Documenting and Developing Literacy in Deaf Children

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ABSTRACT

The present report describes the findings of a longitudinal study of literacy learning and teaching within one classroom for Deaf and hard-of-hearing students (Gioia & Johnston, 1998; Gioia, 1999). During the first year of the project, we adapted assessment strategies originally developed for work with hearing children (Clay 1979, 1991), so that we could accurately record the children's literate learning in this primary level, multi-grade, self-contained classroom (Gioia & Johnston, 1998). Throughout the remainder of this project, we collaborated with a teacher of the Deaf to identify the instructional interactions that appeared to support student growth within the context of guided reading lessons.

These children exceeded the literate achievement expectations for both hearing and deaf students in many areas; in this report we delineate their competencies and the conditions under which they were fostered. Our findings, while very promising, suggest a number of avenues for future research to explore.

Note: In this article, the first letter of the word *deaf* appears as both upper- and lowercase. *Deaf*, when capitalized, is used to describe members of the community or to refer to the legal category of a disabling condition; *deaf*, when lowercased, is used to describe the physical condition of hearing loss.

In first grade, Katie went from reading easy, patterned books such as *All of Me* (Butler, 1989) to *Henry and Mudge* (Rylant, 1995). This isn't a surprising achievement for a typical first-grade student, but Katie is not typical. Her severe-to-profound hearing loss substantially raises the significance of her progress. Adding to the surprise is that Katie's deaf classmates made similar progress (Gioia, 1999).

Their progress is remarkable in light of research that shows the average deaf student leaves high school with reading achievement generally comparable to that of a typical third-grade hearing child (Allen, 1986). It is also surprising in the face of theories that suggest phonological awareness is the primary key to becoming literate (Adams, 1990; Grossen, 1996; King & Quigley, 1985). By these standards, it appears that Katie and her classmates' literacy achievement beat all the odds.

Our intention in this paper is to describe how we collaborated with Lanie, a teacher of the Deaf, to design and modify existing assessment strategies typically used with hearing children for use with deaf children. Our goal in developing these assessment tools was to obtain accurate, detailed records of the children's learning. We also describe the complex journey of three deaf children on their way to literate achievements typically unavailable to peers with similar hearing loss. Further, we document the changes in Lanie's perceptions and instructional practices that made such extraordinary growth possible.

BACKGROUND

There has been substantial growth in our understanding of the early literacy development of hearing children in the last two decades, along with a concomitant increase in related assessment strategies (e.g., Clay, 1991, 1993; Goodman, 1985; Johnston, 1997; Sulzby & Teale, 1991; Wells, 1987b). Yet with few exceptions, such as Ewoldt (1985, 1990), Gioia (1997), Schirmer (2000), and Williams (1994, 1995), there has been relatively little work to relate this landmark research with hearing children to the study of early literacy learning and instruction with Deaf students.

We do know that an enormous discrepancy exists between the typical language and literate competencies of Deaf and hearing children (Allen, 1986; Erting, 1992; Gregory, 1995). This may be due to the fact that most Deaf children are born into hearing families and therefore not likely to be immersed in sign language from birth (Allen, 1986; Marschark, 1993). As a result, most Deaf students do not encounter accessible emergent language and literacy experiences until entering school (Erting, 1992; Gioia, 1997; Meier, 1991). Indeed, all too often, these children demonstrate significant limitations in their fund of general knowledge and language facility when compared with hearing classmates (King & Quigley, 1985).

To further complicate the issue, even when normal (i.e., sign) language development is achieved through immersion in American Sign Language (ASL), Deaf students are not at the same starting point as hearing students with regard to literacy learning. To begin with, any internalized language they have developed is likely to be different from English. For example, sign language cannot be written down,[1] and as a visual language, it is substantially different from an oral-aural language in terms of structure and organization. Consequently, even normal (sign) language development does not necessarily make an alphabetic literacy that much more tractable, an important consideration given current theories emphasizing the phonological aspect of language. In short, Deaf students must learn to read in English while learning English through reading (Limbrick, McNaughton, & Clay, 1992).

The question of an appropriate instructional language also remains complicated by a number of factors, including the cultural significance of language and the range of a student's residual hearing (Brannon & Livingston, 1986; Israelite, Ewoldt, & Hoffmeister, 1992; Marschark, 1993). Empirically, however, longitudinal studies have not yet demonstrated a clear-cut advantage for the currency of instructional exchange to be in any particular language or communication model, including ASL, Total Communication (simultaneous use of voice and sign), or Oralism (Gregory, 1995). These issues are not only theoretically and practically complex; they are also ideologically complex and divisive as well (Brannon & Livingston, 1986; Carrasquillo, 1987; Livingston, 1997).

