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## DEAF SCHOLARS ON READING: A HISTORICAL REVIEW OF 40 YEARS OF DISSERTATION RESEARCH (1973-2013): IMPLICATIONS FOR RESEARCH AND PRACTICE

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**Abstract:** TAKING A HISTORICAL VIEW, the authors reviewed 40 years of dissertation research by deaf scholars (1973-2013) related to reading. Using a qualitative interpretive analysis approach (J. Smith & Osborn, 2003), the authors selected 31 dissertations as primary texts, reviewing them for themes over five time periods. The first finding was a trend of themes on communication methodology in the 1970s (first period), to English reading skills in the 1980s (second period), to American Sign Language/English bilingualism to support acquisition of English literacy during the third, fourth and fifth periods (1990-2013). The second finding was that most of the dissertations used a combination of qualitatively similar and qualitatively different epistemologies in their research. These two findings are related to (a) the role of the deaf reading researcher, (b) historical and current trends in reading research, and (c) the qualitative similarity hypothesis (Paul, Wang, & Williams, 2013).

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### Full text: Headnote

TAKING A HISTORICAL VIEW, the authors reviewed 40 years of dissertation research by deaf scholars (1973-2013) related to reading. Using a qualitative interpretive analysis approach (J. Smith & Osborn, 2003), the authors selected 31 dissertations as primary texts, reviewing them for themes over five time periods. The first finding was a trend of themes on communication methodology in the 1970s (first period), to English reading skills in the 1980s (second period), to American Sign Language/English bilingualism to support acquisition of English literacy during the third, fourth and fifth periods (1990-2013). The second finding was that most of the dissertations used a combination of qualitatively similar and qualitatively different epistemologies in their research. These two findings are related to (a) the role of the deaf reading researcher, (b) historical and current trends in reading research, and (c) the qualitative similarity hypothesis (Paul, Wang, & Williams, 2013).

Keywords: reading, language, deaf researchers, literacy, deaf education, bilingual

Reading requires the student to coordinate perception, thinking, reasoning, language, world knowledge, prior experience, and motivation. It involves topdown or comprehension processes as well as bottom-up or decoding processes (Vacca et al., 2012). Anderson, Hiebert, Scott, and Wilkinson (1985) elaborated on the definition of reading in a classic report, *Becoming a Nation of Readers*, in which they wrote that "skilled reading is constructivist, fluent, strategic, and a motivated process, and a lifelong pursuit" (p. 3).

Definitions of reading have changed historically. For instance, starting in the 1970s through the 1990s, due to the contributions of the cognitive, linguistic, and social sciences to the scientific study of reading, reading was conceptualized as more than decoding or recognizing words on the page; it was also believed to involve cognitive processes in which readers "construct" or make meaning from the text by using their own purposes for reading, their world knowledge, their beliefs, and their prior experiences, as well as their understanding of the author's intentions (Anderson, 1994). Since the beginning of the 21st century, reading has been further described as a process affected by the reader's culture. Since reading occurs within a community of users—parents, families, teachers, and peers, with interactive dialogue and conversations about texts—such activities situated in a particular culture contribute to the reader's ability to comprehend texts (Zhang, Anderson, & Nguyen-Jahiel, 2013). Thus, along with the perceptual, cognitive, and linguistic contributions to reading, there is the social-interactive-constructivist aspect (Au, 1998; Purcell-Gates, 2007; Taylor, Anderson, Au, & Raphael, 2000; Vacca et al., 2012).

The theory of language learning of Lev Vygotsky (1978) was another powerful construct that affected definitions of reading. He conceptualized language learning as occurring in a social situation including the zone of proximal development that indicated the difference between the learning a child can accomplish on his or her own and what the child can accomplish with the support of a parent or teacher. Vygotsky also suggested that human beings first learn concepts or ideas in a social context or with others, prior to internalizing these ideas. Vygotsky's work has influenced both reading research and reading instruction, providing theoretical bases as well as practical strategies such as the reciprocal teaching procedure and collaborative reasoning techniques (Zhang et al., 2013).

One unique population of readers is signing deaf bilingual children. For the present article, we define signing deaf bilingual children as children who may have a range of hearing losses from profound to severe and who use signing and written English (and sometime spoken language) in their everyday lives (Grosjean, 2010). While they may not initially have full proficiency in their first and second languages as deaf adult balanced bilinguals do, deaf bilingual children are seen as having skills in signing and print that range from emerging to developing. Over time, as they interact with others and with texts, they develop their two language proficiencies. For these children, the process of learning to read is affected by how their bilingualism-or their use of the two languages American Sign Language (ASL) and English- interacts with and supports their reading of English (Andrews &Rusher, 2010; Bailes, 1998; Kuntze, 2004; McQuarrie &Abbott, 2013; Miller &Clark, 2011). This interaction of the two languages has led us to the questions posed in the special issue of the American Annals of the Deaf in which the present article appears:

1. Is reading qualitatively similar for deaf individuals and hearing individuals?
2. Is reading qualitatively different for deaf individuals and hearing individuals?
3. Alternately, is the answer something like "Partly yes, they do learn to read like hearing children with some important differences, due to their being more visually oriented"? (Andrews &Rusher, 2010; Herbold, 2008; Miller &Clark, 2011; Morere, 2011)

These questions led us to look for answers in the dissertation research of deaf scholars to see if their insider or emic perspective led them to approach the questions differently. For the purposes of the present article, we define deaf scholars broadly to include those who are orally deaf or culturally Deaf and who obtained a doctorate and wrote a dissertation that addressed, in either a limited or full capacity, the topic of reading. To this end, we reviewed 31 dissertations completed by deaf scholars over the 40-year period 1973-2013. While student dissertations are not peer reviewed like journal articles nor are they similar to other academic writing of book chapters and monographs by experienced writers, it is our view that they constitute academic documents by newly trained, emerging scholars. We examined dissertations by deaf scholars to see what themes showed up and if they addressed the question of whether deaf children were reading in ways similar to or different from those used by hearing children.

In the present article, we first conceptualize the role of the deaf researcher on reading. Next, we define the qualitative similarity hypothesis (QSH; Paul, Wang, &Williams, 2013). We then review the 31 dissertations written over a 40-year time frame to see how deaf scholars conceptualized the reading process. To provide historical and contemporary context, we provide a decade-by-decade sketch of trends and topics in reading research. We then return to our question for this special issue of the Annals: In their research, do the 31 deaf scholars ask if deaf children learn about reading in similar ways or different ways than hearing children do? Following our review of the dissertation research, we describe visual or otherwise qualitatively different strategies the deaf scholars observed with signing deaf students who used their bilingualism to learn how to read English.

