

Practices and Routines in SIWI Lessons that Develop Skills in Reading

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I have always felt that we best say thanks by our actions. Therefore, it is my hope that the quality of my research, the final submitted version of my dissertation and most importantly, my future contributions to the literacy development of children, as shaped by my doctoral experiences, will convey my deepest gratitude to everyone who has supported and worked with me throughout this process.

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Abstract

The average performance of Deaf and hard of hearing (D/hh) students on test of reading comprehension is several grade equivalents below their high school hearing peers. The reading-writing connection is one way to address the literacy challenges of D/hh learners. This study explored that connection in instruction that was driven with a high fidelity to the principles of Strategic Interactive Writing Instruction (SIWI). The data for this study came from two grade three classes involved in the second half of a Year II project that was part of a 3-year Institute of Education Sciences-funded project to develop SIWI for use with D/hh students. The video footage of 18 and 31 SIWI lessons spanning two units of instruction in a TC and Bilingual classroom respectively were examined using a comingling of inductive and interpretive analysis and utilizing Spradley's nine semantic relationships to determine the instructional and learner practices and routines that supported development of word recognition skills. A detailed narrative of the 49 lessons was provided and the following instructional and learner practices and routines were identified: engaging students in cognitively demanding discourse that featured extended discourse and persistence in questioning; a high volume of repeated and wide reading; high volume of writing; multiple representation of words with an emphasis on fingerspelling; and attending to language input. Recommendations made included: adding a high volume of repeated and wide reading as a major pillar of SIWI; informal and standardized reading assessments; individual students should lead the rereading and writing of English sentences; include research as part of planning for writing; and use the back translation approach to signing English text. There is need for further study in the following areas: a comparative analysis of the strategies used in the lowest and highest performing classes; a study that controls for individual practices and routines using multiple regression analysis to determine the variance as predictors

of word recognition; an in-depth exploration of recasting and an analysis of individual student interactions with the practices and routines in the bilingual setting and the relationship of those interactions to gains in word recognition skills.

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CHAPTER 1: INTRODUCTION

General Information

Face to face with SIWI. Implementation of Strategic Interactive Writing Instruction (SIWI) has brought me full circle in my program of graduate studies. I was first introduced to SIWI when Dr. Wolbers visited Trinidad to meet with teachers of the Deaf at the Cascade School for the Deaf (CSD) and Ms. Deborah Smith, a devoted elementary school teacher at CSD invited me to attend the training session. I was impressed with the interactive nature of the instruction and the instructional moves that supported those students who were struggling with expressive language. I seized the opportunity to invite Dr. Wolbers to lead a writing lesson in the class I was tutoring at the National Center for Persons with Disabilities (NCPD). The wonder persisted as strategic instruction unfolded during this second opportunity to see SIWI in action and I knew then that I wanted to pursue a postgraduate degree that was specific to meeting the needs of Deaf¹ and hard of hearing (D/hh) students.

Working with SIWI. My very first class in the Master's of Science *Education of the Deaf* (EDDE) program introduced me formally to the theories behind SIWI and the implementation of its instructional principles and practices. I later had the opportunity to work for a grant secured by Dr. Wolbers to develop SIWI. This made it possible to not only observe many SIWI lessons taught in diverse settings, but to also talk with teachers trained to deliver SIWI lessons about their fidelity to the instructional principles and practices during implementation. Over the past two years I have taught the EDDE 529 methods course for interns seeking their K-12 dual teaching license and this course features SIWI in the writing component. And now with this dissertation topic I have the privilege of exploring the instructional and

¹ Use of “Deaf” refers to individuals who share the cultural identity of D/hh individuals whose primary language is a signed language; use of “deaf” directs attention to individuals in terms of hearing loss.

learner practices and routines that are supportive of gains in reading that students in SIWI lessons are making.

Early intuitions on the role of reading volume. Prior to commencing my post-graduate studies, I taught briefly at a government school for the D/hh. I subsequently volunteered to teach a class at the National Center for Persons with Disabilities (NCPD) while pursuing my Bachelor of Education degree with a concentration in Special Needs Education. My experiences working with D/hh learners at both institutions convinced me that one of the most important factors in developing the reading proficiency of D/hh in light of the challenges unique to their hearing loss, was the need for increased reading volume and wide reading. I knew from my own passion for reading that motivation to read would play a critical factor in getting D/hh learners to read more and read widely.

At the School for the Deaf, there was a young man in the class I was assigned to teach whose parents (hearing and not fluent in any sign language) read to him often. They required him to read the daily newspapers on the long drive to school, provided him with many books and accompanied him on frequent trips to the library. When I compared this student's achievement with the others in class and their respective situation in the home with regard to literacy activities, it was glaring to see the role of motivation, reading volume, and wide reading on reading achievement. I worked with this student, and in addition to developing his signing skills and advocating for instruction via a sign language interpreter, my most consistent efforts at monitoring his progress was aimed at ensuring an extensive reading volume. I revel in his success stories to this day as I get my regular end of semester report from both he and his mother. Likewise, at NCPD, in addition to delivering instruction in sign language, I drilled into

students the need to read widely and witnessed a discernable impact on those students who persisted despite challenges, to increasing their reading volume.

Influence of doctoral experiences. During my doctoral program a few outstanding experiences influenced my decisions to pursue my current dissertation topic. I read Allington's articles on "*What Really Matters When Working With Struggling Readers*" (2013) and "*How Reading Volume affects both Reading Fluency and Reading Achievement*" (2014). My REED 530 course exposed me to Wooten and Cullinan's book "*Children's Literature in the Reading Program: An Invitation to Read*" (2009) and motivated me to adopt Wooten and White's writing and sharing connections (Wooten & White, 2009) method while working with English as a Second Language (ESL) students. I expanded my own wide reading with a newly acquired taste for books written by the Newbery award winners (at the encouragement of Dr. Wooten). I experienced my first and many more reading of graphic narratives after I was introduced to the lure of graphic narratives from Botzakis (2009, 2011). I later researched its potential for motivating D/hh readers (Smetana, Odelson, Burns, & Grisham, 2009). As I reflected on my experiences with SIWI and my work with D/hh learners in Trinidad and Tobago against the backdrop of these recently mentioned experiences during my doctoral program, I became convinced that exploring the connections between reading and writing in SIWI would prepare me to return to Trinidad and Tobago to continue my contribution to the development of the literacy skills D/hh Trinbagonians.

Section 1: Chapter Introduction

Language Arts instruction has traditionally compartmentalized the teaching of reading and writing into discreet sections of the curriculum and teaching schedule (Nelson & Calfee, 1988b). Research has identified empirically tested instructional approaches for teaching reading

and writing as well as learning strategies that target the development of skills on the part of readers and writers (Graham & Herbert, 2011). We have theorized that there is a reciprocal relationship between the processes of reading and writing where success in one leads to achievement in the other- identified in the literature as the read-write connection (Fitzgerald & Shanahan, 2000; Mason, 1989). In actuality, many of the processes of constructing meaning when reading and writing are similar. In view of this reciprocity, it would make sense that the instructional and learning processes and practices geared toward developing writing proficiency may have an impact on learning and student achievement in the skill of reading and that the converse may also be true –the instructional and learning processes and practices geared toward developing reading proficiency may have a positive impact on student gains in writing.

Section 2: Rationale for the Study

Instruction using SIWI is already benefitting D/hh students. Wolbers, Dostal, Graham, Cihak, Kilpatrick and Saulsburry (2015) demonstrated that D/hh students made gains and have the capacity for further growth in their discourse-level writing skills across recount, information report, and persuasive genres. Dostal, Bowers, Wolbers and Gabriel (2015) noted patterns (e.g., changes in initiative to engage in writing, purpose for writing, awareness of writing ability and independence as writers) that give evidence of development as writers. Students' engagement in discourse typical of interaction in SIWI lessons builds metalinguistic awareness, and ASL and English linguistic competence (Dostal & Wolbers, 2014). This has the dual effect of promoting gains in both languages. Wolbers, Dostal, & Bowers (2011) reported that both low and high achieving students made significant gains in writing length, sentence complexity, and sentence awareness. Dostal (2011, p. vii) demonstrated the “reciprocity of language learning” by documenting the gains in ASL expressive language on the part of D/hh students receiving SIWI.

Those students in that study increased their mean length of utterances (MLU) and reduced the number of unintelligible utterances evident in their ASL expression. Wolbers (2010) investigated the role of explicit language instruction and rereading practices in the development of English writing fluency and writing independence of D/hh students and reported gains in both outcomes.

Prior SIWI efficacy studies. There are two previous efficacy studies that provide context for the current study. In the first efficacy study with students in grades six to eight, findings on writing, language and word identification outcomes were reported (Wolbers, 2007, 2008a, 2010). It was a quasi-experimental study involving the genre of information report writing occurring in matched treatment and comparison conditions (N=33 students). Approximately two and half hours of SIWI was provided to students in the experimental group each week for eight weeks by a teacher who scored 95% on fidelity of implementation of SIWI. The students in the comparison group were matched in the amount of instructional time each week, but followed a structured language curriculum with some opportunity to write for real purposes supported by one-on-one conferencing with the teacher. Primary trait rubrics for genre-related features, contextual language and conventions were used by Wolbers to score the pre- and post-writing samples of information and narrative writing (untaught) that were collected from students. The scoring of 15% of the papers involved a second rater with inter-rater reliability above 0.9. Using the Slosson Oral Reading Test-Revised (SORT-R; Slosson & Nicholson, 1990), measurement of pre- and post-word identification abilities was obtained.

In the above efficacy study necessary univariate analysis followed multivariate analysis of variance (MANOVA) of the data. Significant gains with effect sizes that spanned large to very large (Cohen's $d=1.27$ to 2.65) were demonstrated by the treatment group on genre-related features of information report writing as well as in the area of contextual language and

conventions. While the genre of narrative writing was not the focus of instruction, the students in the experimental group exhibited significantly greater gains ($d=2.207$) and there was also appreciable growth in their writing fluency as measured by length ($d=1.53$). The measurement of word identification ability ($d=0.39$) likewise indicated statistical significance. Over the eight week period of the intervention study the students in the experimental group demonstrated improvements of 0.45 grade levels which contrasted with the absence of gains in word identification in the comparison group.

More recently, a second efficacy study came out of an intervention with students in grades three to five (Wolbers, Dostal, & Graham, 2012). This quasi-experimental study occurred the second half of a Year II project that was part of a 3-year Institute of Education Sciences-funded project to develop SIWI for use with D/hh students in grades 3-5 to improve writing and language outcomes. The design of this project had sixty-three students participating in instruction by nine teachers in six schools across treatment and business-as-usual comparison groups. The fidelity to SIWI instruction rating for the teachers ranged from 60.4%-89%. After nine weeks of treatment, samples were collected for recount and persuasive writing. The SORT-R was used to assess students' word identification abilities. The writing samples were scored using primary traits rubrics that were tied to the respective genres: recount writing- orientation, events and organization, and persuasive writing- opinion, reasons and organization. The Structural Analysis of Written Language (SAWL) was also used to assess the writing samples for word efficiency ratio (WER) at three different levels, words per T-unit, and percentage of complete sentences. Gains in the WER ratios and percentage of completed units would be a reflection of greater linguistic accuracy, and improvements in linguistic complexity would be indicated by increases in the number of words per T-unit (Hunt, 1995).

Multilevel regression analysis of the recount and persuasive writing samples revealed statistically significant results on all primary traits except recount orientation with effect sizes ranging from 0.53 to 2.01 (Hedges' g). Similar multilevel analysis revealed statistical significance for SAWL language outcomes on the recount writing samples (effects from 0.46 to 1.20) and substantial outcomes with the persuasive writing samples (0.38 to 1.06) corroborating the success of the treatment. The measure of word identification abilities between the treatment and the comparison groups (effect size = 0.11) on the SORT-R was non-significant. However, the tremendous variation in the word identification abilities of students when examined by teacher and the range in scores for teachers' fidelity to SIWI (60.4%-89%) begs for a follow up study of the practices and routines that occur during co-construction of text.

The recently mentioned need for a follow up study was the focus of the current study. As mentioned above the context of this study was one semester of the second year (Year II) of a 3-year Institute of Education Sciences-funded project to develop SIWI for use with D/hh students in grades 3-5 to improve writing and language outcomes. The focus of this study was on the achievement in reading and writing of D/hh students in the elementary grades and the instructional and learner practices and routines in lessons of teachers who use SIWI to teach writing. The intervention studies mentioned above revealed trends in the data that suggest a link between the practices and routines associated with the use of SIWI as an instructional framework for teaching writing and the gains students made in both their writing and word identification abilities. Since the skill of word identification has been considered a predictor of reading comprehension (Zumeta, Compton, & Fuchs, 2012), I was concerned in this study with those practices and routines in SIWI writing lessons which were strong contributors to gains in the development of competencies related to word identification. The identification of these

instructional and learner practices and routines, could be foregrounded in terms of instructional fidelity for teachers using SIWI with the goal of developing reading and writing skills as a simultaneous approach.

Section 3: Purpose of the Study

Research has shown that there is a connection between learning to read and learning to write (Fitzgerald & Shanahan, 2000; Graham & Herbert, 2011; Shanahan, 1998; Tierney & Shanahan, 1991). As stated earlier, we also know that the ability to decode words is one of the components of reading and a predictor of reading comprehension (Zumeta, Compton, & Fuchs, 2012). I investigated the range of instructional and learner practices and routines of participants (teachers and students) engaged in SIWI lessons and the available data on student achievement. The goal was to identify those practices and routines specific to the application of the principles of SIWI in the context of the classroom settings involved in the study that contributed to the development of word identification skills as one measure of reading proficiency. The aim of this research was not to negatively expose the teaching and learner practices and routines of the participants in the case study. The purpose of the study was to document and understand the way in which practices and routines were realized, the impact on student learning of targeted literacy skills, the implications for professional development of teachers using SIWI and the goals for effective instructional and learner practices and routines in lessons designed to teach reading and writing in a simultaneous approach.

Research questions. This study specifically addressed the research questions below.

1. What were the instructional practices and routines of our top performing teachers using SIWI that supported the development of word

identification abilities while in the process of developing students' proficiency in writing?

2. What were the learner practices and routines of students in SIWI lessons who made the most gain that supported the development of word identification abilities while in the process of developing their proficiency in writing?

Section 4: Significance of the Study

SIWI is a framework of writing instruction that has resulted in gains in student achievement with writing across genres, written and signed expressive language skills and motivation as writers. The insight gained from this study provided enlightenment on ways that instructional and learner practices and routines can be capitalized on to promote gains in reading development as a simultaneous approach to developing proficiency in writing skills. This study added to the body of knowledge regarding the connection between learning to read and learning to write (Fitzgerald & Shanahan, 2000; Graham & Herbert, 2011; Shanahan, 1998; Tierney & Shanahan, 1991). Since teachers in the past have struggled with decisions regarding whether they should teach reading and writing separately, this study had several implications that included the following: incorporating into the instructional skill set and learning activities, those practices and routines which were not yet an explicit part of SIWI; developing new training routines in the SIWI professional development curriculum; foregrounding those instructional routines in the SIWI fidelity instrument; and possibly infusing into the framework principles that more explicitly address the read-write connection on both the level of instructional practice and learner skill development.

Section 5: Definition of Terms

Table 1.
Definition of Terms

Term	Definition
American Sign Language	A natural language, which developed in Deaf North American communities and which identify members of Deaf culture. It is commonly known as ASL and exhibits all the features of language (Valli, Lucas, Mulrooney, & Villanueva, 2011).
Bilingual	Learning or use of two languages simultaneously
Centrifugal	Tending away from centralization or directed away from a center (The American Heritage Dictionary, 1985)
Centripetal	Tending to centralize or move toward a center (The American Heritage Dictionary, 1985)
D/hh	Learners with any degree of hearing loss, ranging from mild to profound
Funeral Words	For D/hh learners, funeral words tend to have three aspects: (1) tired and overused words (e.g., “nice”, “said”, “mad”, “good”, “cool”, “small”) that need to be replaced with the new words they have more recently been learning (2) the tendency to use nouns and verbs without the modifiers, and (3) the use of English words that are equivalent in meaning to a sign without relevance to the writing context that may require a word that conveys very specific nuances that add to or change the context specific meaning (e.g., using “building” instead of “factory”).
Radical Middle	The position of radical middle places the child first as the central focus of instruction (Pearson, 2012).
Simultaneous Communication (Sim-Com)	A communication system often mistakenly assumed to be Total Communication in practice where the speaker signs and attempts to use spoken English simultaneously (Moore & Levitan, 2003).
Total Communication (TC)	A communication philosophy that supports the use of visual, auditory, and written modes to meet the needs of each D/hh learner (Moore & Levitan, 2003).