THE PRESENT STUDY

In this paper we emphasize the transfer of assessment strategies originally designed for work with hearing children (Clay, 1991; Fountas & Pinnell, 1996; Johnston, 1992, 1997), but modified to accommodate the language differences of Deaf students, an area that has been virtually ignored by the research community. There has certainly been no demonstrated link in the field of Deaf education between assessment and instruction. Consequently, in our present study we engaged in collaborative assessment to document reading and writing behaviors and the consequences of instructional responses to the gathered data. By completing modified running records (Clay, 1993) and analyzing written language samples (i.e., spelling, journal entries, narrative composition, etc.), we began to chronicle the literacy learning of three Deaf children.

This study is part of a 3-year collaborative project with Lanie, a teacher of the Deaf, in which we view Deaf children's literate development through a lens colored by understandings about emergent literacy in hearing children (Clay, 1998; Cochran-Smith, 1984; Ferriero & Tebrosky, 1982; Harste, Woodward, & Burke, 1984; Sulzby & Teale, 1991; Wells, 1987a, b). That is, we worked to extend and document the Deaf students' literacy learning using techniques

originally developed with hearing children (Barrs, Ellis, Hester, & Thomas, 1994; Clay, 1993). We sought, for the time being, to sidestep the cultural issues of primary language and language of instruction by working within an established Deaf education program with its own particular stance on these controversial but important issues (for more on this, see Brannon & Livingston, 1986; Israelite et al., 1992; Sterling, 1997).

Engaging in research that crosses traditional domain boundaries presents a number of challenges. First, there is the obvious need to learn the specialized language and theoretical underpinnings of each domain so that observations are relevant and conclusions sound. In addition, the priorities and perspectives of each specialty can be significantly different, thereby challenging researchers to find common ground. The collaborative nature of this project ameliorates some of these challenges typically presented by cross-disciplinary research.

In the following sections, we describe our current findings for this ongoing project. We will highlight the insights we have gained through modifying assessment strategies, including running records and writing samples. We will also discuss the various roles of fingerspelling, the use of handshapes to represent each of the letters of the alphabet to spell words which may or may not have an ASL conceptual sign counterpart (Carver & Kemp, 1995; Grushkin, 1998). Finally, we will highlight changes in Lanie's teaching practices that accompanied her shift in assessment processes.

Assessment Strategies

We incorporated the structure of the Primary Language Record (PLR; see Barrs, Ellis, Hester, & Thomas, 1988) as a means of organizing and considering the multiple languages used by the children in Lanie's classroom (students used at least two languages including Pidgin Sign English [PSE], ASL, and standard English). The PLR highlights the relationship between oral (in this case, sign) language and written language, and combines the use of observational data (i.e., running records and writing samples), student self-evaluation, and parent involvement.

Primary Language Record

In many ways, the PLR provides an ideal meaning-based model for integrating assessment and instruction (Johnston & Rogers, in press). Nonetheless, there are obstacles. For example, the demands of recording the reading behaviors of deaf students when they are communicating simultaneously in both sign and voice, as they commonly do in a Total Communication environment, present significant challenges, as well as opportunities, for the observer. When a deaf student reads text using Simultaneous or Total Communication, the observer is

faced with competing sources of information: the text, the student's hands, and the student's voice. In this context, we have found that to use running records with any degree of accuracy we must co-observe the student. That is, while one observer focuses on the student's voice and the text, the teacher of the Deaf (or another adult who is familiar with the child's signing[2]) attends to the student's signing. Lanie's knowledge of the student's oral language and signing abilities, as well as her expertise in sign, often provided insights into the child's use of problem-solving strategies and revealed conceptual confusions that we, as novice signers, would have been likely to miss.

The use of the PLR and the collaborative efforts required to complete running records has provided a venue in which to discuss and explore the relationship between students' oral/sign languages and their interactions with print. The development of these shared understandings about the students' literacy development and the ways in which it might be fostered have been key advantages of this model (Barrs et al., 1988).