#### Deaf Scholars on Reading

The 31 dissertations reviewed in the present article represent the first generation of deaf scholars to address the topic of reading with deaf individuals. Having earned the doctorate, these scholars constitute a population of

deaf individuals who do not fit the current statistic, frequently reported in the literature, indicating that the average deaf reader reads at the fourthgrade level (Allen, 1986; Traxler, 2000). Little documentation exists of successful deaf readers. (Some examples of the literature that does exist are Andrews & Karlin, 2002; Mouny, Pucci, & Harmon, 2014; and Thurman, 2006.) Further, there is little documentation of deaf leadership in the area of reading research. (But see Brueggemann, 2004, and Snodden, 2012, for ideas on promoting literacy from an emic perspective.) Gabrielle Jones (2013), a reading researcher, stressed the important role of deaf researchers in reading research:

Since deaf researchers are also a part of the Deaf community, inviting Deaf experts from the Deaf community [to participate] in framing the questions or providing linguistic, cultural feedback, and [in] the planning of the research, not only allows access to the larger cultural norms, but also verifies [the research's] validity, (p. 67) But as Wang (2012) points out, a deaf epistemology, or deaf ways of knowing, is not enough. Wang elaborates on how both deaf and standard epistemologies can be used together to further the science of reading research where both paradigms can be combined into a meta-paradigm or hybrid paradigm to complement each other. In a similar vein, Supalla (2013) writes that there are some pitfalls on the focus of Deafness as specialized knowledge, because other fields such as sociology, anthropology, history, psychology, literature, as well as educational and philosophical theories related to learning, are also important, regardless of whether one is deaf or hearing. (P- 425)

Taking a perspective similar to that of Wang and Supalla, Frank (2013) expresses support for "inclusive epistemic practices that lead to a more accurate description of the world" (p. 363). We included the work of 31 deaf scholars using their dissertations as texts to see if they addressed the issue of the QSH within the context of standard and/or deaf epistemologies of reading.

#### Qualitative Similarity Hypothesis (QSH)

The QSH was first proposed by Paul and Lee (2010), and was later expanded by Trezek, Wang, and Paul (2010), and, more recently, by Paul et al. (2013). These authors have published a large collection of books, chapters, and peer-reviewed articles defining, describing, and supporting the QSH. As such, these QSH proponents suggest that deaf students may go through the process of learning English language and literacy in ways that are developmentally similar to those used by typical native Englishspeaking/hearing learners. Moreover, these authors suggest that a set of fundamental skills exists to develop or enhance the English language and literacy learning process, and that these skills apply to learning to read and write, whether English is a first or second language.

Grounding its research in cognitive theories and behavioral studies, the QSH cohort has built a conceptual framework (see, e.g., Paul et al., 2013) using standard epistemology. These scholars align their work with that of Stanovich (2000) in regard to children with learning disabilities. Stanovich speculates that children with learning disabilities are developmentally delayed and that their reading development differs quantitatively from that of normal children. However, he also suggests that both groups of children develop their reading abilities in qualitatively similar ways. The QSH researchers apply Stanovich's model to deaf children who either learn their L2 sequentially (after the L1) or simultaneously (at the same time). The QSH authors further point out that there needs to be threshold levels of competence in a L2 before cross-linguistic interdependence can happen. In other words, the child must achieve some level of L2 competence before bilingualism can be advantageous (Cummins, 1979).

The QSH researchers would not deny a deaf child the use of sign language in the reading classroom, but these researchers do not highlight sign language as a primary vehicle; nor are the form and structure of ASL integrated into their instructional objectives and activities in the English reading classroom. Instead, QSH researchers use the term through-the-air signing, a concept that refers to signed and/or spoken English, as used by students who may use ASL, Simultaneous Communication, Total Communication (i.e., speech and English-based sign used at the same time), or speech only (Paul & Wang, 2012). As such, sign language and

signed codes are used for communication to develop literate thought (Paul & Wang, 2012) but are not considered part of the English reading lesson, which, according to the QSH researchers, should focus primarily on the form and structure of English.

Since QSH is a relatively recent addition to the literature (having first been proposed in 2010), we did not expect to find this exact term in the dissertations we reviewed. But we did think we would find deaf scholars who would address the issue of whether reading for deaf children was similar, different, or both, compared to the experience of hearing children—thus the focus of our search for themes.

#### Method

The method chosen for the present study was interpretative analysis (J. Smith & Osborn, 2003). Interpretative research uses qualitative methods and describes the meanings of events from the viewpoint of the participants, either through face-to-face interviews or through textual analysis of their writings (Anderson, 1994; Gaffney & Anderson, 2000). We used the 31 dissertation texts of the deaf scholars as our data and reviewed them for themes over a 40-year time span. We also used our collective wide reading of reading journals and deaf education journals in our interpretation of the data. Overall, we found a sequence of overarching themes: Deaf scholars' studies addressed the topic of reading by examining communication methodologies in the 1970s, addressing English reading skills in the 1980s, and addressing the topic of ASL/English bilingualism from 1990 through 2013. See Table 1 for a display, by time period, of overarching themes and subthemes.

#### Research Questions

Two research questions guided the present study:

1. What issues and historical trends in reading research with deaf children are noted in deaf scholars' dissertation research, and how do these trends relate to reading research with hearing children?
2. Do deaf scholars conceptualize the reading process for deaf children as the same, or different, or a combination of both, compared to the reading process of hearing children?

#### Procedures

First, we conducted a computer search of all dissertations in literacy with deaf children and youth from 1962 to 2013 in computer searches in the ERIC Dissertation Abstracts and ProQuest databases. We started with the search terms deaf, deafness, hard of hearing, hearing impaired, literacy, reading, writing, bilingualism, ASL literacy, vocabulary knowledge, Visual Phonics, sign writing, phonological awareness, Cued Speech, Signed English, metacognition, reading strategies, and writing strategies. We also asked our colleagues to provide us with names of deaf scholars and titles of dissertations written by deaf scholars that might not be found in these databases.

As we attempted to document and analyze trends in the data in deaf education and compare our data to historical issues in reading research, we read the titles, abstracts, and full texts to determine overarching and subcategorical topical themes for research question 1. We also addressed the question of how deaf scholars conceptualized the reading process for deaf students. The authors of the present article are three researchers, one deaf and two hearing. As a deaf/hearing collaborative bilingual team, we discussed and took notes independently and collaboratively after reading each of the dissertations.

We located 31 dissertations written by deaf scholars from the years 1973 to 2013. We found the full dissertations in the ERIC, EchoHost, and ProQuest databases, using the search terms listed above. We formed electronic and hard-copy libraries of the 31 titles, abstracts, and dissertation texts. We combined our analyses of these 31 documents with our discussions and our outside reading of research to arrive at a description and interpretation of the historical and current trends in the deaf scholars' research on reading. In the present article, prior to each decade of the deaf scholars' research we include a sketch of historical and contemporary themes and trends in reading research with hearing students, in order to provide a backdrop to our deaf scholars' dissertation topics.

We followed six steps in our analysis:

1. Each dissertation, with its title, abstract, and text, became a primary text document for our theme analyses.
2. Independently, we read through the dissertations and made our notes, marking key words and phrases to get a sense of the topical themes from 1973 to 2013.
3. We highlighted specific statements in the texts that the deaf scholars made about whether the reading process for deaf readers was the same as or different from that for hearing readers.
4. We met frequently to discuss the dissertations and our notes.
5. We identified key themes from the dissertation titles, abstracts, and texts.
6. A colleague who was not part of the study independently examined our coded themes and indicated our agreement or disagreement with them.

Through this process, we were able to identify three overarching themes (see Table 1 for list of themes). Interrater reliability across reviewers was 82%. To resolve these differences, we went back and reorganized and combined categories within themes to align our categorization to our independent observer's categories to obtain 100% interrater reliability.