Section 6: Organization of the Study

Chapter one introduces the study, by recounting my early efforts to provide literacy instruction to D/hh learners in Trinidad prior to receiving any training specific to either special needs students or education of the D/hh and my introduction to SIWI in Trinidad. It then addresses the problem, the rationale, the purpose, and the significance of the study.

Chapter two presents a review of the literature that develops an understanding of the characteristics of D/hh learners with respect to the challenges they face with developing their literacy skills. The intent of the study is to explore the reading gains made by D/hh learners who are being instructed by teachers trained in an instructional framework for teaching writing. Hence a consideration of the reading-writing connection and the theoretical framework that undergirds this simultaneous approach to developing skills related to reading and writing is next presented. The chapter concludes with a detailed description of SIWI.

Chapter three connects the purpose for this study with the elements of its research design. It provides us with a rationale for the units of analysis and then details the procedures regarding the participants, data to be collected and analyzed and steps that will be taken to address subjectivities.

Chapter four presents a narrative that describes the 18 and 31 SIWI lessons spanning two units of instruction in the TC and Bilingual classroom respectively. It then identifies the instructional and learner practices and routines that supported the development of word recognition abilities and explains the theoretical basis and prior research base that supports making the connection between the practices and routines and gains in word recognition.

Chapter five outlines the conclusions reached, addresses aspects of the reading-writing connections in SIWI, identifies limitations of the study and makes recommendation.

Chapter 2: LITERATURE REVIEW

Introduction

In recent years, the implementation of varied initiatives impacting the achievements of Deaf and hard of hearing (D/hh) students have caused some to question whether the century old reports of D/hh students reading on a medial level of 4th grade when they graduate from high school still holds (Kyle & Harris, 2010; Easterbrooks & Beal-Alvarez, 2012). Some of those factors include educational placements, the use of cochlear implants, early intervention and pervasive exposure to sign language (Easterbrooks & Beal-Alvarez; Kaderavek & Pakulski, 2007). Mayberry conducted a study “in which the mean English reading grade achievement of the group with high ASL grammatical skill was at the post high school level” (2007, p. 547). Mayberry used the Stanford 9 (an assessment normed on the D/hh population), with a purposefully selected sample of D/hh students based on their teachers rating them as performing on grade level with their hearing peers. The assessment of the students in Mayberry’s study revealed that in areas of Reading Comprehension, Reading Vocabulary, Mathematics: Problem Solving, and Mathematics: Procedures, D/hh actually achieved similarly to their hearing peers on the Performance Standards. Nevertheless, “the average performance on tests of reading comprehension for D/hh students is several grade level equivalents under their school age hearing peers”, and have increased in over twenty-five years with the average eighteen-year-old reading at the level of a nine year old hearing child instead of an eight year old hearing child. (Allen, 1986; Mitchell & Karchmer, 2011, p. 23; Traxler, 2000).

Variability. The preceding statistics suggest that many of our D/hh learners, even after decades of research aimed at developing their literacy skills are still struggling with challenges that militate against their literacy achievements. At the same time, the variability among D/hh

learners must be factored into a consideration of the challenges faced by this group. A fundamental dimension through which we can look at variability is the composition of families involving D/hh children. While in this study I use the term Deaf and hard of hearing (D/hh) to refer to the sample participating in the study, it is noteworthy that the D/hh student population may be born into families where the hearing status of the parents fall into one of the following possibilities: both parents are profoundly Deaf; one parent may be profoundly Deaf; both parents are hard of hearing; one parent is hard of hearing; both parents are hearing; or one parent is hearing. This has implication for the D/hh child's orientation toward the use of sound, speech or toward the use of sign language and their primary cultural affiliation (Horejes, 2012; Mitchell & Karchmer, 2004).

Another dimension involves the impact of technology or access to auditory stimulation provided by hearing aids and cochlear implants. These too affect the orientation of the D/hh toward the use of sound, speech or toward the use of sign language and toward their primary cultural affiliation (Horejes, 2012). Regarding the aspect of cultural affiliation, there are those D/hh who identify with Deaf culture, whose parents are deaf and who are fluent in sign language. On the other end of the cultural spectrum, there are those who have a deficit perspective of deafness and are not fluent in sign language. This latter group of D/hh tend to see their deafness in terms of hearing loss that place limits on what they may be able to accomplish.

Yet another lens through which variability must be considered, is the fact that some D/hh learners are significantly language delayed while others develop a first language or are bilingual in both sign language and English. There are D/hh learners who are high functioning on scales of language, literacy and cognition and those at the extreme opposite (Horejes, 2012). There exists tremendous variability.

Section 1: Challenges D/hh Face in the Elementary Grades with Reading and Writing

Over 95% of D/hh learners are born to parents who are not deaf and the others are born in households where one or both parents and other relatives may be Deaf and who may also have a fully developed form of natural signed communication (Mitchell & Karchmer, 2004). This creates a situation where the Deaf child either (1) has limited access to the language spoken in the household, or (2) acquires sign language as their first language and must learn English as a second language (Smetana, Odelson, Burns, & Grisham, 2009). D/hh learners in any of those two scenarios bring to the literacy table several challenges that need to be addressed in the pathway taken to develop their literacy skills. Researchers identify language deprivation or language delays and world experiences that are not linked with the language used in the early learning environment of D/hh learners as the fundamental challenge (Dostal & Wolbers, 2014; Luckner, Sebald, Cooney, Young, & Muir, 2006; McAnally, Rose, & Quigley, 2007; Trezek, Wang, & Paul, 2011). Even when a D/hh child is born to Deaf parents and exposed very early to a fully developed language, they may be challenged with reading and writing if they have not developed the meta-linguistic awareness that ASL has a structure that is different from English and some unique grammatical properties that are modality specific (Wolbers, Graham, Dostal, & Bowers, 2014)

Language Delays or Language Deprivation.

Many D/hh learners experience a marked absence of pervasive exposure to an accessible language that either leads to delays in expressive language or literacy development challenges that are compounded by such delays. Less than four percent of children acquire sign language from birth as a result of exposure to Deaf parents who sign (Mitchell & Karchmer, 2004). This means that over ninety-five percent of D/hh children are born to parents who are hearing and

whose primary means of communication is a spoken language. These parents are often unprepared for the birth of the D/hh child and this includes proficiency in a language accessible to the child. The D/hh child in this language environment has little or no support for language acquisition as they cannot hear the language spoken around them and any visual cues of speech provided are devoid of sufficient phonetic detail to constitute useful stimuli (Clark et al., 2014; Mayberry, 2007; Mayberry, Chen, Witcher, & Klein, 2011). This state of parents' being overwhelmed often continues for much of the critical years of language learning for the D/hh offspring, resulting in delays in cognitive development and acquisition of sign language at a range of ages beyond infancy (Hauser, Lukomski, & Hillman, 2008). Some additive factors that compound this situation include late detection of hearing loss, late enrollment in a school that uses sign language, or a decision to isolate the child completely from sign language (Mayberry, 2007). The resulting late acquisition of language impedes language proficiency across all languages and modalities to which the child may be exposed later in life (Mayberry, 2007; Mayberry & Lock, 2003).

The implications for this late exposure to an accessible language is that many of the child's early experiences are not paired with language. Even though the caregivers may attempt to communicate with the child through speech, the child is unable to map the language labels for entities experienced on a daily basis. The D/hh child lacks a full language through which they may mediate learning and upon which they may build the cognitive, language and literacy-specific skills needed for reading and writing (Mayberry, 2007). Even when they are exposed to attempts at signed communication, their primary caregivers may be learning the language themselves, and the D/hh child experiences atypical sign language acquisition (Hauser, Lukomski, & Hillman, 2008).

The typical hearing child is able to bring to the task and processes of reading and writing, many cognitive and language skills that have been developed through early language-based interactions with their primary caregivers. Language and cognition share a mutually supportive role (Stokoe, 2001) and the deprivation of early language experiences for the D/hh child results in a situation where there is a dearth of those skills needed to decode and makes sense of print and also to encode thoughts in a meaningful way using print. Reading and writing depends on an intact primary language system such as speech or sign (Mayberry, 2007; Mayberry & Lock, 2003).

General language comprehension, cognitive processing. Much of the research into the challenges that D/hh learners face with literacy skills have been centered on the sub-skills of reading and more recently the need for instruction using a natural sign language in bilingual settings. Yet, there is little empirical evidence to support polarizing toward any of these issues as the panacea to the literacy challenges of the Deaf, with few of the empirical studies having been replicated (Marschark et al., 2009). Marschark and his colleagues have suggested that a new direction to the approach at figuring out the more significant challenges facing D/hh learners with respect to literacy is needed. Although their study used college-aged participants, much can be learned from their findings that are applicable to D/hh children in the elementary grades. Their study, which was replicated, presented instruction in both sign language and spoken language and the material for the study was presented in both sign language and written English to D/hh students. While they tested D/hh and hearing students separately, they controlled for differences in prior knowledge. Results from the study showed that both groups (D/hh and hearing) scored better on measures of comprehension when they read text than when it was presented in other modalities. It is reasoned that this difference may be credited to the higher

degree of cognitive processing and memory resources required when working with spoken or through-the-air communication as a result of linguistic rapid fading (Marschark et al.; Morrison et al., 2013) The D/hh students scored lower than the hearing students regardless of modality of presentation. Interestingly, D/hh students gave themselves high ratings on their signing skills and had a preference for material presented in ASL as indicated on the self-reports collected as part of the demographic information. This is consistent with the tendency among D/hh learners to over-estimate in self-reports regarding how much they comprehend of written text and signed communication in classroom and other settings (Marschark & Wauters, 2008).

The above mentioned study has led Marschark and his colleagues (2009) to conclude that deficiencies in cognitive and learning strategies that challenge Deaf learners are not limited to reading written English. In this same study, Marschark and colleagues did a second experiment with another group of participants, in which they provided options for responding in either sign language or written English for the D/hh and writing or speech for the hearing students. Deaf students scored higher when they wrote their output than when they signed it even though they rated themselves as excellent signers. They however scored lower than the hearing. Marschark and his colleagues have concluded that the lack of early access to an accessible language has implications for the D/hh in areas of general language comprehension, meta-cognitive processing and learning strategies. They believe that the focus on issues related to print literacy and through-the-air communication skills has distracted researchers from the issue of language and cognitive processing skills. While the variables associated with print literacy and accessible language input are important, the challenges that D/hh learners face may be similar with comprehension of both print and sign language as it relates to general language comprehension processes, metacognitive

and learning strategies (Marschark et al.; Marschark & Wauters, 2008; Morrison et al., 2013; Strassman, 1997).

Hamilton identified the processing weaknesses of D/hh children related to working memory and short-term memory, skills that are highly predictive of achievement in language comprehension and reading (2011). D/hh struggle with sequential memory processing tasks involving fingerspelled words, ASL signs, pictures, printed words and digits. They are also less likely to use strategies involving sequential processing, although this may be more a matter of tendency than limitation (Marschark & Wauters, 2008). Another weakness is that of processing speed deficits that can negatively impact word recognition. While Deaf children may better process things in their peripheral vision (Dye, Hauser, & Bavelier, 2008), they still exhibit deficits when it comes to attention- focusing on a specific aspect of the immediate environment. An additional weakness that Hamilton mentions is the increase in memory load that D/hh learners experience when they read words whose signs are formationally similar. Hamilton explains that all of the deficiencies identified have the potential to negatively impact comprehension and language learning.

Metacognition refers to the knowledge and the ability to control ones thinking and learning. When it comes to reading and writing this would have implications for learners' knowledge about the processes involved and their ability to be active, self-regulating and strategic while reading and writing (Strassman, 1997). Strassman's review of studies involving metacognition indicates that D/hh learners tend to opt for dependent strategies such as for asking their teachers or others for help in understanding text rather than independent strategies (e.g., trying to figure it out themselves by rereading). They also failed to demonstrate metacognitive control and this is credited in part to the practice of exposing D/hh learners to easy text that do

not facilitate the development of metacognitive control and to the absence of meta-cognitive strategy instruction that emphasizes “more of the authentic and purposeful situations in which people read” (Strassman, p. 148).

D/hh children of deaf. Research shows that D/hh learners among the cohort who are born to Deaf parents (Mitchell & Karchmer, 2004) and who themselves have a fully developed language with opportunities to engage in active communication other native-like signers, show signs of neural activation in those classic language areas of the brain and typical development of cognitive functions (Hauser, Lukomski, & Hillman, 2008; Mayberry, Chen, Witcher, & Klein, 2011). They are often able to develop a primary language system that is marked by the milestones that are comparable to language acquisition of hearing children (Petitto, 1987). It is also noteworthy that these D/hh learners are able to transfer the skills they acquire to the task of learning to read and write in English, a secondary language system (Clark et al., 2014). On the contrary, those with late language acquisition outside the critical period of early brain development experience an underdeveloped neural language processing that does not grow forward later in life (Clark et al., 2014). Brain growth and language acquisition needs to be synchronous developmental phenomena for the ideal neural network of language processing to reach its potential. The majority of our D/hh learners do not experience this early language acquisition.

However, even learners who are born into families where there is a rich accessible visual language environment may be impacted by a sign-based Specific Language Impairment (SLI) that is not related to the atypical sign language acquisition that likely affects over 90% of our D/hh cohort. These learners may have typical cognitive, social and neurological development but still exhibit atypical patterns of sign language production and comprehension (Quinto-Pozos,

Singleton, Hauser, Levine, Garberoglio, & Hou, 2013). Some of the patterns include: sign stuttering, production errors in facial cues, difficulties with comprehension of signed communication, errors made in the use of sign space, difficulties with production in terms of the phonology of signs, failure to establish reference information such as time, place and location-elements that are critical to language in a visual spatial modality, and nonconforming hand switching (Quinto-Pozos, Forber-Pratt, & Singleton, 2011). The specific language impairment may be attributed to a primary language deficit. It may also be a consequence of specific cognitive functions that impairs both linguistic and non-linguistic processing. These cognitive functions can involve executive, spatial, psychomotor, face processing, social and emotional functioning. Since we have established that early acquisition and proficiency in a signed language can lead to transferable skills that support written English skills development as a second language (Clark et al., 2014), the existence of sign-based SLI can negatively impact the native D/hh signer in their development of reading and writing skills.

Many D/hh children face challenges with writing regardless of their early experiences with language. According to Paul (1998) who reviewed the writing development of D/hh children, the writing samples of high school students were assessed as being on par with that of a ten year old. D/hh students' writing tended to be inferior in terms of the length and complexity of sentences and lexical choices. The writing was characterized by rigidity, limited use of compound and complex sentences, and disfluency associated with developmental errors common on the part of second language learners and those unique to the text of D/hh students (Paul; Schmitz & Keenan, 2004). The writing of D/hh students exhibits deficiencies both in terms of low and high level writing skills (Paul; Wolbers, 2008).

D/hh with ASL as expressive language. Even when a D/hh child is born to parents who expose them to an accessible language and they acquire ASL as their primary expressive and receptive language, they are likely to have developed a mental grammar that is based on a visual spatial language. The language of written text that they must read and write is based on a linear and often sequential organization of concepts. This markedly differs from ASL which has a unique grammar that relies on movement in space, and very visual elements of communication that involve body language and facial grammar (Valli, Lucas, Mulrooney, & Villanueva, 2011; Wood, 1995). The mental grammar that the D/hh child brings to the processing of written text organizes concepts in a visual, non-linear and often simultaneous manner (Wood, 1995). This has been seen in the features of ASL that appear consistently in the writing of D/hh learners and in the struggle that D/hh readers have with conceptualizing what they read in English text (Dostal, 2011).

