teacher's purpose for reading and the format of the test that will be given. Readers who have few questions about the teacher's purpose for reading and the test format used in both teacher-developed and standardized tests can concentrate more on answering their questions about the language, content, and the text.

S u m m a r y

Current issues related to reading achievement of deaf students in the United States relate to: whether signed or traditionally-spoken languages should be the deaf child's L1, how traditionally-spoken languages should be conveyed to deaf children, the role of phonics in the reading instruction for deaf students, and the role of tests in the reading curriculum.

Discussions of these issues are likely to be unproductive without a shared view of the reading process. This paper describes a particular view of reading in which reading comprehension is defined as getting answers to one's questions. In this view, reading comprehension breaks down when readers have too few or too many questions about the language, content, code, teachers' purpose for reading, and test format. Based on this view of reading, the following positions can be defended on critical issues related to reading and deaf children: (1) during the preschool years, deaf children need clear, complete, and consistent exposure to the conversational form of the written language the child will subsequently be expected to read and opportunities to interact with that language, (2) Cued Speech conveys more information about English, including phonological information, more clearly and completely than oral-aural methods, fingerspelling or MCE systems, (3) deaf children can and do develop phonics abilities and should be afforded phonics instruction even in programs subscribing to a whole language philosophy, (4) tests have an important role in schools, and (5) schools should consider incorporating a formal test-taking component to the curriculum to develop test-taking abilities of deaf students.

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