## Results

To address the first research question, we organized the data by clustering it into five time periods. The first period was 1973-1979. The second period was 1980-1989. The third was 1990-1999, the fourth 2000-2009, and the fifth 2010-2013. The earliest dissertation we found by a deaf author was dated 1973, so we started at that year. We noted an increase in the number of dissertations completed by deaf scholars beginning in 2000; a total of 21 (68% of the total) were completed from 2000 to 2013 (see Table 2).

We also examined the type and frequency of research methodology used by the deaf scholars. The research methodology was slightly more likely to be qualitative studies (48% of the dissertations) than quantitative (42%); mixed-method studies accounted for 10%. In regard to the setting for their research, the majority of the studies were conducted at schools for the deaf or bilingual charter schools, or at a combination of research sites at deaf and mainstream programs (see Tables 3 and 4).

In Table 5, we list some of the learning theorists, psycholinguists, linguists, bilingual researchers, and literacy researchers who assisted the deaf scholars in interpreting their data or otherwise had an impact on their studies. We derived this compilation from the scholars' chapters on methodology as well as from their references.

## Themes by Time Frame

We divided our 31 texts into five time frames from 1973 to 2013 so that we could look for themes over time. Before presenting our data from the deaf scholars, we provide a brief summary of themes occurring in reading research with hearing children. A summary of the 31 studies is shown in Table 6.

## Reading Research in the 1970s

Just before the 1970s, in her book *Learning to Read: The Great Debate*, Jeanne Chali (1967) documented that children learn best to read through "code-emphasis" practices and that early decoding produces better word recognition, spelling, and reading for understanding. During the 1970s, the cognitive revolution came sweeping in, challenging previous simple linear models of reading that held that training children with direct instruction to decode with fluency, then leading them to a level of comprehension where they could depend on their previously established oral language, was the best approach (Israel & Duffy, 2009). Influenced by the interdisciplinary fields of cognitive science, linguistics, psycholinguistics, and sociolinguistics (Anderson, 1994; Gaffney & Anderson, 2000; Israel & Duffy, 2009; Pearson, 2002), reading researchers developed models that went beyond the stage theories and instead developed new theories that incorporated cognitive, psycholinguistic, and linguistic processes of readers during their interaction with print.

Also, during the 1970s, language and literacy researchers following Noam Chomsky's theory suggested that children did not imitate language, as B. F. Skinner had previously proposed, but that they internalized the rules and created their own child language. Chomsky's work created a radical change in reading practice because he

offered evidence that language acquisition was innate and not learned through a stimulus-response mechanism (E. Monaghan, Hartman, & C. Monaghan, 2002). Chomsky's work in syntax profoundly influenced the development of assessments, language materials, and even a reading series for deaf children (Quigley & King, 1981). Cognitive psychologists and educational psychologists were developing the concept of schema theory to provide an account of how readers used their background knowledge and prior experiences to comprehend texts. As such, reading comprehension was believed to start in the mind of the reader and was the result of the interaction of the text, the background, and the cultural knowledge the reader brought to the reading process (Pearson, 2002). During this time, the concept of story grammars was introduced, as well as metacognitive strategies, communicative competence, and research in teacher and school effectiveness (Gaffney & Anderson, 2000; E. Monaghan et al., 2002). Kenneth Goodman's notion of reading as a psycholinguistic guessing game (K. Goodman & Y. Goodman, 2009) and Frank Smith's book on whole language, *Understanding Reading* (1971), were also introduced during this era.

#### Time Period 1 (1973-1979): Communication Methodology Theme

From 1970 to 1979, four dissertations by deaf scholars were found with the overarching theme of communication methodology. The subcategory themes were (a) the oral and manual communication methodologies, (b) ASL and English methodology, and (c) the Signed English methodology. The four dissertations were Babb, 1979, Corson, 1973, Humphries, 1977, and Ogden, 1979.

All four studies discussed the reading achievement levels of deaf students. Three of the studies focused on the teaching and testing of English, with Humphries (1977) as the only one who focused on the learning of two languages-ASL and English. Each of the researchers recognized the importance of English and also recognized that ASL or manual communication was not the panacea for the learning of English-that there were other factors such as parental acceptance, socioeconomic background, early language exposure, and practice in writing, as well as recognition of the importance of crosscultural communication.

#### Oral and Manual Communication Methodologies

Corson (1973) wrote that early manual communication was not the only variable that leads to higher English reading and language scores, as he found that the variables of parental acceptance of deafness and socioeconomic status were also important to an understanding of deaf students' English language and reading achievement. In the abstract of his dissertation, he wrote,

The results of this study seem to indicate that the employment of manual communication alone does not seem to adequately describe the superior performance of deaf children of deaf parents when compared to deaf children of hearing parents. The finding that deaf parents of deaf children expressed greater parental acceptance of deafness in their children than hearing parents of deaf children provides a more plausible explanation to describe the phenomena of the superior performance of deaf children of deaf parents. The finding that deaf children of both deaf and hearing parents attending the Clarke School [an oral deaf school] were significantly superior to their counterparts attending the American School [a manual deaf school] in areas of reading, arithmetic, speechreading, and social adjustment can be explained by higher per capita cost and superior socio-economic status of the families in favor of the Clarke School, (no page number)

Ogden (1979) found that oral deaf adults were highly motivated to use reading and writing and made "use of writing more often as a means of communication," and "made use of the dictionary" (p. 159).

#### American Sign Language and English Methodology

During the 1973-1979 time frame, Humphries (1977) used a different communication methodology approach-the bilingual approach. In his classroom action research study, he found that English writing could be taught to deaf college students by using ASL and English bilingual strategies. Humphries also stressed cross-cultural communication between deaf and hearing teachers as well as contrastive analysis between the grammars of English and ASL. In his approach to teaching, Humphries wrote,

I have had the pleasure of watching other deaf people become more bicultural and bilingual in my classroom.



These, then, are the assumptions I make in my approach to teaching: 1. ASL and English are two separate, complete, and valuable languages. 2. English is not a prerequisite to intelligence, success, or value as a person. 3. English does not necessarily equal happiness. 4. When two cultures meet, learning happens in a co-learning atmosphere, (pp. 53-54)

#### The Signed English Methodology

In his study, Babb (1979) found that using a morphemic sign language system provided the deaf child with a model of the syntactic patterns of English. But he stressed that this model was advantageous only when it was used at home before the child was 3 years old, as well as at school. He wrote,

Insufficient exposure to syntactic patterns constantly at home leaves the deaf child with an extremely limited means of acquiring the basic structures of English. Good language input at school alone is insufficient to overcome the language deprivation customarily shown by deaf children of hearing parents. A morphemic sign language version of English, such as Signing Exact English, might help reduce the language deprivation. However, as a form of manual communication used only in an educational environment, divorced from parental involvement in the language acquisition process at home, SEE was found to be no more effective than the oral methods previously used in most classrooms. To be effective, this mode of sign language must also be used by the parents at home, preferably before the deaf child is three years of age. (pp. 139-140)

Among the work of other deaf scholars, the study by Humphries (1977) was noteworthy in that he introduced the use of both languages to be used in the classroom to teach reading and writing to deaf college students. He used a cross-cultural approach to reading and language for deaf students; thus, his work harnessed the sociolinguistic theories of language learning in a social context proposed during the 1970s and played out in the literature into the 2000s (Pearson, 2002). Babb (1979) utilized Chomsky's theory of language learning in his study by testing whether or not deaf students internalized the rules of English syntax when they were exposed to SEE by their parents and teachers. The other topics found in the general reading literature, such as code-emphasis approaches supported by Chali (1967) and other researchers, which focused on whole language, story grammars, schema theory, and metacognitive strategies, were not addressed in the deaf scholars' work until a decade or two later. While the concept of whole language began to be used in the United States in reading classrooms as an instructional strategy around 1978 (Goodman & Goodman, 2009), it did not appear in the reading research with deaf scholars until 1998, with the work of Bailes (1998) and Gallimore's dissertation (2000).