Wolbers, Graham, Dostal, and Bowers (2014) identified several of these features that are observed in the writing of D/hh learners. This practice of incorporating the features of a primary language into a secondary language is known as language transfer and is seen as a typical phenomenon among second language (L2) students that occurs even with D/hh students who are transferring across modalities (Van Beijsterveldt & Van Hell, 2010). It especially becomes a challenge when those features are not in the target secondary language system. Wolbers et al. reported on a study in which 29 students were exposed to SIWI for a period of one academic year. Using the personal narrative writing samples from among the four genres of writing that students were introduced to, they were able to mark clearly identifiable ASL features embedded in the writing by segmenting the written text into t-units (independent clauses and any subordinate clauses). The features were grouped into six categories.

One such feature that Wolbers et al. (2014) found, is that these writers tended to substitute English words for each sign in the same order that they string together the ideas they want to express. An example they provide from the sample is “touch Florida finish”, a unique glossing of the ASL expression TOUCH FINISH² that is translated “visited” in English. A second feature is the reduplication of lexical items to indicate plurality or temporal frequency. Evidence of this occurrence was illustrated with “house house all over” for the concept of many houses and “sit sit long time” to express the notion of continuous sitting for a period of time. A third example of language transfer was the placement of the modifier after the noun as in “she lives in a house blue” to indicate that the referent lives in a blue house. Yet another ASL feature found in the writing sample was the presentation of the overall idea of the sentence preceding the details. An example of this occurrence was “Homework I detest” that could have been written in English as “I detest homework”. The unique use of conjunctions to string similar, sequential or opposing ideas together in ways typical of ASL also found its way into the students’ writing. This was illustrated with the expression “All can go understand only children” where “UNDERSTAND” is an ASL conjunction being transferred. The sixth category of ASL features was the use of rhetorical questions, which were really statements that included a response. For example, they found this sentence in the sample, “I bought shoes why old shoes don’t fit anymore.” That last structure would be translated into English as, “I bought new shoes because the old ones do not fit anymore.”

Many D/hh children who are able to acquire a first language during the early critical years are better able to learn a second language regardless of modality and to transfer cognitive and linguistic skills to reading and writing in a second language. Yet there are still challenges for

² Text in upper case is used to identify written glosses of signed utterances in keeping with ASL glossing conventions.

this group of D/hh learner when it comes to reading and writing. More significantly in terms of challenges, those D/hh children who are born in households where their caregivers are hearing and either do not use signed communication or are now developing their skills with it, may experience (1) late acquisition of a first language, and/or (2) language delays that negatively impact language development even later in life.

Insufficient and slower rate of vocabulary development. According to the National Reading Panel and National Institute of Child Health Human Development (2000), most of young children's vocabulary knowledge is acquired as a result of participation in conversation, listening to adults read to them and a high volume of independent reading. As discussed earlier, the lack of opportunities to pair experiences with language deprives D/hh children of early exposure to much vocabulary knowledge. Their low reading volume in-school and out of school further limits possibility of meaningful contextual exposure to words that would facilitate depth of knowledge (Paul, 1996). A lack of or an insufficient level of vocabulary knowledge and a slower rate of vocabulary development is regarded as a major obstacle in the pathway to literacy development for the D/hh (Paul, Traxler, 2000). Studies have shown that the size of vocabulary is smaller and vocabulary knowledge is less deep for D/hh children (Kelly 1996; Traxler). Kelly who focused on the interaction of vocabulary and syntactic abilities found that D/hh children struggle to take advantage of context clues to figure out the meanings of important words if they also have weak syntactic skills and sentences are not simple with unnatural repetitions of words (Trezek, Wang, & Paul, 2011) The syntactic skills of D/hh are negatively impacted by their deficiencies in sequential processing skills (Hamilton, 2011).

Vocabulary knowledge involves knowing the meaning of words in some depth as used in a particular context, knowing additional meanings of the words, their relation to other words and

their metaphorical and figurative usage. This requires much discussion about words (incidental or formal) in relation to the learner's previous knowledge- to neither of which many D/hh learners are often privy. Paul (1996) identifies three models that have been put forward to explain the connection between vocabulary knowledge and reading abilities. The instrumentalist model emphasizes the need for a large vocabulary as the key to reading success based on the relationship between high vocabulary scores and reading comprehension scores on standardized tests (Anderson & Freebody, 1985). The aptitude model credits general superior intelligence as the link between large vocabularies and reading comprehension (Anderson & Freebody). The knowledge model addresses the role that in-depth and extensive knowledge of words plays in comprehension (Anderson & Freebody).

Of the models mentioned above, Paul (1996) argues for the role that the knowledge model offers as an explanation for the relationship between vocabulary and reading comprehension and this argument places the D/hh learner at a clear disadvantage. The reality is that students who perform well on vocabulary assessments are often high achievers on measures of reading comprehension (Trezek, Wang, & Paul, 2011). With Deaf learners, their vocabulary knowledge is not only quantitatively deficient. It is also marked by an overuse of what some teachers call "funeral words". For D/hh learners, funeral words tend to have three aspects: (1) tired and overused words (e.g., "nice", "said", "mad", "good", "cool", "small") that need to be replaced with the new words they have more recently been learning (2) the tendency to use nouns and verbs without the modifiers, and (3) the use of English words that are equivalent in meaning to a sign without relevance to the writing context that may require a word that conveys very specific nuances that add to or change the context specific meaning (e.g., using "building"

instead of “factory”). The use of these “funeral words” makes their writing stilted, and renders their vocabulary knowledge qualitatively deficient.

Even children with early cochlear implantation experience delays in vocabulary growth when compared with their chronological age peers, and there is a direct relationship between age of implantation and the trajectory of vocabulary development (Fagan & Pisoni, 2010). The amount of incidental learning of words through opportunities to pair experiences with language can be negatively impacted by the quality of input that may be affected by type and manner of implantation and the nature of the acoustic environment (Convertino, Borgna, Marschark, & Durkin, 2014; Walker, & McGregor, 2013).

Lack of phonological recoding skills and word decoding abilities. While some D/hh acquire English as a first language through listening and speaking, many fail to use sound-based strategies in support of reading and writing. English is a sound-based language in which the printed symbols represent the phonemes of the language and the ability to phonologically encode written text with a level of automaticity, allow readers to hold the content of text in short-term memory at the sentential level so as to construct meaning (Miller, Lederberg, & Easterbrooks, 2013; Trezek, Wang, & Paul, 2011). This aids in reducing the cognitive load that would otherwise result from having to process the abstract units that constitute English text at the sub-morphemic and sub-lexical level, while at the same time storing them in working memory. Skilled D/hh readers have demonstrated evidence of being able to use a combination of strategies to phonologically encode written text and these include signs, fingerspelling, semantic association, phonology and orthography (Beal-Alvarez, Lederberg, Easterbrooks, 2012; Bergeron, Lederberg, Miller, Easterbrooks, 2009; Paul, Wang, Williams, Cheri, & Project Muse, 2013; Tucci, Trussel, Easterbrooks, n.d.; Wang, Trezek, Luckner, & Paul, 2008). Preschool and

school-age D/hh children with functional hearing have benefitted from instruction in phonological awareness that have either followed the curriculum for hearing children with adaptations using cued speech and visual phonics or with instructional methods developed specially to target varying degrees of language and functional hearing (Beal-Alvarez, Lederberg, & Easterbrooks, 2012; Guardino, Syverud, Joyner, Nicols, & King, 2011; Johnson & Goswami, 2010; Miller, Lederberg, & Easterbrooks, 2013; Spencer & Tomblin, 2009) However, the research regarding the function of phonological awareness and phonics in relation to reading in D/hh children has yielded results that are at best conflicting and which has left us with more questions and few answers (Schirmer & Williams, 2011).

Role of Reading Volume

Parault and Williams (2009) provided confirmation of the negligible results of my search for evidence-based articles on the relationship between the amount of reading D/hh learners engage in and their success with reading. Yet these authors attested to the recent upsurge among researchers focused on hearing students with the consistent connection made between motivation to read, reading volume, wide reading and reading comprehension (Allington, 2014; Guthrie, Wigfield, Metsala, & Cox, 1999; Parault & Williams; Wigfield, 1997; Wigfield & Guthrie, 1997). Much of that research has revolved around eleven dimensions of motivation that individually or in some combination influence motivation to read. These were identified and measured empirically by Wigfield and Guthrie (1997). They grouped the dimensions under three broader constructs, namely beliefs about efficacy, purpose for reading and social aspects of reading. The eleven dimensions are: reading efficacy, reading challenge, reading curiosity, reading involvement, importance of reading, reading work avoidance, competition in reading, recognition for reading, reading for grades, social reasons for reading and compliance (Wigfield

& Guthrie, 1997). Interestingly, Wigfield (1997) went even further to identify reading involvement, reading curiosity and social reasons for reading- three of the eleven dimensions of the reading motivation construct- to be unique in application to the domain of reading.

Of the eleven dimensions of motivation to read that were recently mentioned, reading challenge is one particular dimension acknowledged by Parault and Williams (2009) that addresses the issue of task difficulty related to our earlier discussion of the unique challenge that D/hh learners face in learning written English. Recall our discussion of the limited access to spoken language that significantly inhibits the learning of an oral language, the paucity of world knowledge and limited vocabulary knowledge among many D/hh learners, and how these factors increase the task difficulty of reading for the D/hh. In light of this, Parault and Williams examined the relationship among the three variables (reading motivation, amount of reading and text comprehension) with regard to deaf college aged students and with respect to ten of the eleven dimensions of reading motivation. They justified an adapted version of the Motivation for Reading Questionnaire (MRQ) originally designed for children, which excluded the dimension reading for grades, on the basis that college students do not enroll in reading classes that are tied to attaining a grade. They further removed analysis of the results the dimensions of compliance and acceptability as the internal reliability of the scores for the D/hh group was reportedly outside of a suitable range.

The results of this afore-mentioned landmark study involving motivation, reading volume and reading achievement among D/hh situates the place that these factors play in our discussion of the characteristics of D/hh learners that challenge their literacy development. The measure of reading proficiency for the D/hh participants in this study placed them as reading above a fifth-grade level and incidentally this substantiates the concern raised in the introduction of this

chapter about the liberally used longstanding report of D/hh learners reading at a medial fourth grade level. The study indicated that the D/hh participants had higher levels of motivation on the dimensions of “challenge, curiosity, efficacy, involvement, and intrinsic motivation” (Parault & Williams, 2009, p. 129).

Parault and Williams (2009) were concerned with the high ratings that D/hh participants gave themselves on motivation but which did not pan out on their reading behavior in terms of reading amount and wide reading. They did not attribute this to pandering to socially acceptable responses. Rather, they reasoned that the D/hh participants’ awareness of their low levels of text comprehension gave them a sense of being more highly motivated to read. It was also found that intrinsic motivation was a greater factor in reading volume for the D/hh. Additionally, competition and reading for personal enjoyment had strong links to reading achievement. Parault and Williams concluded from this seminal study that there is a link among motivation to read, reading volume, wide reading and reading achievement that is consistent with the research on hearing participants.

Parault and Williams (2009) call for research that examines the link among motivation to read, reading volume, wide reading and reading achievement with young D/hh learners. This is consistent with Allington’s plea to give attention to the “potentially powerful, but typically overlooked, role of reading volume” (2014, p. 14) and his evidenced-based premise that “time to engage students in wide reading is an even more powerful option than offering repeated reading activities alone (p. 15). Smith (2006) echoes these sentiments when he says, “to learn to read, learners need to read” (p. 12). While Smith endorses the need for increased reading volume, he stands in agreement with Allington (2013) in being adamant that this volume of reading must

involve text that make sense- a far cry for the curriculums in schools today that endorse reading non-sense.

Luckner and Handley (2008) listed several of the behaviors that are indicative of the struggles that many D/hh learners experience with literacy and these include the following: struggling with recognizing words in print, a limited vocabulary, challenges with figurative language, inadequate world knowledge, syntactic dysfluency, limited knowledge of the structure of genres, deficiencies in meta-comprehension and meta-cognition, and a low reading volume. While some D/hh children develop proficiency in reading and writing, many are in need of specialized instruction that meet their unique needs- needs that stem ultimately from issues related to their language delay, language deprivation, and world experiences that are not linked to language in the critical period of their development as learners.

Section 2: Theoretical Framework: The Reading-Writing Connection

Learning to read and write is critical, not just to the academic success of students but also to success in their everyday existence. School curriculums demand voluminous amounts of critical reading and writing for various purposes. In everyday spheres of life- ranging from twitter feeds and Facebook to everyday essential items- students encounter opportunities to read and demands to produce a barrage of text. In the face of this demand for competency in reading and writing, the results of national assessments in reading and writing gives cause for concern. In the United States, only 38% of twelfth-grade students were reading at or above the proficient level in 2013, and 27% and 32% of fourth and eight-graders respectively were reading at or above the proficient level (NCES, 2013a, b). In 2011, only 27% of students nationally, performed at or above the proficient level in the writing (NAEP, 2011). Clearly, it is necessary

to engage in continuous research into ways of improving the reading and writing abilities of all children including D/hh.

The Radical Middle

One perspective in the field of literacy that has guided the teaching of reading is the read-write connection. Typical with many aspects of the field of education, approaches to literacy instruction either fall along a continuum, hover over what some call the *radical middle*, or are at diametrically opposing ends of the spectrum (Pearson, 2012). In defending his claim to life in the radical middle, Pearson holds as one of his fundamental beliefs “that reading and writing are synergistic processes- what we learn in doing one benefits the other. And this synergy can be seen in all aspects of the processes, from the level of phoneme-grapheme relations ... to genre-like features of text” (p. 101). Quality research exists that supports theories and practices on what appear to be opposite ends and this according to Pearson compels us to find a way to reconcile these lines of inquiry.

Read-write connection in the radical middle. Situating the reading-writing connection as an approach to literacy instruction in historical context, Nelson and Calfee (1998) identify centrifugal and centripetal movements that have either taken instruction away from or toward the radical middle. The position of radical middle places the child first as the central focus of instruction (Pearson, 2012). It guards against becoming polarized toward instructional paradigms, approaches and strategies that appear to be at odds with each other and joining factions of educators who hold to some approach or set of materials as being superior to all others (Robinson, 2012). An orientation toward the radical middle embraces whatever works for the individual child in a world where no two children are alike.

The movements leading up. Starting with progressivism, efforts were made to integrate the components of English Language instruction (speaking, listening, reading, and writing) particularly at the elementary level, even though for a long time there was a greater focus on reading education with writing relegated to the background (Nelson and Calfee, 1998). Nelson and Calfee point to five centripetal movements that have pushed researchers and practitioners of literacy instruction to embrace the reading-writing connection as an approach that puts the child first.

The centripetal movements included the following: the view of comprehension as construction of meaning; reader-response through expressive writing; process writing with its recursive nature; whole language with its emphasis on holistic aspects of language and learning; and discourse communities (Nelson & Calfee, 1998). What follows is a summary of Nelson and Calfee's description of these movements. The view of *comprehension as construction* no longer saw reading as merely decoding but as making sense of text by means of textual clues and the process of making inferences. This view aligned the process of reading with writing which requires the writer to navigate use of the functional features of language, weaving clues into text to guide readers in organizing, discriminating among and connecting the content. The notion of the strategic reader and writer actively constructing meaning through cognitive processes such as summarizing, critiquing and synthesizing were established. *Reader response* drew attention to individual and subjective response to text, and this translated into classroom activities involving expressive writing, response papers, and journals. *Process writing* introduced the notion of writing as being recursive, which involved students moving fluidly back and forth between roles as readers and writers. The *whole language* movement embraced the concept of language as a meaning-making system in which the parts function in relational ways and are best developed in

authentic, naturalistic situations. The final centripetal phenomenon was the *discourse community* movement that made more prominent the focus on group construction of meaning. While Nelson and Calfee identify these movements as critical steps toward the developing construct known as the read-write connection, even broader trends (e.g., the encompassing concept of literacy education and literacy organizations instead of separate entities related to reading and writing) had its impact.