Using Running Records with Deaf Readers

Despite the challenges of recording the Deaf student's oral/sign reading, one serendipitous advantage presented itself early in the study. The use of conceptual signs during "oral" reading allows insights about the meaning that the reader is constructing while progressing through the text. At times, meaning-based errors that would be unavailable to the observer of a hearing child become evident. That is, when a hearing child articulates the words with a one-to-one voice-print match, the listener would likely infer that the reader has interpreted the text accurately. This may not, however, be the case; with a signing student, the confusion becomes evident in the student's signing. Take for example the sentence, "But it was too hot to…" from *Goldilocks and the Three Bears* (Hillman, 1990, p. 12). Katie voiced the words accurately, but revealed her confusion by signing the word *to* rather than *too*. In this case, although Katie's voice matched the text, her sign (and meaning) did not. This was recorded as follows:

$$\sqrt{\quad}\quad\sqrt{\quad}\quad\sqrt{\quad}\quad \underline{\sqrt{}^v/\text{to}^s}\quad\sqrt{}\quad \underline{\quad-\quad}$$

But   it   was   too   hot, too.

note: *s* signifies signed, and *v* signifies voice.

By contrast, David recently provided an example in his efforts at meaning making across languages. When reading *Henry Huggins* (Cleary, 1950), David came to the unfamiliar word *armload*. At first, David began to fingerspell *arm,*

but quickly recognized the "small word in the big word" (Cunningham, 1998) and provided the conceptual sign (gesturing towards his arm). In rapid succession, however, David glanced ahead and revised his response to the conceptual sign for *armload*. The problem solving was coded as such:

$$\underline{(arm)^{fs}/(arm)^{cs}/SC}$$

armload

* *fs* signifies fingerspell, *cs* signifies conceptual sign,
and *SC* signifies self-correction.

Lanie's knowledge of her students' use of sign as well as the local conventions of signing have proven invaluable in sorting out minor deviations from the text, which may or may not affect meaning in sign, but have definite implications for written English. For example, explicit signing of past tenses and possessives (morphological markers) is negotiable in sign, as interlocutors expect their partners to infer these qualifiers from context. As a result, we observed that all three children fairly regularly failed to articulate the inflectional endings of verbs (in voice or sign) as they read and only intermittently expressed them in their written work.

While not diminishing meaning in sign, failure to represent either possessives or past tenses in written English clearly confounds our assessment of the student's understanding of the text in general and vocabulary in particular. For hearing children, knowledge of oral language might cue them to the syntactic irregularity of a noun following a proper noun, and thus, lead to a self-correction. In the case of Deaf students, their knowledge of sign often appears to override their implicit understanding of the grammatical patterns of spoken English, decreasing the occurrence of self-correction for this type of miscue. As this pattern emerged in the running records, it became a valuable point from which to expand the children's meta-awareness of the differences between their languages. Indeed, Katie shared her awareness of the differences between the languages in the following example, again while reading *Goldilocks and the Three Bears* (Hillman, 1990, p. 9). She read "while it cooled" as follows:

$$-\qquad \sqrt{}\qquad \underline{cool\text{-}ed/SC}$$

while   it   cooled.

Upon self-correcting, Katie announced (in voice), "I was learned that word in speech before! The *ed* means past." Katie's statement revealed her meta-aware-

ness of the languages in which she communicates as well as an emerging sense of application.

Ellie presented us with yet another example of the ways in which running record analysis could reveal the impact of sign language knowledge on print interactions. When reading *Bear Shadow* (Asch, 1988), Ellie inadvertently skipped an entire line of text. In standard English, meaning would have been interrupted; in sign, the sentence she signed was in keeping with ASL grammar. It appears that as a result of her knowledge of ASL, Ellie did not recognize the miscue. The underlined text is the portion she skipped.

> …And he put down his fishing pole and began to run.
> <u>He ran around the pond. When he got to the</u>
> other side he kept running.

Interestingly, when Ellie was prompted to "try [that] again," she read the passage without error; whereas a hearing child might fully appreciate the impact of having deleted the line of text, it held little significance for Ellie. Rereading and self-correcting neither clarified meaning nor improved syntactical correctness—at least not in her first language. It did, however, provide an important insight for her teacher, one that later contributed to increased awareness and appreciation for the complex problem solving Ellie was attempting. As a result, Lanie's instruction with Ellie included greater emphasis on developing a meta-awareness of the differences between her various communication methods.