#### Reading Research in the 1980s

In the 1980s, studies focused on the reading skills of vocabulary learning and reading comprehension (Freebody & Anderson, 1983). Researchers expanded studies on schema theory and the relationship between content knowledge and reading comprehension. Story grammars were considered not to be simple grammars but more complex texts with episodic structures (Anderson, 1994). Whole language was used widely in the schools (K. Goodman & Y. Goodman, 2009). In the research labs and schools, studies were conducted that focused on children developing comprehension strategies such as the reciprocal teaching procedure, comprehension and reasoning, metacognitive training, and the use of visual graphic organizers (see studies cited in Pearson, 2002). During this time, *Becoming a Nation of Readers* (Anderson et al. 1985) was published, which documented the importance of increasing the volume of children's book reading at school and at home. Process writing and reading of children's literature were also important areas of research and instructional practice (Pearson, 2002). Studies were also published on the impact of parent reading in the home and the concept of emergent literacy as progressing along a continuum rather than on cognitive maturational and stage theories of reading acquisition previously advanced by other scholars (Mason, 1984; Teale & Sulzby, 1986).

#### Time Period 2 (1980-1989): Reading Skills Theme

The three studies found during the decade of the 1980s moved away from a focus on communication methodology to a focus on reading skills. The reading skills theme was subdivided into (a) vocabulary, (b)

listening and story retelling, and (c) parent-child book reading.

#### Vocabulary

Paul (1984) studied vocabulary of multiple-meaning words. In a comparison with hearing readers, he found that deaf readers did not perform as well on a picture test of multiple-meaning words and that word frequency was not correlated with knowledge of word meanings, as it is for hearing children. In regard to the reading skill subtheme of vocabulary, Paul wrote that the findings of the present experiment established types of meaning (i.e., primary or secondary) of a word as one of the factors which contributes to the difficulty of a word. Thus the presence of secondary or other meanings of multimeaning words in reading materials may be problematic for hearing and deaf children who are unaware of these meanings. Support also was found for the hierarchy of meanings of these words provided by the data in the study by Dale and O'Rourke (1976). Taken together, these findings warrant care in the consideration of words with multiple meanings in instructional practices and in the construction of special vocabulary and/or reading materials, (p. 89)

#### Listening Comprehension and Story Retelling

Stewart (1985) focused on another reading skill, that of listening comprehension or visual attention to stories rendered in sign language. He found that deaf children in a Total Communication program recalled and retold stories better in ASL than in Signed English. But he also found that when students viewed stories that used speechreading and Signed English, the students' retelling scores also increased. Stewart wrote, Data analysis showed that there was no significant treatment effect for mode of presentation: Subjects reproduced stories presented in ASL better than SE stories; there was an interaction between language and modes where adding speechreading to the manual-only modality led to higher comprehension scores in SE presentations; and a majority of subjects retold ASL and SE stories in ASL. (pp. ii-iii)

#### Parent-Child Book Reading

While her dissertation was not an early literacy study per se, Mounty (1986) focused on language input and output of deaf children of hearing parents who signed with their children. She brought to the literature the reading skills of parent/child book reading, as she noted that one parent had read and signed to her child since the child was 2 years old, and that this practice built the child's language skills. During the 1980s, the topics in the deaf scholars' dissertations were more closely aligned to reading research in hearing education. Paul's focus on vocabulary, Stewart's focus on story retelling, and Mounty's attention to parent-child book reading as a language builder for both parent and child were topics that were mirrored in reading research during this same era. Deaf scholars in the 1970s and 1980s were presenting their findings in the context of standard epistemologies found in reading research with hearing students, thus emphasizing what would later become known as the QSH, with the exception of Humphries (1977) and Stewart (1985), who used both the standard and the deaf epistemologies where they incorporated signing strategies into their reading research.

#### Reading Research in the 1990s

In the 1990s, reading research focused on both whole language and codeemphasis studies. Whole language theories were translated into classroom practices (Pearson, 2002). Basal readers were rewritten to include children's literature. But there were also studies emphasizing phonological, or code-emphasis, theories. In her 1990 book *Beginning to Read: Thinking and Learning About Print*, Marilyn Adams compiled research that showed the critical role phonological and phonemic awareness played in successful reading acquisition of an alphabetic writing system, the importance of automaticity of word recognition, and the value of implicit instruction for monolingual hearing children. Researchers and practitioners supported phonics instruction, believing that its absence was the cause of reading failure, even though researchers pointed out that teachers were already using phonics in the schools and many of the children were still not doing well (Anderson, 1994; Pearson, 2002). In the 1990s, whole language came under attack in school systems as the focus moved toward

direct instruction of basic reading skills (K. Goodman & Y Goodman, 2009). Much of the problem with the whole language movement was that it was not clearly defined (Anderson, 1994).

Time Period 3 (1990-1999): ASL/English Bilingualism Theme

Until about 1990, most, though not all, of the dissertations by deaf scholars focused on the learning of one language-English, in the reading classroom, by means of either a reading skills approach or different communication methodologies. A major shift in themes was noted toward the increasing number of dissertations that included the use of both ASL and English in reading instruction, as demonstrated in dissertations by deaf scholars during the 1990s. The three dissertations in the 1990s by deaf scholars demonstrated overall how signing deaf children used their ASL/English bilingualism-that is, they used both ASL and English to learn about reading English. We divided this overarching theme into five subcategories: linguistic rights, ASL linguistics, ASL literacy, ASL literature, and metalinguistic and metacognitive awareness.

Linguistic Rights

During the 1990s, Supalla (1990) challenged the role of English as the dominant language for the classroom, thus ushering in the theme of language rights. He showed the difficulties deaf children have with learning signing systems of English and reported that in their language output, deaf children used more of a visual, ASL-like language than the Signed English they were exposed to in the classroom. Supalla proposed the Modality-Constraints Model, which he used to explain why Manually Coded English has basic problems as a sign system and is inherently unlearnable, so that it cannot function as a natural language. Supalla said that the Modality-Constraints Model shed new light on the nature of true signed languages in general, and had crucial implications in the area of language policy and planning in teaching deaf children English reading, and writing. The subcategory theme of linguistic rights was also seen in a study by Gruskin (1996) of four youths who were classified as hard of hearing. He found that ASL/English bilingual strategies can be used by students who have more functional hearing and are classified as hard of hearing. In his case study of these four students, Gruskin reported in his interviews and observations that they could resolve their "linguistic conflicts" of having to choose speech and audition over signing by using ASL/English bilingual strategies. His findings underscored the importance of using the deaf students' ASL/English bilingualism to support the development of English literacy. Gruskin wrote that "the placement of hard of hearing children in a school for the deaf, especially one offering an ASL/English bilingual bicultural program, is one possible means of resolving the academic, linguistic, social, and identity conflicts of hard of hearing individuals" (p. 8).