While centrifugal movements still call for instruction and learning through lenses that takes us at extreme opposites, many today embrace literacy instructional approaches that combine practices, skills, strategies and processes that are synergistic in nature. The reading-writing connection is one such synergistic approach (Pearson, 2012). At both the instructional and learning platforms, reading and writing share reciprocity when it comes to the effect of instruction and practice in one area impacting the other (Fitzgerald & Shannahan, 2000). Reading is the receptive side of knowledge, while writing is the productive side and this intuitively suggests that they are reciprocal processes. Additionally, since classroom discourse and its dynamics surrounding written text have been shown to improve low reading comprehension and to independently develop reading comprehension skills (Nystrand, 2006), the reading-writing connection lens is supportive of an additive role that classroom discourse would have on developing skills in writing. There is also evidence that reading instruction and comprehensible input derived from wide reading can lead to gains in writing achievement in the areas of spelling, vocabulary use and increased opportunities for writing (Graham, 2000; Krashen, 1989) and that writing and classroom discourse about material read positively impacts both the learning and comprehension of written material (Bangert-Drowns, Hurley, & Wilkinson, 2004; Graham & Perin, 2007a; Nystrand, 2006).

Support for the Read-Write Connection

Graham and Herbert (2011) found positive effect sizes for students' reading being enhanced by writing instruction in their review of twenty-one experimental studies. Graham and Herbert predicted the following: that writing about material will enhance comprehension; that writing instruction improves reading skills for students; and that an increased volume of writing will lead to gains in reading. The results showed that writing (extended, summary, note taking, and answering/generating questions) about materials read (expository, narrative and subject areas) has a positive impact on the comprehension of both strong and weak readers and writers across grades 4-12. The evidence also substantiated the prediction that writing instruction enhances students' reading development across grades 4-12, whether such instruction involved process writing, text structure, or paragraph/sentence instruction, although the impact on reading fluency and word reading narrowed to the elementary grades. Regarding the influence of volume of writing on reading comprehension for elementary grade students, there was a positive effect. Graham and Herbert noted that the writing in the treatment groups involved self-selected topics or collaboratively written pieces.

The connection between reading and writing has been observed in very young children. Sulzby, Barnhart and Hieshima (1989) collected group and individual writing and rereading samples from children in classes whose teachers implemented emergent literacy techniques. They followed the children in a longitudinal study from kindergarten to grade one. The researchers were able to get even reluctant children to write and reread their own writing by assuring the children that they knew how five year olds wrote and that they could read their own writing. Their a priori forms of writing were scribbles, drawings, letter strings, invented spelling and conventional or grown up writing. They went into the study with even finer distinctions

among those forms and the students writing met with their expectations. They were surprised by the predominance of letter-like units, copying from environmental print and the infrequent appearance of invented spelling most often seen in the older children in the study. The patterns of rereading that emerged mirrored the patterns of emergent storybook reading, with written monologues being the most consistent type of rereading.

Vocabulary knowledge and spelling can also be used to illustrate the reciprocal nature of reading and writing connection. As students read, they acquire words. This acquisition is loaded with an understanding of complex features and even subtle nuances regarding the meaning and grammatical usage of words and students are able to transfer this knowledge to writing the words without having to abstract it from decontextualized vocabulary instruction (Krashen, 1989). It is true that much vocabulary is learned from exposure to oral language (Hart & Risley, 2003), but often the input from this source has less of the difficult and low frequency words when compared to that, which can be gained from written language (Nagy & Anderson, 1984).

English spelling itself is very challenging due to the varied ways of representing one sound. When learners write, they need to spell words correctly and attempts to provide decontextualized instruction in spelling, subject already struggling writers to a multiplicity of rules, some of which are complex and only work some of the times. Those rules of spelling are unconsciously abstracted from reading for both first and second language acquisition (Krashen, 2004). This abstraction takes place in many ways, including: as children visually process words-reading letters and words from left to right as they are spelt; from their study of word parts; and from instruction in the decoding of words (Graham, 2000). Learning to spell and learning to read are dependent on much of the same fundamental knowledge and teaching students about the spelling of words in the context of writing develops a schema that facilitates the identification

and recall of words when reading text (Moats, 2006). Of course, Graham believes that natural learning methods such as wide reading would benefit the development of spelling skills if systematic spelling instruction were supplemented, especially for weak readers.

The Writing and Sharing Connection method is yet another example of an approach that can be used in content area teaching and which targets reading and writing skills in a simultaneous approach (Wooten & White, 2009). The books selected for the read aloud step in this method needs to be supportive of the content being taught. They must offer students exposure to a range of genres and they need to be motivating for the students. After getting students hooked on the book, the teacher reads aloud from the text. What follows is an opportunity for students to share their thoughts about the text with their peers and then write the connections they make to the text on sticky notes. The connections format as framed by Wooten and White invite students to share what the text reminds them of and to provide reasons that substantiate the connection they make. The teacher and peers provide support during the writing step. In the third step, students take turns sharing their connections with the class by reading what they have written. This facilitates built in success since they have written down information that they know, understand and meaningfully relate to. The fourth step of the Writing and Sharing Connections method brings all of the sticky notes on which students wrote their connections into one chart where they are categorized into themes. In step five students take notes as each of their peers read their connections. The final step involves constructing a student-driven horizontal timeline that has entries for people and events that follow a time sequence or a vertical timeline for content where the people and events feature in the same period of time. This method exemplifies the reciprocal nature of reading and writing.

Theoretical Framework

The reading-writing connection fits within the transactional paradigm which holds that there exists a fluid relationship between the processes of reading and writing in which everything influences everything (Rosenblatt, 1988). Every transaction with text, as a reader or writer, draws on the linguistic-experiential reservoir of the individual. The theory calls for attention to the individual as a reader and writer and what they bring to the text, the expectations that they have and the choices that they make as they read or write. Each time the individual transacts with text in either the role of reader or writer, they apply, reorganize, revise or extend elements appropriated from their personal linguistic-experiential reservoir in a non-linear manner (Rosenblatt, 1988). This appropriation is accomplished by means of what Rosenblatt calls *selective attention*. Each time text is being read or written- even in the face of a blank page- the individual is transacting with the personal, social and cultural environment. This is done with an efferent and an aesthetic stance with the reader or writer either adopting more predominantly one or the other or doing so on a continuum (Rosenblatt, 2013). The efferent stance addresses the information being extracted or crafted into the text while the aesthetic stance targets the experience lived (i.e., feelings, associations, memories, image streams) as the text is read or written. To effectively adopt either or both stances requires a fusing of the thought processes of both a reader and a writer.

Authorial reading connects. As the writer creates a text, they engage in two kinds of authorial reading of the text- constantly re-reading to ensure it fits with their abstracted or explicitly acquired understanding of previously written text and that the words and meaning match the intent or purpose of writing (Rosenblatt, 2013). The writer also experiences the transaction a reader would have with the text by bringing to the text the expectations readers

have (Rosenblatt; Shanahan, 1998). At times both kinds of authorial reading converges on the text. Conversely, the reader engages with text, doing so with the stance of a writer (Rosenblatt). The reader may activate the efferent process by means of selective attention and focus almost exclusively on the facts and their impersonal relevance, or by means of selective attention, they may activate the aesthetic process and alternatively hone in on the feelings, sensations, tensions, sights and sounds associated with the factual content of the text and any personal connections in their linguistic-experiential reservoir (Rosenblatt). Of course the reader in adopting the writer's stance may transact with the text on the efferent-aesthetic continuum mentioned earlier.

Learners need opportunities to develop a heightened sense of authorial reading that improves comprehension, critical thinking abilities, recall of ideas and a host of other insights (Tierney & Shanahan, 1991). This includes an awareness of those devices in text such as figures of speech, sarcasm, irony, understatement, and gross exaggerations that invite the reader to consider the author's voice, intentions, stance and tone (Shanahan, 1998). Students benefit when they are trained to consider their audience- invented, determinate, indeterminate, multiple or self-when they write (Rubin, 1998; Tierney & Shanahan). Some of the benefits identified by Rubin, and Tierney and Shanahan have included: being more informative, generating more novel ideas, greater complexity, higher quality of writing, more elaboration and better structuring of ideas. The training can be provided through collaborative writing experiences and social perspective taking activities.

While the transaction theory of writing recognizes similarities in reading and writing processes, it does see advantage in the differences that make for "constructive cross-fertilization" (Rosenblatt, 1988, p. 12). One such difference occurs when the reader becomes writer as in situations of writing to learn, compared with the case of a writer whose transaction commences

with a blank page. The processes are not simply mirror images. Yet, the similarities and differences support each other and a heightened awareness on the part of both teachers and learners will facilitate taking advantage of opportunities to enrich the linguistic-experiential reservoirs of individual learners.

Critical to fostering the afore-mentioned cross-fertilization effect, is interactive dialogue between teachers and students that supports metalinguistic insights regarding the skills and conventions of written text and metacognitive insights into the reading and writing processes (Schneiderman, 1995). When this interactive exchange involves the use of mentor text, learners can assimilate the various strategies writers used for organizing and conveying meaning and apply this knowledge to reading (Graham & Perin, 2007b).

Proficient readers exhibit traits that writers keep to the forefront when they write and make decisions regarding their writing. They make connections to their lived experiences, adopt an alignment with the ideas, visualize, make predictions, ascertain the relevance of details, make inferences, consider implications, integrate information, form interpretations, monitor their understanding, revisit meaning, clarify understanding, analyze craft, self-question and reflect. (Holt & Vacca, 1981) Each of these traits translate into cognitive and linguistic processing that take place as the reader and the writer meet at the text- figuratively speaking. This amounts to good readers thinking about writers and good writers thinking about readers when they transact with text (Holt & Vacca; Tierney & Shanahan, 1991). The writer thinks of the reader, their interest, their needs and what would be appropriate as they send a message to an audience. “What is prediction for the reader must be foreshadowing for the writer. What is completion for the reader must be, on the writer’s part, meaningful and logical resolution” (Holt & Vacca, p. 940).

Related theoretical perspectives. There are three other theoretical perspectives that illuminate the reading-writing connection: rhetorical relations that view reading and writing as communication activities where the participant benefits from being both a sender and receiver of communication (Wilson, 1981); procedural connections that take advantage of functional activities like note taking, synthesizing and revision of writing to accomplish learning in academic contexts (Beal, 1996; Fitzgerald & Shanahan, 2000; Lenski, 1998; Slotte & Lonka, 1999); and shared knowledge in the following categories: what readers and writers know about the functions of both processes, what they know about the content and substance of a particular text being read or written, their knowledge about the structure of text and their knowing how to manipulate the previously three mentioned categories in a seamless manner (Fitzgerald & Shanahan, 2000; Tierney & Shanahan, 1991).

Rhetorical relations view. Rhetorical relations suggest that individuals internalize the rules of communication “through the mechanism of hypothesis formation and testing, a process in which the child generates rules, tests hypotheses, modifies them and repeats the process” (Wilson, 1981, p. 897). As students read they form these hypotheses and they test them as they write. Rather than develop these hypotheses in independent, decontextualized and unnatural instructional settings, children tacitly internalize patterns and principles as they are exposed to print. This leads to the formation of expectations regarding the function, structure and purpose of the language they will use when they write (Peck, 2005). Creating text and recognizing the need to be make transparent their suppositions and rationales prompt students to be more thoughtfully engaged in attending to these same dimensions when they read text created by others (Graham & Herbert, 2011). All of this has implications for the volume of writing that students do and the impact on reading. This understanding is supported by the positive effect size that was produced

in all nine studies reviewed by Graham and Herbert in which reading comprehension of students in grades one to six improved as a result of increased writing.

Functional view. The lens of procedural connections between reading and writing looks at how functional activities can be combined or used together. The more content material is manipulated the more likely students will recall and comprehend it (Tierney & Shanahan, 1991). Graham and Perin (2007b) see writing in the context of school, as having two unique but mutually supportive roles. One of these roles fits with the relational view of writing discussed above where students engage in strategic composing with a specific end in mind. The other role fits with the functional view where students perceive writing as an instrument for extending and deepening their knowledge about specific content material. This is an invitation for teachers to embrace the “use of content-area texts to teach reading and writing skills and that content-area teachers provide instruction and practice in discipline-specific reading and writing” (Graham & Perin, p. 10).

In 94% of the experimental and quasi-experimental studies that they reviewed, Graham and Herbert (2011) found positive effect sizes for the enhancement of reading comprehension by writing about reading materials for both strong and weak readers/writers across grades two to twelve. Students use various formats for note-taking as a cognitive road map to comprehension (Schatzberg-Smith, 1987). Students taking advantage of the opportunity to review notes that they take spontaneously and extensively in their own words score significantly higher on measures of text comprehension and essay writing (Slotte & Lanke, 1999). Altemeier, Jones, Abbott, and Berninger (2006) conducted a study on third and fifth graders. They controlled for differences in background knowledge in tasks that involved reading a passage, making notes, and then reading the notes to write a report. Their assessment measures for reading and writing achievements, and

neuropsychological predictor measures were analyzed using group comparison of means and multiple regression to test that the task outcomes were predicted by reading, writing and executive functions. Their findings concluded that executive functions influence writing and “contribute uniquely to the integration of the reading-writing process over and above reading and writing achievement alone” (Altemeier, Jones, Abbott, and Berninger, p. 170). As such learners can use a variety of writing tools to help with the reading process (Schatzberg-Smith, 1988). These include: reading logs, learning or response logs, graphic organizers, double-entry journals, and summaries.

Shared knowledge view. Regarding the third approach, many correlational and experimental studies, reviewed by Tierney and Shanahan (1991) and Fitzgerald and Shanahan (2000), have identified and demonstrated the transferred benefits of the various kinds of knowledge shared between reading and writing and these include but are not limited to the following: vocabulary, print awareness and phonics, orthography, word recognition, spelling, sentence comprehension, syntax, cohesion and cohesive harmony, text structure, text format, writing quality, and readability or text complexity. Various methodologies have been used, from trying to discern patterns of a specific knowledge variable such as sophistication of spelling in the writing and reading of students, to experimental studies that involved teaching some aspect of reading and writing such as sentence combining with the goal of effecting a change in both processes. Tierney and Shanahan (1991) also reviewed several studies that support the idea that reading and writing are acts of composing that share similar cognitive processes but that these vary across types of text and as children develop. Some of these cognitive processes involve the following: goal setting, knowledge mobilization, projection, perspective taking, refinement,

review, self-correction, self-assessment, questioning, hypothesizing, structuring, and contextualizing, to name a few.

Fitzgerald and Shanahan (2000) filled the need for a more comprehensive and theory-driven understanding of the shared knowledge between reading and writing that also considers issues of reciprocity and differences across developmental stages. They developed a model hinged on the interactive nature of reading and writing, and the knowledge features common to both reading and writing at each of the stages of reading development as outlined by Chall (1989, 1996). This model holds that at and across each stage of reading development, there is a sharing of superordinate categories of knowledge with writing (i.e., meta-knowledge, domain knowledge about substance and content, knowledge about universal text attributes, and procedural knowledge and skill to negotiate reading and writing) even though there is some variation in terms of the subordinate features of the knowledge categories at each stage. The value of this descriptive model comes with understanding those critical knowledge needs at each stage of development and identifying both the strengths that can be used to support achievement in weaker areas and the kind of instruction and learning needed to offset deficiencies in the development of reading and writing knowledge. Of course, the teacher would need to determine the actual stage of the development that each learner in the classroom is operating at by means of some kind of assessment system.

In the past theories of reading and writing presented these two processes as opposite sides of a literacy construct with reading as decoding and writing as encoding. However, a look at the neuropsychological factors, cognitive processes, knowledge variables, and product outcomes associated with reading-writing connections, suggest an alternative way to develop the skills of both reading and writing. This alternative approach is supported by the transactional theory of

reading and writing (Rosenblatt, 1988, 2013) and other theoretical perspectives including the rhetorical relations view of reading-writing connections (Tiernet & Shanahan, 1991), the functional view of reading-writing connections (Fitzgerald & Shanahan, 2000) and the shared knowledge view of reading-writing connections (Fitzgerald & Shanahan, 2000). These theoretical underpinnings direct attention to the reciprocal nature of the reading-writing connection. Instruction that takes advantage of the reading-writing connection and increased volume in the opportunities for reading and writing will yield mutually supportive benefits in the development of reading and writing skills.