While one-to-one voice-print match is a typical goal during oral reading with hearing children, when text is transposed to sign, adherence to this pattern can disrupt meaning substantially, especially in the case of idiomatic expressions. For example, when sharing *The Bear Under the Stairs* (Cooper, 1997), David read the sentence, "William crept down the hall, cracked open the door," he signed the words *cracked open the door* literally, signing four words, two of which were not conceptually appropriate. That is, he signed *cracked* as *broken* and *open* as a verb rather than as an adverb. To reflect the intended meaning of this idiom, it would have been more accurate to sign the phrase with two conceptual signs, *door open* and *little*. In such a case, the one-to-one match is lost, but meaning is retained. Subtle miscues such as these were repeated elsewhere, providing Lanie with new understandings about David's problem-solving process during reading, which in turn, led to small but effective changes in her instruction. Specifically, when David demonstrated this type of linguistic problem solving, Lanie drew his attention to what he had done, thereby increasing the likelihood of its recurrence. By doing this, she also seemed to heighten his awareness of the differences between the various registers of English as well as discrepancies between sign language and standard English.

Fingerspelling

Fingerspelling serves different roles in reading and writing. In reading, it can be used in several ways and for a number of possible reasons. For example, finger-spelling is used to represent words that do not have either a sign language coun-terpart or a conceptual sign. Examples include articles of speech, such as *the* or *an*. Indeed, these words are not even typically included in a sign stream of con-versation, especially if the interlocutors are communicating in ASL. At any rate, for the reader, the only way to represent these words is to fingerspell them.

Fingerspelling is also used to represent proper nouns such as names, although these are often abbreviated with the adoption of name signs. That is, rather than spelling *N-o-r-a* every time the character is referred to in a text, the reader may assign an initialized name sign as a kind of shorthand reference to the character. In the present study, when reading *Goldilocks and the Three Bears* (Hillman, 1990), Katie interrupted her reading to explain that she would use the G-handshape, which she then tapped on her left shoulder, to represent the main character's name.

Fingerspelling can also be used when a student encounters unfamiliar vocabulary. While many students might interrupt themselves to ask for an explanation or the definition of a new word, others, like David, use finger-spelling as a means of maintaining the flow (pace) of his reading, albeit with a possible loss of meaning. This was clear when David fingerspelled *t-r-a-d-e,* a word typically represented with a conceptual sign. By fingerspelling this word, David gave evidence that he was not focusing on meaning, especially as the conceptual sign is within his signing lexicon and one which he spontaneously incorporated later in the text.

Like some hearing children, David also appears to have learned to allow others to assume responsibility for monitoring his accuracy during oral/sign reading. For David, it appears that if the listener doesn't interrupt and point out an error, then he assumes that everything must be correct.

David's use of fingerspelling also maintains the appearance of rapid text recognition, at least at the letter-word level. During an interview, David explained that "being a good reader means reading fast," a belief he routinely exemplifies during shared reading. Indeed, when invited to read using both sign and voice, David often abandons the sign component,[3] in part, because it slows his pace when he needs to translate written English to sign.

As observers, a student's use of fingerspelling does not necessarily tell us what the child is thinking, but it does signal that the child may be attending differently to certain words or aspects of text (Carver & Kemp, 1995; Grushkin, 1998). Often, as we continue to record a student's use of finger-spelling as a strategy during reading, the underlying reasoning becomes clearer. For children such as Ellie, fingerspelling acts as a temporary placeholder, with the expectation of returning to self-correct, replacing the spelled word with a

conceptual sign once meaning has been established. Ellie showed us the use of this strategy when she read, "I had a dog, he'd run b-y my side," and self-corrected the *b-y* to the conceptual sign for *by*.

In writing, fingerspelling plays a central role in learning the sequence of letters within individual words and helps to focus attention on such fundamental notions as letter and word (Gioia, 1997; Grushkin, 1998). In addition, we have observed the children using fingerspelling as a means of rehearsal, trial and error, or both. That is, just as a hearing child might write out a new word in more than one way in order to decide which way looks right, so too will a Deaf student use this strategy. In the latter case, however, the child may only produce the alphabet handshapes, rather than the print models.

Spelling

As noted above, the students with whom we have been working experience severe-to-profound hearing loss. Although their spelling development is above average for their age (including hearing students), it takes a slightly different trajectory than that of hearing children. The visual analysis that is evident in their spelling is in advance of their phonological analysis, as can be seen in their attempts to write a series of dictated words as well as in their own spontaneous writing samples.