ASL Linguistics, ASL Literacy, and ASL Literature

During the 1990s, deaf scholars began noting the importance of having deaf students read continuous texts (Bailes, 1998; Grushkin, 1996), as well as the utility of ASL/English mapping strategies in which children come to understand the structure of the written units of language, letters and words, by mapping fingerspelled handshapes to letters and mapping a sign or a group of signs onto a printed word or phrase in whole stories. Teachers were also focusing children's attention on understanding the phonological structure of ASL signs by comparing signs with similar and different handshapes through ASL handshape stories and mapping these ASL componential forms onto the children's learning of English vocabulary (Bailes, 1998).

These studies were taking the role of ASL as simply a communication method to another level, that of actually using the structure of ASL. This could take the form of using ASL phonological handshapes and tying this practice to the child's ability to understand and enjoy ASL handshape stories (ASL literature). Then, the child could ostensibly transfer this knowledge by either talking about English print by using ASL discourse and metalinguistic and contrastive analysis conversations or by directly mapping ASL signs into written English. ASL handshape stories as part of ASL literacy and ASL literature were introduced into the classroom within a program called ASL/English Integrative Language Arts (Bailes, 1998); this was the first mention of using the linguistic form of ASL (the parameters of handshapes) as part of reading instruction-that is, using the explicit teaching of ASL handshapes and other nonmanual markers in ASL. Bailes (1998) also encouraged formal

classes that focused on ASL parameters and nonmanual markers in the use of ASL in descriptions. This theme of teachers using ASL literacy and ASL literature through ASL handshape stories as a teaching strategy to increase ASL acquisition and linking it to reading acquisition was mentioned in later dissertations by Byrne (2013), Gietz (2013), and Snodden (2009). Specifically, Bailes wrote, that in using ASL to teach English literacy, the teachers at Hanson School [a bilingual charter school] integrated the attending and signing aspects of ASL with the English reading and writing. I have termed this "Integrative ASL-English Language Arts." The crux of the English literacy program at Hanson School was the use of ASL in cultivating an understanding of written English, (p. 291)

#### Metalinguistic and Metacognitive Awareness

In a classroom ethnographic study based on whole language, Bailes (1998) interviewed teachers, conducted classroom observations, and described the importance of teachers using both language ASL and English to build background knowledge and teach their students how to use metacognitive and metalinguistic strategies while they observed teachers translating storybooks. Bailes reported that storybook reading-signing provided a context for which the primary-grade students at Hanson School were exposed to fluent models of ASL. They observed their teachers in the act of reading English text and translating it to ASL. They found these storybook reading-signing episodes pleasurable and they also learned from them. And, storybook readingsigning was well used as a forum for affording children access to information. Indeed, it was a pivotal strategy for the task of building background knowledge. Storybook reading-signing also provided opportunities for speculation and discussion about complex concepts. Another strategy that was useful in building background knowledge was news-sharing sessions, (p. 153)

The dissertations in the 1990s reflected research being done with the whole language paradigm. Research paradigms reflecting metalinguistic and metacognitive strategies were also noted. In this small set of studies, none used auditory phonological paradigms of learning to read, but Bailes (1998) noted the use of visual phonology, which emphasized how ASL handshapes assisted deaf children in learning more ASL vocabulary; this, in turn, provided a scaffold for learning more English printed words. Bailes wrote the following about teaching words using ASL handshapes or ASL phonology:

What Elena (teacher) elicited from the students for the handshape "A," on the other hand, might include a word that begins with the letter "A" such as "aunt," but would also elicit words such as "patient," "suffer," and "not" because they are signed with the "A" handshape. (p. 167)

We noted that none of the deaf scholars reflected on the importance of auditory phonological awareness for the learning of reading, since this paradigm was already being emphasized during the 1990s, largely under the influence of Adams's 1990 book *Beginning to Read* and the Zeitgeist in reading research at the time. Still, the deaf scholars used paradigms from standard epistemologies such as the work of Vygotsky, Bruner, and the Goodmans, as well as that of bilingual theorists such as Stephen Krashen and Jim Cummins. Thus, we interpreted this as the deaf scholars supporting both the standard and deaf epistemologies in learning about reading.

#### Reading Research From 2000 to 2009

During the time frame 2000-2009, randomized field trials became the gold standard for reading research. At the beginning of that period, the National Reading Panel (2000) published its report *Teaching Children to Read: An Evidence-Based Assessment of the Scientific Research Literature on Reading and Its Implications for Reading Instruction*. The National Reading Panel identified five essential skills of reading-phonics, phonemic awareness, vocabulary, text comprehension, and fluency-and provided the scientific evidence on reading and mathematics for the No Child Left Behind Act of 2001. Another theme in reading education was online literacy and multimedia literacy, as both were found to engage students in both reading and writing (Mayer, 2009). In regard to younger children, the National Early Literacy Panel (2008) investigated six variables that predicted early literacy skills in preschool and kindergarten: alphabet knowledge, phonological awareness, rapid automatic naming of digits or

letters, writing letters or one's name, and phonological memory. During this time frame there was an increased number of studies related to writing and reading connections, motivation and reading, and sociocultural dimensions of reading, in the context of efforts to increase reading comprehension (see Gaffney & Anderson, 2000, for reviews).

Time Period 4 (2000-2009): ASL/English Bilingualism Theme

As in the previous decade, from 2000 to 2009 the dissertations focused on the use of ASL/English bilingualism to learn about reading. An increasing number of dissertations focused on the use of the two languages-ASL and English-to support the acquisition of English literacy. A total of 13 dissertations were published by deaf scholars during this period. The subcategory themes were similar to those of time period 3: (a) linguistic rights, (b) ASL linguistics, ASL literacy, and ASL literature, and (c) metalinguistic and metacognitive awareness.

Linguistic Rights

The themes of language rights and ASL/English bilingualism were noted by Gallimore (2000), who emphasized the right of deaf children to have teachers with proficient signing skills in the reading classroom. Gallimore wrote that "the impact of the teacher's poor sign skills on their students may be far reaching given that greater mastery of American Sign Language (ASL) in students is positively correlated with their higher English proficiency" (p. 38).

Nover's dissertation on historical methods, published in 2000, also embodied these themes of language rights related to ASL/English bilingualism. In a historical survey, Nover examined 151 documents from the American Annals of the Deaf and catalogued all of the reading and language strategies used by teachers, including signing, fingerspelling, speechreading, and writing. Language rights and ASL/English bilingualism themes were also noted cross-culturally and cross-linguistically in China. The theme of the role of deaf teachers as reading teachers who signed stories to deaf children was emphasized in two studies, one in the United States (Tompkins, 2000) and one in China (Yang, 2006) during this period.