Section 3: Description of Strategic Interactive Writing Instruction (SIWI)

Many D/hh students constitute a unique cohort of struggling learners who need specialized literacy instruction. Their writing often gives evidence of delayed expressive and receptive language seen in the use of unintelligible statements that are neither characteristic of American Sign Language (ASL) or English (Dostal & Wolbers, 2014). They do not operate with automaticity when it comes to the word- and sentence-level writing skills that involve elements such as the conventions of written English, appropriate lexical choice and sentence construction (Antia, Reed, & Kreimeyer, 2005; Fabbretti, Volterra, & Pontecorvo, 1998, Harrison, Simpson, & Stuart, 1991; Marschark, Mouradian, & Halas, 1994; Powers & Wilgus; Spencer, Baker, & Tomblin, 2003; Wilbur, 1977; Wolbers et al., 2012). While some research show that discourse-level writing skills that involve planning, editing, revising, setting the purpose of writing for a particular audience and writing to conform to a particular genre, to name a few, may be less challenging for D/hh learners (Antia et al., 2005; Musselman & Szanto, 1998), their struggle with coherence (Arfe, 2015), syntactic disfluency and a lack of grammatical complexity (Marschark et al., 1994; Yoshinaga-Itano et al., 1996) may mask the discourse-level elements in

their writing. Instruction using the principles of SIWI have already demonstrated that D/hh learners can position themselves in the role of successful writers and realize gains at the word-, sentence-, and discourse level (Dostal & Wolbers, 2014; Dostal, Wolbers, & Bowers, 2012; Wolbers, 2008, 2010). The success of the SIWI initiative, provides evidence that while all struggling learners require instruction that is different from that offered to regular students, the D/hh are impacted by unique factors, which require a particular instructional framework into which specific principles are embedded so that the specialized instruction meets their needs.

Traditional approaches to instruction for D/hh learners have focused on teaching the lower order skills and, in particular English grammar in a very decontextualized manner (Mayer, Akamatsu, & Stewart, 2002). This has resulted in much drill and practice of writing exercises that are neither motivating to D/hh learners nor successful in producing the desired results. Strategic Interactive Writing Instruction (SIWI) situates language and grammar instruction in authentic writing activities that targets objectives in both lower order and higher order writing skills. While there is some direct instruction, this is limited to explanations of procedural facilitators that scaffold D/hh writers into the approaches that expert writers use and mini-lessons with an emphasis on contextualized practice in authentic writing of the target skill that the teacher notices students may be struggling with.

SIWI, far from being a strategy for teaching writing, is actually a framework that has several pedagogical pillars that guide writing instruction (see Figure 1). The major pillars or driving principles are strategy instruction in writing, interactive writing instruction and specialized language components for the D/hh learner. Table 2 provides definitions of terms used in the SIWI model. Other pillars and principles that are woven into the framework are the use of authentic writing activities, balanced instruction that address both higher order and lower order

writing skills, the use of temporary visual scaffolds that expose learners to the approaches used by expert writers and a move from guided toward independent writing. SIWI can be used to teach any genre of writing. As a framework for writing instruction rather than being a prescriptive strategy, it allows for incorporating strategies that have already proven successful in the tier three level of response to intervention (RTI) settings that emphasize differentiated instruction that meets the individual needs of struggling students (Zemelman, Daniels, & Hyde, 2012).

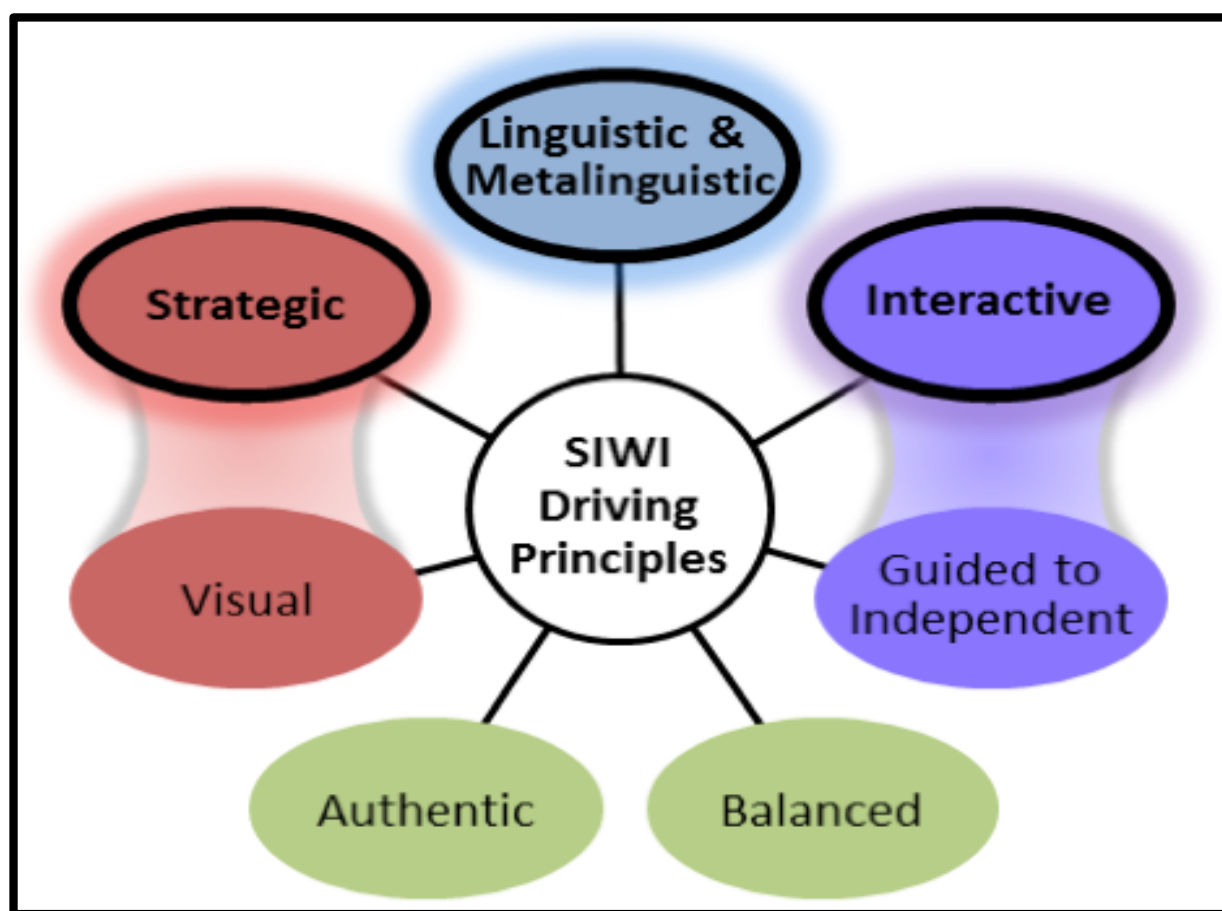


Figure 1. SIWI's instructional principles. Adapted from Wolbers, K., Dostal, H., & Graham, S. (2012). *Development of Strategic and Interactive Writing Instruction (SIWI) for deaf and hard of hearing students*. Funded by Institute of Education Sciences (IES), R324A120085.

Table 2.
Driving Principles of SIWI and Definitions

Principle	Definitions
Strategic	The instruction is strategic in the sense that students are explicitly taught to follow the processes of expert writers through the use of word or symbol procedural facilitators.
Interactive	SIWI is interactive in the sense that students and the teacher share ideas, build on each other's contributions, and cooperatively determine writing actions. Through this process, the student externalizes his/her thoughts in a way that is accessible to his/her peers.
Linguistic and Metalinguistic	Persons have two separate routes to develop ability in a second language—acquiring implicitly and learning explicitly. The implicit and explicit approaches of SIWI aid in developing linguistic competence and metalinguistic knowledge among d/hh students (Wolbers, Dostal, & Bowers, 2012).
Balanced	While writing as a group, the teacher identifies balanced literacy objectives for his/her students that are slightly beyond what students can do independently. The teacher is cognizant to target a mixture of word-, sentence-, and discourse-level writing skills that will be emphasized during group guided writing.
Guided to Independent	When the teacher has the ability to step back and transfer control over the discourse-level objectives (e.g., text structure demands) to the students during guided writing, s/he will then move students into paired writing. The teacher will circulate the room to observe what students can do in a less-supported environment. If students exhibit good control over the objectives, the teacher then moves students into independent writing.
Visual Scaffolds	Showing promise in supporting the learning of d/hh students (Fung, Chow, & McBride-Chang, 2005), visual scaffolds offer another mode of accessing the knowledge of more-knowledgeable-others. In SIWI, students use visual scaffolds to recognize and apply new writing strategies or skills they are in the process of learning.
Authentic	During SIWI, the students and the teacher generate, revise, and publish pieces of text for a predetermined and authentic audience. Writing instruction and practice is always embedded within purposeful and meaningful writing activity.

Note: Adapted from Dostal, H., Bowers, L., Wolbers, K., & Gabriel, R. (2015). "We are authors": A qualitative analysis of deaf students writing during one year of Strategic and Interactive Writing (SIWI). *Review of Disability Studies International*, 11(2), 1-19.

Strategic Writing Instruction

Strategy instruction as one of the key pillars of SIWI, is informed by cognitive theories of composing (Applebee, 2000; Flowers & Hayes, 1980; Hayes & Flower, 1980; Hayes, 1996, 2006; Scardamalia & Bereiter, 1986). Students become aware of the approaches used by expert writers and are supported in coming to this understanding by means of word and symbol procedural facilitators (Scardamalia & Bereiter, 1986). Since the goal is for students to take ownership of these expert approaches and the self-regulatory mental scripts that support expert writers, the facilitators are temporary in nature (Harris, Mason, Graham, & Saddler, 2002).

Procedural facilitators. One example of a procedural facilitator used at the secondary level is the acronym POSTER (*plan, organize, scribe, translate, edit, revise*). Each sub component of this mnemonic represents aspects of the writing process and has associated with it, its own scripts that serve as cues for these developing writers regarding procedures involved in writing. Students are provided with personal copies of procedural facilitators called cue cards that contain color-coded scripted and symbolic prompts associated with each sub-component and this ready visual access to knowledge about the writing process is beneficially supportive to D/hh learners (Fung, Chow, & McBride-Chang, 2005). There is also a copy that is visible for easy reference by the entire group.

Planning starts with deciding on a purpose for writing that revolves around an authentic audience and then generating ideas through the process of brainstorming and any necessary research. Depending on the type of writing, various facilitators will be used to drive the generation of ideas and these may include concept maps, structure words (where, when, who, what, how, color, perspective, movement, mood), questions (who, what, where, when, how, why) and other organizing devices. As students move toward *organizing* their ideas, they are

prompted to group and then sequence the information, often using technology (*Inspiration* or other available mapping software). Students then elaborate on their ideas as they *scribe*. The element of *translate* is unique to the D/hh writer as their ideas are often generated and initially represented with drawings, dramatizations, or with features of visual spatial language transferred into the written text. The translating sub-component invites students to make decisions about the extent to which their ideas are produced in English, ASL or a muddle of both languages. The interaction during this phase supports the development of meta-linguistics awareness as students work between both languages and make decisions and explain the rationale for those decisions that move their text closer to the conventions of written English. They next move to *edit* the text through a process of repeated reading and monitoring for instances where they need further clarification, expansion, and generation of ideas or attention to grammatical or stylistic issues. Visual input enhancements are used in the editing process to draw attention to grammatical forms that students need to address (Berent, Kelly, Schmitz, & Kenney, 2008). As students move along in the writing process the *revise* sub-component signals the production of a final draft of their writing that is about ready for publication. Consistent with the recursive nature of the writing process, the use of this procedural facilitator does not imply that the teachers and students follow a linear set of steps. On the contrary, they move back and forth through each stage as driven by the interactive dialogue (Hayes & Flowers, 1980).

Another example of strategic writing instruction supported by procedural facilitators is that of GOALS (*Got ideas?; Organize; Attend to Language; Look again; Share*). This recent addition, which has replaced the use of POSTER in the elementary grades, is used to provide an overview of the strategies involved in the writing process. This scaffold mirrors the writing process and is likewise recursive in nature, with arrows to prompt students to move fluidly back

and forth (Hayes & Flowers, 1980; Hilcocks, 1995). The placement of the word “Write” in the middle of the circular design lets students know that they should write after each of the sub-processes and can go to any other sub-process as needed. Students determine what they want to share with their audience during the *got ideas* phase and then *organize* those ideas. They *attend to language* by addressing lower level writing objectives that ensure their thoughts are communicated clearly to their intended audience. This feature of the mnemonic directs students’ attention to the two languages they are working between and opportunities for linguistic and meta-linguistic processing as they engage in translating. When they *look again* they evaluate the writing for needed changes that will ensure their writing is interesting and this is done through re-reading and checking for both genre specific structures and conventions of written English. In the *share* phase they focus on publishing their writing. As with POSTER, each sub-component of GOALS has its script and symbol cues that serve as temporary scaffolds for the students.

Discourse-level writing skills. Strategy instruction also addresses discourse-level writing skills by addressing the text structure of the various genres of writing. There are cue cards for each genre that include the prompts for the sub-processes of the writing process and a cue card that supports moving between genres. These are available in sizes that are appropriate for group and personal use. The materials available to students include group and individually sized color-coded rubrics with available pictorial and text-based cues (appropriate to stage of language development) that remind students to attend to the quality of their work. This focus on genres of writing provides an opportunity for teachers to align the curriculum content within the SIWI framework. After evaluating the writing of students, the teacher can set goals for the students regarding the type of writing and the specific aspects of the text structure that the student needs to work on. Again, consistent with SIWI’s use of procedural facilitators, temporary visual cues

are used represent the text structures of personal narratives, persuasive writing, report writing, and information pieces.

NIP-it lessons. *NIP-it lessons* involve noticing a specific need for instruction and addressing that feature (grammar or genre related) in a lesson. The teacher, for example, may notice that the students are struggling with the use of the articles or transitions words specific to the genre of persuasive writing. They may realize that they are not getting sufficiently advanced contributions. Often these realizations come with reflection that is apart from the fast pace, moment-to-moment assessment that is done during the writing process. Upon noticing an area of need that is not being addressed through the strategic and interactive instruction, the teacher will then provide direct instruction on this skill. The critical part of these NIP-it lessons is that students will then be prompted to practice their new understanding in the context of the authentic writing they are working on. Visuals that remind students of the newly taught feature will be introduced into the shared writing space to support appropriation of the skill. It may even be necessary for the teacher to model how the newly taught skill can be used in writing.

Using examples and non-examples. A key aspect of strategy instruction intended to expose students to the thinking and strategies of expert writers, is the use of *examples and non-examples* of types of writing. Teachers work with students to decompose good and poor models of the genres of writing that they are working on and this process serves to help students abstract the structure and style of the writing. They are able to discern the elements that should be present or which may be noticeably absent from the writing and incorporate this learning into their own writing. Huang (2004) demonstrated that this kind of text analysis that focuses on content and linguistic features could successfully socialize learners into the discourse genres that they are working on.

Interactive Writing Instruction

As a major pillar in the SIWI framework, interactive writing instruction is based on the tenets of sociocultural theories of teaching and learning (Bruner, 1996; Lave & Wenger, 2003; Rogoof, 1990; Vygotsky, 1978; 1994; Wertsch, 1991). SIWI recognizes that as a move away from the knowledge-telling role of the teacher, the teacher is positioned in the role of co-inquirer engaged in dialogic inquiry with students (Burbules, 1993; Hilcocks, 2002; Nystrand, 1997; Ward, 1994; Wells, 2000). As students generate ideas, the teacher invites them to co-construct the text. They collectively explore problems that arise involving the meaning of constructed text, the crafting of the particular genre of writing and the usage of the conventions of written English (Wells, 2000). In doing so the teacher assumes the role of either opening or holding the classroom “dialogue floor”.