For example, David's spelling is at what Bear and his colleagues (Bear, Invernizzi, Templeton, & Johnston, 1996) term the syllable juncture stage. In response to a request to write a series of dictated words (see Table 1), David demonstrated control of complex long vowels, and most blends and digraphs, including low-frequency ones as in *caught*. He is inconsistent with consonant doubling and has some trouble with less frequent affixes *(-ure, -ate, -tion)*. In spite of his extensive knowledge of words, when writing *preparing,* David failed to include the initial letter—not an error a hearing child would make, and one that suggests that he writes from a visual representation more than from sound invention. However, this cannot fully explain how, considering his profound hearing loss, when asked to attempt words he is unsure of, David includes some sound inventions as the /ch/ in *fortunate,* the /sh/ in *pleasure,* and the /k/ in *puncture*.

By contrast, Ellie's spelling is much more uneven. She has spelled consonant blends and digraphs fairly consistently with some confusions (*ch, dr, tr, cl, fl, sp, pl, squ*)*,* and she has control of some within word patterns (*float*). She even has an example of consonant doubling from the syllable juncture stage in an invention (*saller; poopine* may also be a confusion of this). At the same time, she is still experimenting with short and long vowels (*clasis* for *closet, saller* for *cellar, drive*), more typical of the letter name stage. In part these discrepancies can be explained by the strategies she is using to spell unfamiliar words. Where

Table 1: Dictated Spelling List and Student Attempts

Dictated Words	David	Katie	Ellie
bed	Bed	Bed	Bed
ship	Ship	Ship	~~Boat~~ ShiP
drive	Drive	drive	Drive
bump	Bump	bup	Bump
when	When	wen	When
train	train	trin	train
closet	Closet	clsdt	clasis
chase	Chase	Chast	chase
float	Float	flot	Float
beaches	Beaches	beshs	Beach Beach*
preparing	ReAparing	pepring	preparing
popping	poping	poping	poopine
cattle	Caddle	ctles	cattil
caught	Caught	cthet	cagut
inspection	Inspeins	inspchin	epsishing
puncture	Punker	pcher	mlule
cellar	Seller	saler	saller
pleasure	Pleasher/pleshere	plcher	pleach
squirrel	Squarul	shwl	SQuriel
fortunate	Forchunat	fchnet	Forglley**

from *Words Their Way: Word Study for Phonics, Vocabulary, and Spelling Instruction,* by D. Bear, M. Invernizzi, S. Templeton, and F. Johnston, 1996, Upper Saddle River, NJ: Merrill.

Notes

*	When Ellie was asked to spell *beaches,* she wrote the word twice on the line. In sign, it would be appropriate to sign the word twice to indicate plural.

**	When asked to spell *fortunate,* Ellie said, "Means lucky…I am fortunate to have many books."

she has the choice, she elects not to use spellings she feels she does not yet control. However, when spelling words are dictated to her in both sign and voice, she attends first to the speaker's articulation and attempts to replicate the mouth movements as an additional source of information.

Early in the study, Katie's reading lagged behind David's, and her spelling revealed considerable reliance on visual recall of print patterns. For example, in an informal writing sample, she wrote *McDonalds* as *MSIL DAOLAS*, and *aunt* as *atn*. On the other hand, she also showed an awareness of the role of speech analysis, spelling *museum* as *mayoudm,* and *vacation* as *veskshn.* Her progress in reading was impressive across the study, so that she was eventually a reading peer with David. However, even at these later stages, Katie was still wrestling with vowels and sounds not easily discerned on the mouth, as seen on the spelling test (see Table 1). Specific examples include her approximations of *bup* for *bump, cldst* for *closet,* and *fchnet* for *fortunate.* These challenges, however, did not appear to overly hamper her reading, where the search for meaning was her predominant goal.

Changes in Instruction

We found that careful recording and assessment of the ways in which the children weave their knowledge of multiple languages into their interactions with print led to increasingly sensitive and supportive teaching, much in the same way as described by Stefanakis (1998). Completing the PLR record form in a collaborative manner allowed us to have productive, data-based conversations about the students' learning and related instructional practices. For example, when these children were in kindergarten (Lanie has had them since then— some since preschool), a conversation around a running record produced new insights for Lanie about the significance and complexity of the one-to-one correspondence between print and sign-voice. This realization produced dramatic changes in instruction, both in the selection of books to share and in interactions with children around books.

Writing

During a conversation about a running record completed by the first author, Lanie realized that Ellie could in fact read. She had previously been responding to her as a child "not yet ready to read" by providing her with readiness-type activities such as coloring sheets. Furthermore, rather than inviting Ellie to write her own captions for her drawings, Lanie assumed the role of scribe. Indeed, at the point of this conversation (September 1998), Lanie did not even have a sample of Ellie's written language, assuming this was beyond her current competencies. When Ellie was able to read the caption book *I am…* (Cutting,

Figure 1. Ellie's Writing Sample

"I was playing and I was playing on the slide nearby and I jumped a-little and I began to climb up and up and up and up then I was there."