ASL Linguistics, ASL Literacy, and ASL Literature

In her study, Gallimore (2000) emphasized the necessity of teachers being skilled in ASL discourse, an important part of ASL linguistics. She wrote,

It is important that teachers of deaf children are skilled in the area of ASL discourse and thus culturally sensitive to the structure of conversations in ASL. It is through such meaningful discourse, social interaction, and cultural dialogue that literacy is developed. (p. 182)

The concept of emergent ASL literacy was proposed by Snodden (2009). She interviewed and observed mothers involved in an ASL literacy program for young children using ASL stories and ASL rhymes. According to Snodden, the exposure to ASL literature provided a foundation for the children to learn English literacy and English literature.

Cripps (2008) also suggested the use of ASL literature in the reading class so that deaf children could learn to retell stories, memorize stories, and reflect on "positive attributes of oral culture and support the listening/speaking/signing components of literacy in addition to what has been discussed for written literature" (p. 131). Cripps (2008) also suggested that the linguistics of ASL could be taught to children by means of a sign writing system. Further, English literacy could be taught to deaf children, according to Cripps, by using an intermediary writing system such as ASL glossing. He proposed a sign language-based curriculum to teach deaf children to read using ASL gloss, sign writing, and special tools such as resource dictionaries with sign writing that children could use to figure out print. In regard to sign writing, Cripps wrote that using special tools (i.e., ASL graphemes and gloss) in the classroom with deaf children becomes relevant for their early reading development. In order to reply to the issue of phonological coding, this process can be achieved only through ASL graphemes. Thus, the missing link of phonological coding has been discovered through this study, and that is to attach ASL to the gloss text through the use of The Resource Book [a document by Sam Supalla that includes lists of sign words]. As part of the transition process from gloss to

English texts, deaf children are able to study English through comparative analysis lessons. This time, deaf children are liberated from being hampered when it comes to learning the print form of a spoken language. (p. 234)

#### Metalinguistic and Metacognitive Skills

Still another study (Kuntze, 2004) emphasized reading as a cognitive skill; Kuntze claimed that signing deaf readers could go from ASL directly to print to learn to read and that they did not need an intermediary system such as Signed English. In addition, he wrote that deaf children needed to have cognitive engagement in ASL in order to develop English reading skills. Kuntze coined a new term, "inferential ASL," which was more like the "academic English" of Cummins (1979). Inferential ASL is more complex than the ASL used for daily communication, just as Basic Interpersonal Communication is less complex than the academic language found in English text. Kuntze suggested that deaf children needed to have inferential ASL, and that with it they could bridge meaning to English literacy by being cognitively engaged in discourse with their teachers about print. Kuntze wrote that "cognitive engagement is possible only when the child and the adult are competent in the language they both share, and the cognitive engagement helps foster literacy skill development not only in ASL but also in English" (p. viii). Expanding his ideas on cognitive engagement in ASL and its links to English literacy, Kuntze further wrote that

literacy development depends on having an opportunity to develop a language; without sufficient competence in a first language, complex dialoguing with others is not possible. This study shows that if the ability to think on a literate level is not present in ASL, it will not be present in written English. High-level cognitive processes and intellectual abilities depend on information input, not speech input. If the input to the child does not carry information in an accessible format, no information is transmitted. The fact that the structure of ASL is different from the structure of written English is less important than the fact that ASL provides the child with the most effective route to acquiring a fully developed language base through which the child has access to others who can provide the kind of interaction that will foster the child's cognitive, and thus literacy, development, (p. 177) The subcategory theme of metalinguistic awareness in both languages is applied by young deaf readers. For example, Herbold (2008) suggested that "Deaf children's emergent literacy development is highly similar to that of monolingual and bilingual hearing children, with some characteristics unique to Deaf ASL-English bilinguals" (P- 13).

These unique strategies are metalinguistic strategies through which deaf children are able to reflect on their use of both languages even at the emergent literacy stage. In her study of four deaf children of deaf parents, Herbold (2008) found that deaf children developed a variety of approaches that were similar to those used by hearing children, such as learning concepts about print, learning the letters of the alphabet, and learning the structure of storybooks. But Herbold stated that deaf emergent readers also learned about emergent literacy using different ways or visual strategies that hearing children did not use, such as fingerspelling, initialized signs, chunking letters into a visual sequence, and writing in order to understand alphabetic print. She wrote, The idea that Deaf children are deprived of the ability to read because they cannot hear and make direct sound-letter relationships is false. Young Deaf children with full access to language in ASL from birth make use of a variety of resources available to them that include fingerspelling, direct and indirect connections to both initialized and not initialized ASL signs, developing understanding of patterns, and frequent experiences with print along with the development of cueing systems and written language hypotheses, (p. 287)

Hile (2009) elaborated on the use of metalinguistics and fingerspelling and decoding, writing that fingerspelling skills and beginning literacy skills begin to align when sign children recognize the relationship between fingerspelled words and printed words upon entering school. The pathway to literacy development, when comparing deaf signing children with hearing children, is different. Reading development and decoding strategies differ for some deaf and hearing readers due to the differences in the phonological systems of ASL and English, (p. 30)

Another study, by Li (2005), focused on another use of metalinguistic awareness where students use two languages. Here the teacher uses the strategy-the Preview-View-Review bilingual strategy. In this strategy, students view a signed version of a text (Preview), then read the text in English (View), then view a summary of the text in ASL (Review). Li found that children who used this strategy improved their reading and retelling of science texts.

Metacognitive and metalinguistic awareness was also noted by Herbold (2008) in her study of four emergent readers. She wrote,

More directly, ASL allowed the children in this study to have conversations about print, to develop print awareness, to discuss word meanings, to experience storysigning, and to develop hypotheses about written language and the English writing system. Additionally, storysigning in ASL as well as engaging in academic discourse about texts, the children also developed literate registers, (pp. 217-218)

The deaf scholars' work during the period 2000-2009 was aligned to standard epistemologies of this 10-year time frame. More deaf scholars were using emergent literacy, whole language, and research paradigms on reading and writing connections. While none of the researchers mentioned the two national panel reports that were published at this time, those of the National Reading Panel (2000) and the National Early Literacy Panel (2008), the deaf scholars stressed the importance of vocabulary and comprehension in their reading research.

#### Reading Research from 2010 to 2013

From 2010 to 2013, researchers emphasized teacher practice, multiplestrategy instruction, instruction in text structure, instruction for at-risk readers, technology-assisted instruction, and multisensory approaches to comprehension instruction (see reviews by Butler, Urrutia, Buenger, Gonzalez, & Hunt, 2010a, and Butler et al., 2010b). Other researchers have shown that teachers who emphasized higherorder thinking through collaborative reasoning promoted greater reading comprehension and richer writing samples (Zhang et al., 2013). Researchers documented the use of practices such as collaborative reasoning, an instructional elaboration of the reciprocal teaching procedure of the 1980s that stimulated teacher-student and student-student classroom discussions about text, led to deeper reading of text, and also led to increased receptive and expressive language development (Zhang et al., 2013). Another topic theme during this time span was the integration of reading and writing in the teaching of reading in the content areas (Pearson, Moje, & Greenleaf, 2010). Additionally, there was continued research related to phonological awareness and beginning reading, as well as the findings of the National Reading Panel (2000), with its five components of reading frequently quoted in the research literature.