Modeling. The teacher engages in thinking visibly and or thinking aloud to invite students to experience the learning strategies and mental discourse of an expert writer (Gavelek & Raphael, 1996). In doing so, they may need to re-voice or reformulate some of the ideas shared. The students thus become exposed to the kind of metacognitive strategies that expert writers use, such as self-questioning and self-monitoring during the construction of written text. In addition, as the teacher models the process of taking direct input of text from students and translating it from ASL to English or editing it to better conform to the mechanics and conventions of written English, the students are exposed to metalinguistic strategies that they can embrace independently as they work between not only two different languages but two different modalities.

Authorship. The teacher introduces the visual scaffold of the triangle that highlights the role of the author, the audience and the purpose of writing and how these work to situate the

writing as an authentic activity. The roles and responsibilities of the single or group author is discussed and students are helped to understand the workings of guided, shared and independent writing. The teacher establishes guidelines that support the interactive process. Students are helped to understand that there is an expectation of participation throughout the process by making suggestions, sharing ideas or even asking questions. The need for maintaining attention to the speaker (signing or voicing) and the goal of getting to a point of shared understanding along with strategies such as keeping their eyes on the speaker, asking for clarification, building on previous comments and steering away from making off topic comments are set as objectives for the students.

Many SIWI lessons will invite a student to serve as an author of text and then engage the other students in the class or small group to work with the author to further generate and problem-solve enroute to organizing, writing, editing, revising and publishing that text. As text is generated and negotiated with the goal of group consensus, the teacher invites and documents the author's contribution verbatim if it constitutes a close approximation of English in a space visible to the participants. If the contribution is a close approximation of English then a stop in the language zone (discussed later) becomes necessary. What follows however, is an opportunity for students to further generate more ideas or make decisions about the need for editing and revising and if found necessary, the steps to be taken to edit and revise either the ideas or the text. This process is a recursive one.

During the planning phase when ideas are being generated, another procedural facilitator is used to have students engage with the author. The procedural facilitator will vary depending on the genre of writing as mentioned earlier. In the case of personal narratives, it may consist of posted question words (who, what, where, why, when, how) that invite the author to provide

details or clarify specific aspects of their experience. With other kinds of writing such as persuasive and expository genres, the facilitator may be in the form of concept maps and other organizing devices that assist either a designated author or the group of students collectively, to collaborate in generating and organizing the ideas and text.

Scaffolding writers as needed. The interactive process allows the teacher to step in to provide greater assistance as the more knowledgeable participant in the learning setting when students struggle. The teacher skillfully asks meaningful questions and constructs responses that relate to students' contributions. This provides an opportunity for the teacher to invite other students to embrace the role of more knowledgeable participants. This has the effect of bolstering these students toward independently using the knowledge and skills that they are developing. The domino effect is that of motivating the students who get an opportunity to demonstrate their expanded linguistic and cognitive abilities, and bolstering the confidence of their peers that they too can experience this transformation as developing writers. The teacher uses dialogue as the main pedagogical instrument and much of the writing strategies, thinking scripts and practices are brought to the learning table through this dialogic discourse. This naturally leads to the students independently embracing the writing process as they appropriate to themselves the knowledge and skills gleaned from the discourse. The teacher is always alert to the opportunity to transition from guided, to shared, to independent writing- an opportunity that may arise at anytime during the SIWI lesson or over a course of lessons.

A critical part of the interaction involves inviting students to monitor the development of the text as they repeatedly read it. This re-reading may be done in unison with the teacher who points at the text while voicing and or signing or with the students re-reading on their own. Students get a sense for what feels or sounds right through this process of repeated reading and

as they make suggestions for editing and revising in the areas of both word- and –sentence-level writing skills or discourse-level writing skills, they develop both metacognitive and meta-linguistics skills. Often the teacher as part of dialogic inquiry will ask students to explain their reasoning behind a suggested revision using metacognitive prompting (e.g. “How may we change this?”; “Why should we use this method?”; “When is this necessary?”), giving access to peers to their thinking process and fostering independent ownership of the thought processes on the part of their peers. Thus students, who initially served in the role of less knowledgeable participants, can have ownership of the writing process transferred to them, with the teacher gradually releasing responsibility. One aspect of the transfer is that less knowledgeable students borrow or embrace as their own the voiced or signed thought process of their peers when they subsequently edit the work of others or complete their own independent writing tasks. The transfer is supported by the teacher discerning through moment to moment assessment, when to “step-in” as the expert or “step-back” by allowing the students to make decisions in the writing process and evaluate the results of those decisions as they impact the text (Englert, Mariage, & Dunsmore, 2006; Gavelek & Raphael, 1996; Goldenberg, 1992). The transfer of ownership of the writing process supports the goal of moving from group to independent writing as it builds confidence as developing writers, self-regulation regarding what needs to be done with the text and automaticity with lower and higher order writing skills.

Audience. A significant part of the interactive process comes with the publishing of the writing piece. Prior to starting the writing process, the collaborative group decides on a real audience that they will share their writing with. The audience can be classmates, pen pals, class blogs, weekly newsletters for families or pen pal schools, school announcements, teachers and administrators or even members of the community. This decision influences their choice of

genre, style of writing and other details regarding the final published piece. The audience often has the opportunity to respond or in some way provide feedback on the piece of writing, giving more opportunities for the students to engage in authentic written discourse, but at the very least serving as a source of motivation (Dostal, Bowers, Wolbers, & Gabriel, 2015).

Specialized Language Components for the D/hh

A third major pillar of SIWI guides the writing instruction in ways that address the unique language needs of the D/hh. It is supported by language acquisition theory (Jackendoff, 1994; Pinker, 1995) and second language research (Ellis et al., 2009; Krashen, 1994). These unique language needs are addressed in what is called the *language zone* (Wolbers, 2010; Wolbers, Bowers, Dostal, & Graham, 2014). This language zone is not limited to a physical surface that is often used as an *ASL holding zone* but is an instructional platform where the teacher determines the task needed to get the students contributions on the English board (blackboard, whiteboard, word processor, printed page) and the instructional options at their disposal toward achieving this goal. The task may be to get to a point of shared understanding by pairing meaning with language, or to translate ASL propositions so that they approximate English text or even to engage in more language work aimed at polishing the text through English enrichment and expansion.

Instructional moves in the zone. Some D/hh students struggle to express their thoughts with clarity in either ASL or English or both languages. If the student making a contribution, either as a single author or part of a collaborative group, fails to express their ideas in a clear manner due to significant language delays, the goal would be to arrive at some kind of shared understanding. To achieve this, the teacher takes advantage of instructional moves that both promote shared understanding and language learning opportunities (Wolbers, 2007). The

teachers may use drawings, pictures, and objects to get at an understanding of what the child means. They may engage the child in role-play or even employ gestures and then pair language with the clarified meaning. They may in the process increase the use of classifiers, make greater use of the signing space and non-manual markers as they endeavor to pair any shared meaning with language. Sometimes a third person may be enlisted such as a caregiver (this requires advanced planning when the author's experiences may be known to their caregivers) or a classmate who may be more familiar with the student's style of communication or their experiences. It may be even necessary to invite the student to provide detailed description of persons, places, things or concepts in order to arrive at a specific language label that represents the point of shared meaning. During all of this mediation, the teacher aims to pursue the ideas that the contributor is trying to share and therefore is careful to avoid leading the student. To do so they use non-examples, ask open-ended questions, and avoid making assumptions about what is meant. They hereby show respect for the student's communicative attempts. SIWI has been known to realize gains in students ASL expressive language skill with significant growth in students mean length of utterances and a reduction in unintelligible utterances (Dostal & Wolbers, 2014).

When students are able to express themselves clearly, the contribution from them may contain ASL features. This provides an opportunity to develop the meta-linguistic and linguistic awareness of the students (Wolbers, 2010). The teacher may repeat the contribution made by the student or model how it would be expressed in ASL. They may even choose to capture the ASL text on video, through pictures and drawings or by means of English glosses (a convention that employs English words to represent a signed concept). This provides an opportunity for comparing and contrasting both languages. As dialogue ensues about how to express the ideas in

closer approximations to English, the students engage in using language to talk about aspects of language and they gain an understanding of how ASL and English differs. Through this mediated discussion and the repeated reading of text that represent closer approximations to English the students develop implicit linguistic competence in both ASL and English that often cannot be taught explicitly (Paradis, 2009). The re-reading of the constructed text at this stage is done using print-based sign with the teacher making a determined effort to point at the text with some measure of conceptual accuracy as they sign the concepts in ASL. This print-based signing is a non-communicative form of contact signing that is useful when engaging in re-reading text. It develops a rhythm for written English that gives students a sense for what looks, feels and sounds right. They are able to abstract from the repeated reading, patterns of the English Language that constitute an unconscious set of grammar rules in meaningful context rather than through prescriptive grammar instruction taught in decontextualized language lessons. Students should be encouraged to take the initiative to re-read text on their own, working through possible ways to make needed corrections.

NIP-it lessons in the zone. At this point, the teacher may notice that students are struggling with specific linguistic structures and may take the route of using NIP-it lessons (*Notice, Instruct, Practice it in the context of the writing activity*) to provide direct explicit instruction in either ASL or the English Language. This route seeks to develop explicit linguistic awareness as the teacher examines and reflects on specific language forms and language structures and then seeks to have the students practice using those forms and structures in the writing activity they are engaged in.

There are those times when the task is to engage in further language work because the text is not yet ready for the English board or it may have been added to the English board and

through editing and further re-reading, it is decided that the task at hand is English enrichment and expansion. An instructional option at this stage may involve the use of NIP-it lessons that target explicit English Language instruction. What may be needed is attention to issues involving lexical choice, phrase options, the use of figurative language and language patterns that may be specific to the genre of writing that students are working on.

Sub-Principles Driving SIWI

In describing the major components of SIWI, the sub-principles were evident. However, their importance to teaching writing merits drawing specific attention to them. The writing instruction in SIWI is always done in *authentic settings* with students making decisions regarding the purpose of the writing and the intended audience. This proves to be very motivating for students as they have a real purpose for writing that aligns with real world context (Dostal, Bowers, Wolbers, & Gabriel, 2015; Lam & Law, 2006). As students compose text they are able to consider their intended audience. The audience can range from peers, to pen pal individuals and schools, teachers, administrators and members of the public. Effort is made to ensure that there are opportunities for authentic feedback and or response to the published writing.

SIWI also aims to provide *balanced instruction*. Rather than focus exclusively on higher-order writing objectives at the discourse level (e.g. genre-specific skills, the writing process, audience considerations, etc.) or lower-order writing objectives at the word- and sentence-level (e.g., grammar and conventions of written English), SIWI gives attention to both skill sets as text is constructed using real world purposes for writing. Students meet many of the objectives set on both levels as they work on producing text.

The teacher aims to gradually transfer ownership of knowledge and skills from the more knowledgeable participants in SIWI lessons to the less knowledgeable participants. This transfer finally comes to fruition when the student engages in independent writing. It is however noteworthy that SIWI, anticipates that this *move to shared or independent writing from guided writing* where the students are heavily dependent on the teacher can take place at any time during the SIWI lessons. The teacher steps-in to scaffold students as they operate within their zone of proximal development and then steps-back to allow them to take ownership of the writing process and the language translation process.

SIWI makes judicious use of *visual scaffolds*, also known as procedural facilitators. These have multiple functions. Chiefly they support students in adopting the strategies and skills of expert writers. These scaffolds help students appreciate and appropriate what expert writers do when they write. They also prompt students to engage with a designated author for the purpose of generating ideas, organizing them, scribing them and then editing, revising and publishing them.

Section 4: Instructional Practices Embedded in the SIWI Framework that Support Writing Development for the D/hh

Each of the principles of SIWI drives instructional practices that work to support the development of discourse and word- and sentence level writing skills. The major pillars are *strategic writing instruction, interactive writing instruction and building metalinguistic and linguistic awareness*. Other guiding principles include: *the use of examples and non-examples of genres of writing; balanced instruction; the use of visual scaffolds; moving from guided to independent writing; situating instruction in authentic writing activities; and providing direct*

instruction using NIP-it lessons in which practice of skills learned is woven into writing activities.

Strategic writing instruction exposes D/hh writers to the thinking and strategies of expert writers. The modeling by teachers and the temporary use of visual scaffolds or procedural facilitators prompt students to adopt the thinking and strategies of the experts and to eventually use these in their own independent writing. The strategies also include scripts for self-regulation that lead to success in the writing process even in the face of challenges.

Interactive writing instruction provides opportunities for dialogic discourse throughout the writing process. Rather than simply being told what to do as happens in the knowledge telling style of instruction (Roscoe & Chi, 2008), students are able to problem solve and collaboratively work through the writing process to produce text as they engage in dialogic inquiry (Mayer, Akamatsu, & Stewart, 2002; Wolbers, 2008). They are able to operate just above their current skill level when their teacher steps-in as they struggle, and then to independently construct text as developing writers when they achieve competence in the target skills. The interactive process also gives students access to “the inner dialogue of expert writers” (Wolbers, 2008, p. 2), which the teacher models and this exposure serves to transform the students themselves so that they begin to demonstrate “metacognitive strategies for self-questioning and self-monitoring during writing.” (p. 2). Other students in the class are also given the opportunity to become the more knowledgeable participants as they make suggestions, explain reasons for edits and revisions and in different ways take ownership of the learning.

Metalinguistic and linguistic awareness skill building happens as teachers make instructional decisions to help students move between ASL and English. Those students who struggle to express themselves in ASL, develop their expressive language skills in both

languages as they have their ideas paired with model ASL and English through dialogue.

Students who are able to express themselves with some clarity develop the ability to talk about the differences between both languages and how to better translate their ideas with greater approximations to standard written English. For the students who have some ability to express their ideas in English, the conversations and instructional moves that take place in the language zone help them develop greater proficiency with English and language structures that are specific to genres of writing. The constant re-reading of text using print-based signing challenges students to pay attention to what looks, feels and sounds right in written English, allowing for growth in implicit competence- an essential element in language acquisition.

The *use of examples and non-examples of writing* allows students to abstract the text and unique language structure of the various genres. They become socialized into the kinds writing expected of them in their standard curriculums. The *visual scaffolds* train their cognitive processes to align with those of expert writers and, as these are removed it invites the students to independently write. *Balanced* instructions results in students developing simultaneously genre specific writing skills as wells as skills in English language conventions. *Authentic writing* motivates students as it gives them a real purpose for writing and provides opportunities for receiving feedback. The *move from guided to independent writing* gives students the opportunity to benefit from the input of more knowledgeable others while developing their skills so that they may eventually write on their own.

Chapter Conclusion

We have examined the variability of D/hh learners and the unique challenge of language delays and language deprivation that affect many learners in this cohort. Some crucial resulting factors are vocabulary deficits in terms of size and growth, issues with phonological recoding

and word decoding, deficits in general language comprehension and cognitive processing, low motivation and reading volume. The reading and writing connection and the theoretical underpinnings for this approach to teaching reading and writing were reviewed, providing us with the theoretical lens through which this research is being explored. Finally we looked at the instructional principles and practices associated with SIWI.

Chapter 3: METHODOLOGY

Chapter Introduction

This chapter re-orientes us to the purpose of the study and after setting up the research questions it provides a rationale for the design features of the study. This is followed by procedures used in the study with respect to participants, data collection, reliability and the proposed data analysis.

Purpose of the study. There is a reciprocal relationship between learning to read and learning to write (Fitzgerald & Shanahan, 2000; Graham & Herbert, 2011; Shanahan, 1998; Tierney & Shanahan, 1991). I explored the range of instructional and learner practices and routines of participants (teachers and students) engaged in SIWI lessons and the available data on student achievement, with the goal of identifying those practices and routines that may have contributed to the development of word identification skills as one measure of reading proficiency. The aim of this research was to document and understand the way in which the teaching and learner practices and routines of the participants were realized, the impact on student achievement in the area of word identification skills, the implications for professional development of teachers using SIWI and the goals for effective instructional and learner practices and routines in lessons designed to teach reading and writing in a simultaneous approach.

Research questions. This study specifically addressed the research questions below.

1. What were the instructional practices and routines of our top performing teachers using SIWI that supported the development of word identification abilities while in the process of developing students' proficiency in writing?

2. What were the learner practices and routines of students in SIWI lessons who made the most gain that supported the development of word identification abilities while in the process of developing their proficiency in writing?