I was Playing
and I was
on the slide
nearby and I
tumped A-little
and I began to
climb up anDup
ang upanDup then
I was there.

1996) with one-to-one voice/sign/print match,[4] Lanie was, to say the least, surprised. Having realized what Ellie could do, Lanie responded by providing dramatically different opportunities for her in the classroom. For example, she provided Ellie with increasingly challenging texts and began to provide her with opportunities to do her own captioning.

In a related incident, Lanie shared a writing sample she had collected for this project (see Figure 1). In keeping with her underestimation of Ellie's literacy development, Lanie had acted as a scribe and captioned Ellie's drawings. Despite Ellie's knowledge of story structure and ability to make personal connections to print, Lanie assumed control of the pen. For example, in October

of the first year of this project, Ellie dictated (in both sign and voice) the following, "Once upon a time,[5] there was a brother, sister and mom bear and father bear. Momma smell fox come. Fox want to eat baby. Momma, brother, sister climbed up tree to be safe!" By employing the data collection format of the PLR, we obtained a written language sample that again revealed previously hidden abilities.

In November of the same year, when she was given the opportunity to write her own caption, Ellie again demonstrated knowledge beyond Lanie's expectations. In response to reading *I Swapped My Dog* (Ziefert, 1998), Ellie wrote *I WantAgoAt* for "I want a goat," revealing knowledge of a variety of conventions, including an emerging sense of capitalization and spacing between words. Discovering that Ellie was capable of writing her own captions led Lanie to shift the responsibility for writing to her student, although initially the opportunities for writing were teacher-driven (e.g., story-starters).

After a number of visits, Lanie asked the first author, Barbara, why Ellie would dawdle so long over what she considered to be simple writing assignments. A discussion followed during which issues of choice, ownership, and investment were explored. After a brief period of reflection on these matters, Lanie began to loosen the constraints under which Ellie would write. One year later, at age 6 years 4 months, Ellie wrote and illustrated the story about her weekend. At this point she was also reading *Henry Huggins* (Cleary, 1950), a guided reading Level O text, which roughly corresponds to third-grade material (Fountas & Pinnell, 1996, 1999).

Guided Reading

Once the children were provided with materials and tasks that were within their range of competency, their steady and impressive progress presented new opportunities for Lanie to explore her role as their guide. As a result, reading lessons became much more collegial in nature, as the children and their teacher discussed strategies, personal connections, and the rich variety of language they would come across while reading books such as *Junie B. Jones and Her Big Fat Mouth* (Park, 1993) and later, *Henry Huggins* (Cleary, 1950) and *Harry Potter* (Rowling, 1998). These lessons truly reflected the shared construction of meaning. These were not hand-raising-waiting-to-be-called-on sessions, but more appropriately a conversation among peers. Examples of their exchanges include the following:

> **Lanie:** O.K. Before we start reading, what are some strategies you can use when reading?
> **David:** Look at the rest of the sentence…
> **Lanie:** David says we can look at the words before and after

> the word we don't know and decide what makes sense.
> **Katie:** We could ask a teacher, fingerspell it and ask a teacher.
> **Lanie:** You could also ask a friend, couldn't you?
> **Katie:** I could ask David.
> **Lanie:** Can anyone think of anything else you can do?
> **Katie:** Sound it out…
> **Lanie:** That's called phonics when we sound it out. You can also use pictures if the book has them, can't you? *Henry Huggins* doesn't have very many…

As the students review what they have previously read, David chimes in, "I'm reading *Harry Potter*." Lanie follows his lead and asks, "Are you reading it at home with your dad?"

> **David:** By myself…but sometimes with Dad.
> **Lanie:** Brian (her son, who the children know) loves *Harry Potter*…he is reading them in school. Does your dad like them?
> **David:** Yes, but I don't really understand some of the words…Daddy doesn't understand all the words…they are different.

Lanie then briefly engaged all the children in a conversation about J. K. Rowling, the author of *Harry Potter,* and that she is from another country, England, which may be why she uses unfamiliar words. Almost seamlessly, Lanie steered the conversation back to *Henry Huggins,* again tying in the issue of language. Lanie asked the children to tell her some of the "funny words" they have learned in this book, words such as "jeepers" and "wow!" Lanie had recorded these words on index cards, which the children use for reference. The students have found this a useful practice, and even request that certain words be added to the deck.