#### Time Period5 (2010-2013): ASL/English Bilingualism Theme

Eight dissertations were found in the 3 years of our fifth time frame, 2010-2013. Seven of the dissertations discussed how deaf students used their ASL and English to develop more English skills. The subcategories of (a) linguistic rights, (b) ASL linguistics, literacy and literature and (c) metalinguistic and metacognitive awareness were also found in these seven dissertations. One study, by Atwell (2013), examined how deaf children comprehended verb particles using short stories and pictures. No sign language was used in this intervention; thus, we interpreted this study as following the QSH. Atwell found that visual bracketing of the verb particles was used, but this treatment did not result in improved reading scores on Payne's Test of Verb Particles. Atwell's study was similar to previous studies that we put in the category of those following standard epistemology or the QSH.

Below we provide quotes from the other dissertations that focused on the subcategories.

#### Linguistic Rights

Harris (2011) suggested that deaf children had the right to linguistic access to ASL through ASL/English bilingual education. She found that deaf teachers could provide higher-order thinking skills to young preschool children through extended discourse or academic ASL. Harris wrote, "The true significance of this study may lie in its contribution to what many regard as an urgent agenda: establishing nationwide ASL/English bilingual

education for deaf children's early years, for the ages of 0 through 5 years old" (p. 12).

#### ASL Linguistics, Literacy, and Literature

A theme originally suggested by Bailes (1998), the use of ASL componential forms (i.e., ASL phonology), began to reappear in more studies through the use of ASL handshape stories and other types of ASL literature (Byrne, 2013; Gietz, 2013; Jones, 2013). The use of ASL handshape stories to develop English vocabulary (Gietz, 2013) and the use of ASL literacy and literature (Byrne, 2013) were suggested by elementary school teachers as a precursor to teaching English literacy and English literature.

#### Metalinguistics and Metacognitive Awareness

Other themes that emerged were cognitive strategies such as "think-alouds" in the reading of math word problems (Lee, 2010). Another strategy was cognitively challenging discourse for preschoolers (Harris, 2011). Still another strategy was translating English punctuation marks into ASL (Sugiuro, 2012). Finally, Jones (2013) documented crosscultural and cross-linguistic strategies using Chinese writing, a morpho-syllabic script. For example, she found the deaf teachers used visual tools such as sign-to-character print mapping and mapping pictures to Chinese characters (Jones, 2013).

The work of the deaf scholars paralleled, in some ways, the research with hearing children in that both utilized standard epistemologies. For instance, Lee (2010) emphasized metacognitive strategies using the "think-aloud" paradigm. Harris (2011) used extended discourse in ASL to promote higherorder thinking during reading lessons just as research with older hearing readers used collaborative reasoning to stimulate higher-order thinking. But deaf scholars also used qualitatively different strategies. No deaf scholars during this time period used methods of phonological awareness as found in the hearing literature. Instead, studies incorporated the structure of ASL and English into the reading lesson.

#### Qualitatively Similar, Different, or Both

In research question 2, we posed the question that guided this special issue of the American Annals of the Deaf. We examined if deaf scholars conceptualized the reading process for deaf students as qualitatively similar (QSH), qualitatively different (QDH), or including both the QSH and the QDH ideas. Although not always explicitly stated, from our historical and interpretive analyses of the 31 dissertations reviewed for the present article we found that five supported the QSH (Atwell, 2013, Corson, 1973; Babb, 1979; Ogden, 1979; Paul, 1984). These studies used only standard epistemologies in their research designs and in the interpretation of their data. In these five studies, only the students' proficiency or activities in one language, that is, English, were described when reading was being discussed.

We interpreted the remaining 26 dissertations as studies that used both standard epistemologies and deaf epistemologies. As a result, our interpretive analyses support the third hypothesis, that, on the basis of their studies, the majority of deaf scholars would support the claim that reading for deaf students is both qualitatively similar and qualitatively different. The similarities relate to the rich definition we presented in the beginning of the present article. Reading is seen as a complex process that incorporates perception, language, cognition, world knowledge, prior experiences, and motivation. The deaf scholars emphasized the use of the structure of both ASL and English in the teaching of reading.

Strategies we deemed visual and qualitatively different from those used with hearing children included learning to read English generally through sign bilingualism. By sign bilingualism we mean using both their ASL and their English-language skills to learn more English. As such, strategies included translating texts (Bailes, 1998; Gallimore, 1998; Gietz, 2013; Kuntze, 2004), using metalinguistic awareness with their two languages (Bailes, 1998; Gallimore, 2000; Kuntz, 2004), having teachers fluent in ASL or Chinese Sign Language sign whole stories to the children (Bañes, 1998; Gaüimore, 1998; Jones, 2013; Yang, 2006), bypassing the auditory phonological code to support English learning (Bailes, 1998; Herbold, 2008; Jones, 2013), using cognitive engagement or cognitive discourse in ASL to develop English reading skiüs (Harris, 2011; Hile, 2002; Kuntze, 2004), using fingerspelling in mediating between ASL and English (Harris, 2011; Herbold, 2008; Hile, 2002),



using sign writing and ASL gloss as intermediate steps (Cripps, 2000), and using ASL literature (Bailes, 1998; Byrne, 2013; Gietz, 2013; Snodden, 2009) as a foundation for English reading of English literature. Bañes (1998) and Gietz (2013) also mentioned the use of ASL phonology through handshape stories. This is not to say that all the scholars agreed on how reading is learned by deaf children. Within the dissertations from 1990 to the present that support ASL/English bilingualism for signing deaf readers, there is a difference in viewpoints among the deaf scholars. Most of our deaf scholars whose dissertations were completed in the 1990-2013 period supported the use of the translation strategy to go from sign or fingerspelling to print as an ostensible difference from hearing students' acquisition of reading. Indeed, Gallimore (2000) noted that fingerscanning under a line of print signaled to deaf children that a translation was about to occur. However, while Bailes (1998) supported translations as a reading strategy, she suggested that there were "questions about the efficacy of translating between English and ASL and vice versa . . . studies are needed to determine where, indeed, the utilization of translation fits into the reading process . . . indeed, translation is a complicated process" (p. 294).

More strongly, Cripps (2008) challenged the notion of translation as a reading skill. Instead, he suggested that current bilingual techniques, such as translation and code-switching, did not give the deaf reader the skill to become independent readers on their own. He said that translation was not a reading skill but a more complex cognitive task. Cripps supported the use of ASL glossing and sign writing where the child could be taught 32 grapheme symbols that enabled the deaf reader to read in ASL writing. For young deaf students, sign gloss and sign writing becomes an "intermediate writing system" for deaf students to directly access ASL. ASL gloss and sign writing, according to Cripps, will allow for the cross-linguistic arrangement with ASL and English to occur. Another deaf scholar, Kuntze (2000), stated, on the other hand, that an intermediate system such as sign writing or a manual code of English was not necessary, but that the deaf readers could go directly from ASL comprehension to reading academic English print if they were exposed to inferential ASL or high levels of ASL discourse, a new viewpoint that is aligned with what Cummins (1978) called "Cognitive Academic Language Proficiency," or CALP and Harris (2011) called "extended discourse."