Section 1: Research Design

This qualitative research study was a naturalistic inquiry (Guba & Lincoln, 1982; Lincoln & Guba, 1985). It was an inquiry in which the reality being investigated was lived by the participants in the research. I aimed to get as close to the experiences of the participants and sought to develop working assertions about the context-specific situation being studied. This type of inquiry placed importance on the search for factor patterns that inescapably were guided by researcher and participant values. The study was more narrowly framed in the interpretivist paradigm. This paradigm holds that reality is socially constructed intersubjectively through the meanings and understandings developed experientially by the participants in the study (Glesne, 2011). The analysis of the data gathered in the study involved a comingling of the inductive and interpretive models of data analysis that sought to transform the data through rich description and analysis and then build an interpretation of the transformed data (Hatch, 2002).

Epistemology

The way of knowing about reality in the interpretivist paradigm is transactional or subjectivist. The participants and I were linked through a shared understanding of their world and others interacting with it. As the researcher, my values were fundamental to the entire research process. The interpretations were based on the particular context, time and situations being researched. In order to know about the reality being investigated, naturalistic methods of data gathering were used such as data from interviews, class lessons and assessment of students (Glesne, 2011). As the research process developed, the meanings associated with the phenomena

under study emerged. In endeavoring to know about the reality, I maintained awareness of, and carefully articulated the choices and interpretations made and the evidence from the data that supported such choices and interpretations. At the end of the study, there were self-reflections as to how what I know about the reality of the phenomena had been transformed by means of the research process.

Multiple-case study. I sought to investigate a social phenomenon- instructional and learner practices and routines of participants involved in writing instruction that used the principles of SIWI. The aim was to gain insights into the relationship between the practices and routines of teachers and students and the development of targeted literacy skills in the reciprocal domains of reading and writing. A case study research design was used. Case studies are used to answer ‘how’ and ‘why’ research questions. Yin defines a case study as “an empirical inquiry that investigates a contemporary phenomenon (the “case”) in depth and within its real-world context, especially when the boundaries between phenomenon and context may not be clearly evident” (2014, “Twofold definition”, para. 5).

More specifically, a multiple-case study research approach was deemed appropriate for exploring this educational phenomenon in detail (Yin). The rationale for using a multiple-case study rather than a single-case study was two-fold. One factor involved teachers in the treatment groups implementing SIWI in their classroom with different levels of fidelity with respect to the instructional principles and the way those principles translated into practices and routines during the lessons. It was suspected that this variation in fidelity to instruction on the part of the teachers and even the students’ practices and routines may have impacted the word identification abilities of students as measured using the Slosson Oral Reading test-Revised (SORT-R) (Slosson & Nicholson, 1990). The other factor that led to the use of a multiple-case study was the difference

in the programs and communication philosophy of the sites selected for this study. The educational program at one school used total communication (TC) and while the other school operated in a bilingual setting.

Students in the treatment group receiving SIWI instruction, demonstrated gains in their word identification abilities that stood out in comparison with the business as usual group that made almost no gain. In examining the mean and standard scores by age and grade level, the experimental group demonstrated gains in both measures while the comparison group showed a decline in achievement over the same time period compared to grade-level and age-level peers. On the surface, a look at the mean performance describes gains of the experimental group that are greater than the comparison group. However, the difference was not statistically significant. A closer examination revealed great variability in the students' performance on word identification both within classes and across classes. Achievement in the development of this literacy skill is specific to the research question driving this current study. For this reason, the performance of the five individual classrooms in the experimental group needed to be examined to identify those individual classrooms making substantial gains and which therefore have the potential for exploration as units of analysis constituting a case. This analysis is presented below.

Rationale for selecting two cases. Further analysis of the SORT-R data led to my narrowing the focus of the study to two units of analysis or cases involving the treatment group. Two teachers from the experimental group who were our top performers were selected. These teachers scored much higher than the others in their instructional fidelity. The students in their classes were the ones who made substantial gains in word identification in comparison to other students in the remaining three classes of the treatment group. The students in the two selected classes also made significant gains when compared to similar classes in the comparison group.

Another interesting factor that has translated into differences in the way instructional practices were implemented was the different educational programs and associated communication philosophies between the two classes. As stated earlier one of the teachers is in a total communication setting (one where all means of communication are incorporated). The other teacher functioned in a bilingual setting (one where ASL is the native and first language used). It is believed that looking at the data from the perspective of the potential impact made by the difference in program and communication philosophies, will also provide valuable insights into the practices and routines that impacted instruction and learning (Miller, 2002). Yet another phenomenon that informed the decision to select these two classes is the diversity of the two groups of students. The students in the two classes ranged from very low to mid range in performance and, while they experienced great success, it was not consistent across all students. This provides me with the opportunity to investigate teacher and student related aspects of teaching and learning.

Case bounding. Critical to case study design was the defining of the unit of analysis or the “case” that sets the bounds for the study. In this study, the unit of analysis was the class lessons at a specific site in which teachers used SIWI to teach writing. Since my final selection of cases involved two sites whose class lessons have been videotaped and whose teachers and students have been interviewed, and for whom we have assessment results, there was more than one case and this made this study a multiple-case study. The case was bounded by the activities (instructional and learner practices and routines) that take place within each SIWI lesson.

Case studies in general require the researcher to spend a sustained period observing, collecting and analyzing or interpreting data and then relating it to the relevant theoretical framework (Yin). It enables an in-depth and close examination of several sources that will

include video footage of classroom interaction, transcribed data, interviews, and results of assessments. The data in this study (videotaped lessons, interview transcripts, and assessment results for word identification abilities and writing) were reviewed many times using a comingled inductive and interpretive model of data analysis with the goal of transforming the data into a rich analytic description of the phenomenon and interpreting the meaning with the goal of forming analytic generalizations linked to the substantive theoretical framework driving the study.

Section 2: Participants

The participants for this case study comprised of two classes in the treatment group in the second year (Year II) of a 3-year Institute of Education Sciences-funded project to develop SIWI for use with D/hh students in grades 3-5 to improve writing and language outcomes. The participants in one of the classes were in grade three and function in a total communication (TC) setting with nine students in the class. The participants in the other class were also in grade three and were in a bilingual day school setting with four students in the class. The two classrooms provided a good representation of programs currently addressing the needs of D/hh students.

The teachers were all proficient in the languages used at each site whether it is ASL, English or both, and the methods of communication that may range from sign supported speech (SSS) to simultaneous communication (SIMCOM). The teachers were trained to deliver writing instruction using the principles of SIWI by means of SIWI professional development workshops led by the program developer and several mentor teachers who have been using SIWI for many years. Teachers had weekly meeting with collaborators in the SIWI research project to identify instructional strengths and weaknesses as it relates to measurement on their instructional fidelity using the SIWI instructional fidelity instrument. The SIWI observation and fidelity instrument

was used to gather data through observation of teacher and student interactions during classroom instruction and interviews with the teachers. The instrument was designed to operationally target instructional and learner practices and routines that were driven by application of the principles of SIWI.

Section 3: Data Collection

The data for this case study came from the second year (Year II) data of a 3-year Institute of Education Sciences-funded project to develop SIWI for use with D/hh students in grades 3-5 to improve writing and language outcomes. According to Wolbers, Dostal, Graham, Cihak, Kilpatrick, & Saulsburry (2015, p. 1):

The purpose of the 3-year Development and Innovation Goal 2 project was twofold: (a) to iteratively develop SIWI curriculum, materials, and professional development components for the later elementary level during Years 1 and 2 and (b) to assess the promise of the intervention with an experimental study in Year 3.

The major goals of Year II were to develop two components of SIWI, (1) linguistic and metalinguistic procedures, and implementation with students who have additional disabilities, and (2) to create training materials.

Classroom lessons throughout the year were recorded using video camera. Both Classroom 2 and Classroom 7 used video systems from ThereNow which involved the installation of two high density cameras that captures both teacher and students' angles. The final video footage from all video systems allowed me to view both teacher and student interactions simultaneously. The video data were uploaded during the year to a secure server that is accessible to the research team. Of the forty-three classroom lessons from the bilingual setting

and the twenty-eight classroom lessons from TC setting, video footage from units of instruction taught during the second semester of Year 2 will be selected for analysis.

Teachers were interviewed at the end of Year II and the students were interviewed both prior to and after the instructional period in Year II. The interview data will also be coded for reflections on instructional and learner practices and routines. Assessment data for the students comprised the following: discourse level writing skills in recount and persuasive writing assessed using primary traits rubrics; written language for accuracy and language complexity measured by the Structured Analysis of Written Language (SAWL; White, 2007), students' emerging receptive knowledge of ASL phrases and sentences assessed using the ASL Receptive Skills Assessment (ASL-RSA) (Enns, Zimmer, Boudreault, Rabu, & Broszeit, 2013), and a measure of word identification ability using the Slosson Oral Reading test-Revised (SORT-R) (Slosson & Nicholson, 1990).

Reliability

The reliability of this study was reflected in the trustworthiness of the data to be presented by way of thick, analytic descriptions of the research context, triangulation through multiple data sources, peer debriefing, and the transparency between interpretations of the meaning constructed and references to the supporting data. The comingled inductive and interpretive model of data analysis yielded both the thick, analytic descriptions of the research context, and the transparency between interpretations of the meaning constructed and references to the supporting data. The multiple data sources included the video footage of classroom SIWI lessons throughout Year II, interview data from teachers and students, instructional fidelity data and assessment data reporting measures of students' word identification, writing and language abilities.

Section 4: Data Analysis

A comingling of an inductive and interpretive model of data analysis was used to analyze the data. Hatch explains that “it will often be the case that researchers will have done a typological or inductive analysis at some level, then move to the next level in order to add an interpretive dimension to their earlier analytic work” (2002, p. 180). Hatch believes that this approach allows for a rich, stronger grounding of findings when the data has been transformed in descriptive and analytic ways prior to interpretive analysis. The designer of the SIWI model (Wolbers, 2008) has developed a unique program of professional development (Wolbers, Dostal, Skerrit, & Stephenson, in press) aimed at providing ongoing support and training for teachers using SIWI (experienced and new), and in the Year II research project involving SIWI, Wolbers and her co-investigators have indicated that major goals are the development of components of the SIWI model. This provided further impetus to use an approach to data analysis that grounds the findings in the data so that these findings can be used to bolster efforts at instructional fidelity and contribute meaningfully to the further development of components of the SIWI model.

I used NVivo- qualitative data analysis software developed by QRS International- that contains a set of tools that will assist with the data analysis process (Bazeley & Jackson, 2013). This software was useful for conducting analysis of data in the formats that were collected for this study, including video footage and text data. Its ability to record, sort, match and link data segments and conceptual categories that emerged in the analysis process assisted in answering the research question in an efficient manner. Furthermore, NVivo provided support for managing the data, managing conceptual and theoretical ideas that emerged during the analysis with ready access to the supporting data, querying the data to answer questions that arise, visualizing the

emerging relationships and patterns at various stages of the analytic and interpretive process and generating reports that assist in preparing the final report on the findings. This ability of NVivo to assist in a more methodical, thorough analysis of the data contributed to a more rigorous analysis. I received training from the University of Tennessee's Office of Instructional Technology on the use of NVivo for qualitative data analysis both prior to and during the data analysis process and has taken an Advanced Qualitative Data Analysis course that involved demonstration and applied use of NVivo in qualitative data analysis.

Nodes were created for each *unit of analysis* or case (the two individual classrooms) and all data relevant to each case were coded in those nodes. The specifics regarding the context for each case (e.g., language or communication mode and other relevant contextual details) were recorded as *attributes* of each case node. Early viewing of the video data was done to establish *frames of analysis* that breaks the data into analyzable parts. Each frame of analysis was a *sub-node*. Based on the research question, it is anticipated that examples of frames of analysis may include: instructional practices and routines, learner practices and routines, instructor directed practices and routines, learner initiated practices and routines, guided writing activities, shared writing activities, and independent writing activities. The interview data were handled in the same way with frames of analysis addressing comments on specific topics related to the categories identified in the video footage of classroom instruction. The frames of analysis shifted as the data were looked at more closely as some frames were eliminated. However, establishing the frames of analysis formed useful conceptual categories through which I began an analysis of the data.

The next step into process of data analysis was identifying the *domain categories* that emerged around the nine semantic relationships that Spradley (1979, p. 111) identifies as useful

for domain analysis. The nine semantic relationships through which the domains were inductively created were: *strict inclusion* (X is a kind of Y); *spatial* (X is a place in Y); *cause-effect* (X is a result of Y); *rationale* (X is a reason for doing Y); *location for action* (X is a place for doing Y); *function* (X is used for Y); *means-end* (X is a way to do Y); *sequence* (X is a step in Y); and *attribution* (X is a characteristic of Y). The nature of the semantic relationships were documented in memos linked to the domain category nodes (coding for the *cover term*). The *included terms* were the sub-codes that coded for member concepts that are related to the domain categories. The research followed Hatch's (2002) and Spradley's (1979) recommendation to start with one specific semantic relationship as each frame of analysis is examined and then in subsequent examination of the data, multiple semantic relationships were tracked simultaneously.

The next step in the analysis process was to identify those domains relevant to the research question in an attempt at narrowing the focus of the analysis. This involved merging nodes or eliminating those that had no relevance to the research question. The codes and the data associated with them were reviewed in another look at the data with a keen search for any data that stood out as non-examples of the relationships in the domains. This search for counter evidence was vital to qualitative study (Hatch, 2002).

The comingling of the inductive and interpretive model of data analysis resulted in detailed memos linked to nodes and sub-nodes that recorded the impressions that I formed. At this step in the analysis it also led into the complexity, richness and depth of the data through a search for patterns across domains. The products of the analysis then became the data for further analysis that identified relationships among the relationships- those themes that told me what it all meant. As I looked across domains, a careful search for similarities and differences were

made. At that point the capacity of NVivo to create matrices and network displays based on relationships and their semantic links and the use of memos to write summary statements that described the findings served to condense the analysis in ways that supported verification of the emerging themes. A final coding of the memos and re-examination of the data revealed instances where interpretations were supported or challenged. While the interpretive model called for a review of the interpretations with the participants, an adaptation of this step for this study involved peer debriefing with the developer of the SIWI model and a monitor who visited the case sites and observed many of the lessons. A draft summary that communicated the interpretations was prepared and this was used as the source for the report on the findings of the study.

Subjectivities

For the past three years I have served as instructor for the literacy methods class for graduate students at the University of Tennessee preparing for their teaching license in the Deaf Education Program. The writing component of this course has as its major focus the implementation of SIWI. I have also participated in one of the research projects addressing professional development of teachers using SIWI with the goal of improving instructional fidelity. This involvement with SIWI placed me at risk for preconceptions or biases regarding those instructional and learner practices and routines that potentially could positively or negatively impact students' development of literacy skills. These potential preconceptions and biases were addressed during the analysis by means of checks for challenges to interpretations and through peer debriefing.

Chapter Conclusion

This naturalistic inquiry was situated in the interpretivist paradigm. It was a multiple-case study of classrooms in which teachers have implemented the SIWI framework for teaching writing. The aim was to find out how and why the instructional and learner practices and routines have impacted student outcomes in the area of literacy skills development with a specific look at word identification abilities. Data collection and the proposed data analysis process involving a comingled use of the inductive and interpretive models of data analysis have been described. In addition, steps to be taken to address potential preconceptions and biases on the part of my part were stated.

Chapter 4: FINDINGS AND DISCUSSION

Chapter Introduction

I am guided in framing the layout of this chapter, by the sentiments of Hatch (2002) in which he acknowledged that:

while the findings of *qualitative* studies report the outcomes of analyses, they are seldom straightforward; the object is to bring understanding to complex social phenomena that cannot be reduced to precise, statistical relationships; and they are written in a style that uses literary sensibilities to take readers inside the issues and settings under investigation (p. 224).

This chapter invites you into a story as though told through the observations and musings of a wall flower peering into two classrooms in two different educational settings, but with lessons in which the writing instruction was provided with a high fidelity to the principles of SIWI. Then your attention is directed to some key findings regarding the instructional and learner practices and routines that support the development of students' word identification abilities while in the process of developing their proficiency in writing.