While these interactions may not be extraordinary in some classrooms, they represent a marked departure from Lanie's more tightly structured model of the past. It is especially noteworthy that the shift in the focus of instruction was guided by data in the assessments. When initially asked about the change and about how she had come to lessen the constraints of the reading group interactions, she attributed the impetus for change to this "once-in-a-lifetime group of students." She indicated that because they were so exceptional, she could change what she was doing.

Reflections on Changing Practice

Near the end of our third year, Lanie was once again invited to share her

thoughts on the project, her class, and her teaching. Interestingly, between the time when the question had first been posed several months earlier and our final interview, Lanie had taken the time to reflect on the evolution of her current practices and the progress her students had made over the course of the collaboration. During this conversation, Lanie's comments revealed that she had come to more fully appreciate the complexities of instructional interactions. That is, she identified many more components in the equation of teaching and learning, including such diverse elements as trust, assessment, self-awareness, and text choices.

A major impetus for engaging in a more thorough reflection came in the form of a complaint. During the late winter and early spring, a parent of one of our study children voiced concerns about Lanie's reading program. The parent, an active advocate for Deaf children, contacted Lanie's supervising administrator and reported that she was unhappy with Lanie's instruction and that her child "wasn't learning to read" in Lanie's class. She disapproved of the instructional program and went as far as requesting permission to observe a lesson so that she "could provide input" into how literacy instruction should occur. As the parent was not a trained teacher and had not made an attempt to talk with Lanie prior to her complaint, her request, not surprisingly, was met with some resistance. While a joint meeting between classroom staff, the parent, and the administrator eventually alleviated some of the tension, the entire episode heightened Lanie's meta-awareness of the instructional interactions she shared with the children. And while the incident did not impact Lanie's instructional program per se, it led Lanie to be much more reflective and analytic about was going right and how that was different from prior practice.

One example of this newer stance came when asked whether (and then, why) Lanie thought she was a good teacher. In her response, Lanie indicated that while she has always strived to provide a safe environment in which her students could take risks, her definition of what constitutes a safe environment has expanded considerably over the course of this project. While her original frame of reference focused primarily on behavior management styles and physical safety, she has now become aware of many different ways in which curriculum can narrowly define appropriate responses. Her transition from relying on known-answer tasks to more open-ended explorations allowed her to see a range of previously hidden possibilities, and by modifying her expectations she became open to the surprising abilities and interests of her students. In addition, the children began to ask and respond to questions that focused more on the literary than the literal aspects of text (Routman, 1999).

Lanie linked this shift in her practices to the use of the PLR for a number of reasons, and although this too is a commercially prepared guide, it essentially prompts the teacher to become a more effective observer of process rather than product. First, Lanie observed that because "the PLR is so child focused," the

data allowed her to justify shifting away from commercially prepared tasks. This in itself represented a major shift in thinking and practice, especially as the traditional program in this particular setting was based upon basal-like materials. She noted the sense of competence she derived from recognizing student growth that might have previously gone unnoticed and unappreciated. As she put it, "I've become a better observer.…I stopped relying on some arbitrary [published] program to tell me what they need, and [I have started] going with what I know they need."

Collaborative discussions during completion of the component tasks also provided Lanie with a place to discuss teaching and learning with a colleague, where her ideas were shared, stretched, occasionally challenged, and often validated. Our common goal during these discussions was to develop a shared understanding of the children, the instruction, and the intricate relationship between the two.

CONCLUSIONS

We remind readers that these students and their peers are performing as well as their hearing peers, a surprise given the history of literacy development of Deaf students in America (Allen, 1986; Erting, 1992). It is equally surprising because some of these students began in the pre-kindergarten program with very few words in any language. For example, Katie had an expressive vocabulary of 34 words in the January before she began kindergarten. (She was tested using the *Expressive One Word Picture Vocabulary Test,* Gardner, 1990.) Our work with these Deaf students and their teacher has led us to formulate several tentative conclusions and to raise some theoretical issues for consideration.

First, we believe our data lend weight to the claim that assessments involving careful observation and documentation —"kidwatching" (Goodman, 1985) or sensitive observation (Clay, 1993)—are productive sites for conversations and theorizing that stimulate instructional change (Johnston, 1992). This is just as true for the literacy instruction of Deaf students as for hearing students (Ewoldt, 1990). Lanie's daily theorizing about why her students write in their journals and read books in the ways they do provides important logic for her teaching. Further, when she is puzzled by a student's literate behavior, she seeks suggestions from colleagues on the basis of the data available. We believe that the format of the PLR lends itself to just such conversations.