#### Discussion

The purpose of the present study was to describe the historical trends in reading research with deaf children as noted by deaf scholars, using their dissertation texts as data for study by means of a qualitative, interpretive analysis approach. Our study addressed two research questions. First, what were the issues and historical trends in reading research with deaf children noted by the deaf scholars in their dissertation research and how did these trends relate to reading research with hearing children? Second, how did deaf scholars conceptualize the reading process for deaf children, and was it the same as or was it different from the processes found with hearing children?

Using a library computer search and discussing with our deaf colleagues, we found 31 dissertations written by deaf scholars whose topics were generally related to reading. Beginning in 2000 there was a dramatic increase in the number of dissertations; 68% of them were published from that year through 2013. We attribute the increase in dissertations to several possible factors. One factor could be the increased availability of sign language interpreters in higher education, particularly in graduate schools, as a consequence of the American With Disabilities Act of 1990. It could also be attributed to the Deaf President Now! movement, which cast a national spotlight on deaf leadership in higher education and may have empowered more deaf students to earn doctorates. It could also be attributed to the availability of more deaf mentors in higher education. Another factor could be the whole language movement that appeared after the 1990s, which emphasized a holistic approach to language teaching and language learning. It could also be due to the ASL/English bilingual movement, which emerged in the Learning Center in Framingham, MA, as a result of the efforts of the late Marie Philips, who in 1985 established the first public school in the country to formally recognize ASL as the language of instruction (cited in C. Smith, Lentz, & Mikos, 2008, p. 187). Stephen Nover and his associates expanded this concept in an

ASL/English language reform curriculum for preservice teachers (Nover, Andrews, Baker, Everhart, & Bradford, 2002), for in-service teachers (Simms & Thumann, 2007), and for deaf children in early childhood programs (Simms, Baker, & Clark, 2013). This post-1990 activity may have provided the right political climate to encourage and support deaf scholars to pursue doctoral degrees and investigate reading issues focusing on sign bilingualism.

In examining the theorists the deaf scholars drew upon in their work, we were not surprised to find out that none followed only a deaf epistemology. This finding supports the research of both Wang (2012) and Supalla (2013), who argue for a combined epistemology of both standard and deaf epistemologies. University doctoral programs exposed the deaf scholars to multiple paradigms, which they used as they built their studies around various theoretical frames from learning theorists, psycholinguists, linguists, bilingual researchers, and literacy scholars.

We use the term deaf epistemology to refer to the infusing of Deaf culture into one's research while emphasizing the use of vision and ASL for learning as well as components of deaf history and heritage (Hauser, O'Hearn, McKee, Steider, & Thew, 2010; Paul & Moores, 2012). Five dissertations of the deaf scholars used only traditional or standard epistemologies (Atwell, 2013; Babb, 1979; Corson, 1973; Ogden, 1979; Paul, 1984). Paul and Moores (2012) define standard epistemology as research that is objective, scientific, and developmental. It can be influenced by, but need not be dependent on, students' background characteristics, such as culture, class, gender, or disabilities. Additionally, we found that most of the deaf scholars (n = 26) used both paradigms—deaf and traditional/standard epistemologies.

Related to the first research question, our interpretive analyses of the dissertation texts showed that during the 1970-1979 time frame the overarching theme was communication methodologies. The subthemes included the oral and manual methodologies, ASL and English methodology, and the Signed English methodology.

It is noteworthy that the deaf scholars during this period did cite the research done in linguistics and psycholinguistics in their description of how deaf children, like hearing children, have the biological propensity to learn language if they are exposed to it. However, research with reading related to cognition, the importance of background knowledge, comprehension practices, metacognition, and the concept of story grammars was not mentioned in the deaf education research as it was in the hearing research. There was one exception to this statement, however, in that the Humphries study (1977) was a pioneering effort to bring both ASL and English to the discussion of English reading and writing. His study came 17 years after Stokoe's work on the linguistics of ASL but 8 years before Marie Philips set up the first bilingual deaf education program at the Learning Center. Babb's study (1979) pointed to the importance of making English syntactic structures visible to deaf children through a morphemic sign language, which was a different approach from that of Humphries, who suggested that the structures of English could be taught to deaf children by contrastive analyses with the linguistic structures of ASL. The theme of using the linguistics of ASL to teach English suggested by Humphries in 1977 was to emerge in full force in the 1990s in multiple dissertations.

From 1980 to 1989, the themes moved away from comparisons of communication methodologies to a focus on reading skills. The subcategories were vocabulary, listening and retelling skills, and parent-child book reading. Unlike the 1970s, this era of the 1980s was closely aligned to similar themes found in reading research with hearing students. From 1990 to 2013, the role of English as a dominant language for the classroom was challenged. Now the research agenda of the deaf scholars focused on acquisition of both ASL and English. The overarching theme of ASL/English bilingualism, and the subcategories of linguistic rights, ASL linguistics, ASL literacy, ASL literature, and metacognitive and metalinguistic awareness blossomed.

#### Implications for Research and Practice

The suggested visual strategies in the deaf scholars' dissertations can be tested with hypotheses and alternative hypotheses to examine the efficacy of these strategies in the reading classroom. Since many of the suggestions were garnered from teacher and parent interviews and classroom observations, more closely controlled studies

may assist us in understanding what works and what does not work.

The findings of our historical interpretation of themes found in the dissertations by deaf scholars on reading suggest that course work is needed that prepares preservice teachers to understand conceptual definitions of the reading process from the perspectives of both the standard and deaf epistemologies. We recommend that these courses be taught by deaf/hearing collaborative teams who also can work on joint research projects.

### Conclusions

Our 31 dissertations constitute the work of the first generation of deaf scholars who were looking at the reading processes of deaf adults and children. As mature readers who are deaf, they challenge the statistic that says the average deaf reader reads at the fourth-grade level (Allen, 1986; Traxler, 2000). Examining what epistemologies these researchers bring to their own research as deaf scholars provides the profession with an emic, or insiders', view of how deaf adults think deaf children and other deaf adults read. We found that all of the deaf scholars used standard epistemology, in that they used paradigms of learning, language, and literacy similar to those employed by hearing researchers. We interpret this to mean that they believed that deaf children follow qualitatively similar processes in some aspects of their reading development. But some also used deaf epistemologies, in that they incorporated Deaf culture, ASL, and visual learning strategies that are not used with hearing children into their research paradigms. Thus, some aspects we interpreted were qualitatively different.

The fact that many of these dissertations have not been published points to the need for more collaborative support and mentoring of deaf scholars. The field may benefit from the development of a digital reading and language journal that gives deaf scholars the option of contributing their research using their first language, ASL (see, e.g., the Deaf Studies Digital Journal; <http://dsdj.gallaudet.edu>). The field may also benefit from the formation of deaf/hearing collaborative teams in reading research so that broader investigations can be conducted into how deaf children and adults read from both an insider's (emic) and an outsider's (etic) point of view. As Jones (2013) and Kuntze (2004) point out, deaf researchers can assist the profession in reframing and testing hypotheses about how deaf children learn and develop reading skills.

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