Second, we argue that what we have learned about emergent literacy from studying hearing students can be productively applied to the teaching of Deaf students (Gioia, 1997; Gioia & Johnston, 1998; Williams, 1994). While this might not seem like a revelation, it is certainly the case that such instruction is uncommon and that literacy instruction for the Deaf has lagged behind developments for the teaching of hearing children. In part, this failure to generalize

the principles of emergent literacy instruction to the teaching of the Deaf is associated with arguments over the primary language medium (Erting, 1992; Israelite et al., 1992; Livingston, 1997; Mason & Ewoldt, 1996) and communication challenges presented by crossing disciplines. For example, we found that PSE (Pidgin Sign English), a transliteration of spoken English that combines ASL conceptual signs and English word order, formed a useful bridge for students to make connections such as the one-to-one relationship between spoken and written language. Making such a claim (unpopular in some circles) does not imply, to us, that such a language would have more than a brief mediating role. It simply raises questions about the possibilities of such language transitions with all the cultural issues involved.

Similarly, our data on Deaf students' literacy development suggest that current literal conceptions of phonological awareness and its centrality do not adequately explain the literacy development of Deaf children (Taylor, 1999). It appears to us that these Deaf students do not literally sound out words, but are able to draw metaphorically or analogically on other sources of information to theorize about the structure of print. For example, their use of fingerspelling is one way into a sense of the left-right sequence of letters and the notion of word (Grushkin, 1998). Like speech analysis, fingerspelling reveals the transformation of a temporal sequence to the spatial sequence of print (Cowan, 1997). Some of the children explicitly use this strategy in their spelling either for rehearsal or for confirmation, much as a child cross-checks other sources of information while reading. For example, while attempting to decide on the correct spelling of a word while writing, both David and Ellie seemed to try out different (finger) spellings prior to committing their efforts to print. Some children also find a way into this sequence by modeling the speech analysis of the teacher—extending lip/speech reading, as when Ellie, who is prelingually profoundly Deaf, attempted to copy the mouth shapes of the unfamiliar words on our spelling test. However, use of the strategy to provide another analogue can only be useful on an intermittent basis as the information that is available is limited by the degree of hearing loss and where the component phonemes are produced in or on the mouth.

The increased quantity of reading in which these students engaged, coupled with the increased visual analysis entailed by their more extensive writing, appear to compensate for their diminished access to the phonological structure of English. Consequently, these students demonstrate a somewhat different order of spelling development, varying among students, drawing on a more detailed visual analysis than sequential analysis. What appears necessary, then, is that Deaf students develop the sense of one-to-one matching of words and the sense of the sequence of letters so that they can productively theorize about print. They do not require long-term use of PSE, any more than hearing children require long-term phonological analysis instruction. Rather, they need a

way into the conceptual understanding that enables further development.

Overall, we would like to argue that those involved in the education of the Deaf can draw a great deal from studies of literacy development in hearing students, albeit sometimes by analogy. At the same time, analysis of the surprises and disjunctures that occur as we transfer teaching and assessment strategies across these populations will help us to better understand literacy instruction in hearing students.

ENDNOTES

[1] There have been attempts to develop a one-to-one match between sign and print. Picture books with sign exact English (SEE) captions are one such example. Another effort involves linking ASL with another orthographic system. Unfortunately, in the case of SEE, reading these texts is laborious, tedious, and in the end, distracting. In the latter case, acceptance within the Deaf community has been less than enthusiastic. (AERA Deaf SIG 1998).

[2] We have found that familiarity with the individual child's signing is of critical importance as relatively minor shifts in handshapes may alter the meaning conveyed. Unless the interpreter is wholly aware of the child's signing habits, the signed utterances may be misinterpreted and thus yield inaccurate data.

[3] When reading using both sign and voice, David, like others, resorts to "finger mumbling," a phenomenon similar to the strategy used by some hearing children who either skip text or speak very softly when presented with challenging new or unfamiliar vocabulary.

[4] In order to make this match with sign language, certain words that lack sign equivalents must be fingerspelled.

[5] *Once upon a time* is correctly signed as an idiomatic expression, but in this case, Ellie offered a one-to-one sign-word match, thereby changing the meaning of the phrase.

AUTHOR BIOGRAPHIES

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