Section 1: SIWI in a Total Communication (TC) Setting

Diane³ teaches writing in this third grade classroom and she uses a combination of ASL and Manually Coded English (MCE) while voicing spoken English during her communication with the students. The students sign and voice when they communicate with the teacher or with each other during classroom discourse. All of the students are outfitted with some kind of amplification device. Three of them always use their amplification devices, while the other seven make frequent use of them. When they work in pairs or small groups they tend to use signed

³ Names for all participants have been substituted with pseudonyms.

communication without voice, but if this occurs during classroom discussion the teacher monitors their communication mode to ensure that they are always at least signing. This ensures access to communication by those students who are predominantly dependent on a visual mode of communication. This class started the semester with ten students- four girls and six boys- but at the end of the first unit, Mark, Alex, Sherry, Gina were moved from the class to continue SIWI with a higher functioning group. This group was taught by one of the SIWI mentors who also demonstrates a high fidelity to SIWI instruction. Both the mentor and Diane did team teaching for over a year and their approach to teaching SIWI is very similar. The students who were assigned to the higher functioning group would have continued to benefit from the instructional and learner practices and routines analyzed in the data from Diane's class for both units of instruction. Ben has been in the class from the beginning of the semester but he had only recently transferred to the school and there was no assessment data collected on him. Rose who had an additional disability known as retinitis pigmentosa was moved into the class at the end of the first unit. During many of the lessons, some of students get pulled out from the class or join the class after being pulled out. Table 3 shares some demographics specific to communication that provide further insight into important traits that they bring to the learning experience.

The students are seated in a semi-circle facing the smart-board and this seating position most often allows them a clear view of the teacher and their peers at any given time. The smart-board is wide enough to accommodate sections that are used as a language zone, an area to document ideas during planning and organizing, and as an area for writing, editing and revising English text. There is also an easel that serves either as the language zone or the planning document. Two of the wall spaces of the classroom are utilized as word walls with huge,

Table 3.
Demographics of Student Participants in the TC Setting

Student	Hearing Loss in dB (better ear w/o amplification)	Student Amplification	Amplified Hearing Loss in dB (better ear with amplification)	Primary Expressive Language	Fluency in Expressive Language	Primary Language Used at Home
Jesse	Moderate (41 - 55 dB)	Hearing Aids	Slight (16 – 25dB)	Combination of ASL and EBS	Can fluently express many things	English
Luke	Mild (26 - 20dB)	Hearing Aids	Within Normal Limits (0 – 15dB)	SE or SSSE	Can fluently express many things	English
Robert	Profound (91dB+)	Cochlear Implants	Mild (26 – 40dB)	SE or SSSE	Can fluently express many things	English
Gina	Profound (91dB+)	Hearing Aids	Moderate (41 – 55dB)	Combination of ASL and EBS	Can fluently express most anything	English and ASL
Alex	Moderately Severe (56 - 70dB)	Hearing Aids	Within Normal Limits (0 – 15dB)	ASL	Can fluently express most anything	English and ASL
Nicole	Moderately Severe (56 - 70dB)	Cochlear Implants	Mild (26 – 40dB)	SE or SSSE	Can fluently express most anything	English and ASL
Irene	Profound (91dB+)	Cochlear Implants	Mild (26 – 40dB)	Combination of ASL and EBS	Can fluently express most anything	English
Sherry	Profound (91dB+)	Hearing Aids	Moderately Severe	Combination of ASL and EBS	Can fluently express many things	English
Mark	Profound (91dB+)	Cochlear Implants	Mild (26 – 40dB)	Combination of ASL and EBS	Can fluently express many things	English
Rose	Profound (91dB+)	Cochlear Implants	Mild (26 – 40dB)	Combination of ASL and EBS	Difficulty expressing many things fluently	English
Ben	Severe (71 – 90dB)	Hearing Aids	Mild (26 – 40dB)	ASL	Can fluently express most anything	ASL

Note. ASL = American Sign Language; EBS = English-Based Sign; SE = Spoken English; SSS = Sign Supported Spoken English

attractively colored, vocabulary signs across the top and one of those walls also house a classroom library. The classroom has a repository of resources including a computer with internet access that is connected to the smart-board, and these are readily available for use in the lessons. This tells me that the teacher plans for lessons that are interactive. In addition to the teacher and two other young adults who may be either teacher aids or university students on practicum, there is an experienced mentor teacher from the SIWI project who participates occasionally in the lesson.

Unit One: Expository Writing- “Ants on a Log: A How-To Report”

Planning. After reminding students about the narrative genre of writing that they worked on previously, and the more recently completed informative reports about Tornados and the Solar System that were sent to readers in Boston, Diane works with the students to provide an authentic purpose for their next piece of writing. This serves both as a source of motivation as well as a guide to elements of the writing as dictated by considerations that expert writers take into account as they write. The students are excited that they will write an expository or informative piece of writing and then make a signed presentation based on the written text with the goal of teaching content from one of their previous science classes. The how-to report for pre-schoolers involves making ants on a log. As part of planning, Diane allows the students to interact with the materials that will be used in the report in two ways. She offers them the opportunity to eat the celery sticks with the peanut butter or cream cheese and use this process to elicit or provide the vocabulary needed. Then she takes them through the steps that will constitute the how-top report and the students appropriate the words needed for outlining the steps. This serves to pair the language with the experience that they will write about. The

pictures taken during both of these exercises will serve as a visual anchor if students struggle later on with either the steps or the vocabulary.

As the vocabulary is introduced, I begin to notice that Diane fingerspells the words that she wants students to notice. Her fingerspelling is not only accompanied with voicing, but also either preceded by or followed up with the ASL sign for the word- a strategy known as chaining or sandwiching (Humphries & MacGougall, 1999). Her fingerspelling style is careful to follow the rules of effective fingerspelling that supports optimum reception. Diane pays attention to the configuration of the fingerspelled word, holding the last letter before moving on to the next lexical item, and chunking the word in consonance with her voicing of the word.

Problem solving is the preferred method of getting language from the students. While Diane elicits ideas for the report from the students during planning, she floods them with questions about what needs to be explained to the pre-schoolers in sequence. As the students offer suggestions, instead of telling them that the lexical choices they have suggested may prove challenging for their target audience- of which they are frequently reminded-, she demonstrates what it would look like and students are quick to learn and respond to the idea that words have multiple meanings, various nuances in terms of meaning depending on context, and that lexical choice from their ever-increasing lexical repertoire is vital to effecting communication when they write. For example, when the students propose that the pre-schoolers use a knife to cut the celery stalks, Diane ask them whether that would be safe. The students advise that they ask an adult to cut it for them. When they specify that the next step is to spread the peanut butter, Diane demonstrates doing that with her hands and right away in unison the students tell her that she needs to get a spoon. This use of non-examples (teacher demonstrates spreading with her hands) or alternative meanings (teacher asks: *So do I sprinkle the peanut butter?*) to get students to

express more known words or lead them to discovering new words for known concepts is a pattern that is present very often in the lessons.

Fingerspelling as a means of remembering words is a routine that is explicitly alluded to during the lesson. When Diane asks for the name of the part of the celery that they are using, the SIWI mentor who is in the classroom for this lesson, calls attention to one student who exemplifies the practice of identifying smaller words inside of other words. The student signs *S* near her mouth, and as she mouths the word talk, she fingerspells *fs-TALK*. The monitor invites the student to demonstrate that strategy to the class and then the teacher commends her for modeling a routine that they had identified as a way to remember how to spell words. As the class complete their planning, Diane reminds them that when she writes on the planning sheets, she is not writing English sentences and that when they are ready to write, she wants them to be cognizant that the words that have been written are not to be copied onto the English board but to be used as support for constructing their English sentences.

Organizing. The teacher reviews the pictures that were taken during the planning session and uses this to bring much of the vocabulary that was introduced back into the classroom discourse. She has drawn a visual of a step to illustrate the steps in the how-to report and writes the materials needed as they are recalled by the students. As the teacher writes the words, the students are observed fingerspelling those words on their own initiative. This duality of coding takes place in many ways during all of the lessons as both the teacher and the students represent the language they are using in multiple combinations of voicing spoken English, mouthing, signing, fingerspelling, writing, drawing, acting out or using pictures.

The SIWI mentor next steps in to expose the students to the genre specific contextual language associated with writing a how-to report such as transition words that would be used to

indicate a sequence of steps to be followed. What trails is another distinctive pattern involving wide reading of text that is related to the genre of writing that the class is working on. This is consistent with the guiding principle of SIWI that begs the use of examples and non-examples. Using what has in the past been identified in the literature on SIWI as print-based signing, the mentor reads a how-to report written by former third grade students on how to make hard-boiled eggs. After making connections to their own experience with this phenomena, the mentor fingerscans the text, as she signs as close as possible to the English word order while maintaining conceptual accuracy in her choice of signs.

Writing, editing and revising. As the guided writing continues the students sign the text and the teacher writes on the board. She is careful to provide opportunities for the students to recognize and correct errors involving punctuation and capitalization, and this routine that is characteristic of each segment of text that is dictated to her by the students creates an opportunity for students to reread the text as they examine it for mechanical errors. Soon enough two enduring routines emerge- rereading of written text and pointing at the words or phrasal units. Several times during the construction of text, the teacher invites the students to read the text. And each time the invitation is accompanied by a call to readiness. The rereading never begins until the teacher has the attention of all the students. During the construction of the next sentence, the teacher grasped the opportunity to address an objective at the word and sentence level. In a traditional approach to teaching writing we might have anticipated that the teacher would stop the writing lesson and switch to a full grammar lesson on the use of indefinite articles. However, the teacher in the context of the current writing, quickly and skillfully used questions to develop students' understanding of both why they needed to write *an adult* and the rules for using the appropriate indefinite article before words beginning with consonant and vowel sounds.

Publishing. The students have agreed to produce a book and now they work in small groups in which their peers seize opportunities to serve as more knowledgeable partners. I notice that students are signing ASL without voicing in their small group setting and only voice when they stop to briefly interact with the teacher. The students are charged with locating, selecting and placing pictures in appropriate places on the pages with the text they had already written. In their small groups, they mirrored the classroom dialogue that was experienced class-wide on a smaller scale but with the same dynamism and intense language use. This setting and the activity gave the students another opportunity to use the words that were identified in the earlier phases of the writing process. The students complete the book that will accompany their presentation to the pre-schoolers on how to make ants on a log.

Unit Two: Persuasive Writing- “Drink More Water”

Planning and organizing. As good teachers do, Diane celebrates the milestone the students have made by having them identify the genres of writing they have worked on and their genre-related features along with the procedural facilitators they used to support their writing. She takes advantage of occasions to commend students for their spelling of low frequency words. She reminded them of three previous attempts at persuasive writing. Once they had an assessment prompt that required them regardless of their opinion, to write to persuade someone to allow them to ride their bikes in the park. The other instances involved writing to the principal to defend the chewing of gum at school and to request an increase in the amount of homework given. After eliciting from the students, the visual scaffolds they used in narrative and expository writing, Diane introduces a new visual scaffold- an oreo and the acronym OREO (Opinion Reason, Examples, Opinion restated). She then leads them into a discussion of what each component of OREO means. Again the use of non-examples drives the responses from the

students as they develop their ideas about what facts and opinions are and how they differ. As she continues to discuss the features of persuasive writing, she presents written definitions and explanations about this genre that the students join in reading (sign and voice) as the teacher signs the text. Diane also makes connections with their experience last year when they wrote to convince the principal to provide more iPads to students.

As in the first unit, the decomposition of model text provides opportunities for wide reading of text that exposes students to an extensive range of lexical items. The teacher has brought in items mentioned in one of the model text on the preferred use of cloth bags when grocery shopping and she readily brings up images online that are projected onto the smart-board to help students make connections to their personal experience while learning the words needed to identify the concepts being referred to. The teacher points at the text while signing and voicing and although the students took the initiative to read along with the teacher, she asked them to sit and watch her read the text. At the end of the reading she asks for the parts of persuasive writing that are evidenced in the text. Diane does not tell the students but uses questions to draw out the information. As they respond, she asks them to show exactly where in the text the information is and then her slide presentation brings up labels that refer to each feature in the text. This leads students to engage in repeated reading of the text.

On the next day, Diane shares more examples of persuasive writing after getting students to make their own personal copy of the procedural facilitator OREO. The model text that is read to them and which they subsequently decompose is *Click Clack Moo: Cows That Type* (Cronin, 2011). Diane endeavors to point while signing and when this becomes difficult she engages the assistance of another adult in the classroom. She signs the text with conceptual accuracy. Diane asked the students to identify the opinions and the reasons that supported the opinions in the

book. She then uses a more interactive approach with the next model text. Diane invites the students to respond to the attempt by the writer to convince them to let the pigeons stay up late, as she reads the book *Don't Let the Pigeons Stay Up Late* (Willems, 2006). Diane ends this lesson by having the students choose, from among a few options, the topic they will write for their persuasive piece. As with each type of writing that they work on they decide on a real audience that they will write to- fifth graders and the teachers.

Before commencing the plan for this specific paper, Diane reads one more book- *Hey, Little Ant* (Hoose & Hoose, 1998)- that models persuasive writing in a way that introduces perspective taking to the students. She follows this up with a class-wide discussion on the merits of drinking water and skillfully uses questions to discuss their suggested reasons. After brainstorming ideas for the paper and recording these ideas on the planning sheet, Diane suggest that they play a game with the goal of differentiating facts from opinions and read another book that models persuasive writing. The game brings to the classroom discourse a wide range of both familiar and new words that are illustrated with pictures. Diane signs and mouths without voicing the text. During the game, the text appears on the smart-board, a voice narrates the text and Diane signs and voices after each narrated segment. She then asks the students to decide on whether the statement read to them was a fact or an opinion. This is followed up with a worksheet exercise that is also projected on the board. The statements in the worksheet are read by the students and signed by an adult in the room and the students select either fact or opinion prior to engaging in a discussion of their responses.

Writing, editing, revising and publishing. Guided writing activity engages the students in the next lesson. During the lessons Diane is persistent in her efforts to ensure that students are attending to the classroom discourse, the various phases of the writing process and the frequent

rereading of text. The students in this class do not exhibit behavioral or attention issues that detract significantly from the learning experience, but Diane still monitors their attentiveness and employs some strategies to support this, including, stomping with excitement at a key point, making a point in one location and moving to another location, calling out students by name to pay attention and the often used signed and voiced question, “*Ready?*” that is accompanied by wait time that last until every student is attending. I would mention at this point that Luke appears slow to process questions asked by the teacher but when he does make a meaningful contribution, Diane is quick to commend him. Ben often feigns involvement in the rereading, raises his hand often but makes a contribution that is either off topic or unintelligible and he plays with his hair constantly. Only in the previous lesson did Diane call him out for obsessive attention to the hair and expressed concern that his difficulties in class may be due to eye problems that is yet to be attended to.

As the guided writing continues, Diane is persistent in eliciting English sentences from the students based on their planning sheet. Even though students had provided the ideas that are on the planning sheet in the previous lesson, she uses questions, incomplete statements, and silly proposition both to get them to bring those ideas back into the class discussion and to elicit from them English sentences. The smart board surface is used both as a language zone where Diane makes a number of instructional decisions as she and the students work on translating the signed sentences into closer approximation to English and an area for writing the English sentences. As sentences are added, the teacher periodically stops and invites the students to reread the text as she points to, signs and voices the words. Rereading is even done in mid-sentence at times, before getting students to provide input that would complete the sentence. As this lesson comes to an end for the day three things caught my attention. At one point the teacher engages the

students in differentiating between the words and the sentences in the text by counting the number of words and the number of sentences. She explains that this awareness will help them strive for greater sentence length in their writing. As the teacher works to strengthen students' understanding of punctuation, she introduces examples for practice that increase students' familiarity with words unrelated to their current topic.

The next day the class continues to write more sentences as they express their reasons and examples in English sentences. Diane starts off with them rereading what has been written, and then makes use of the language zone to craft students' input into acceptable English sentences. Editing of written sentences provides students with opportunities to independently read their writing and they engage in collective rereading several times until they have completed the writing. Diane also had them counting the number of sentences in the finished product just prior to deciding on a title for the persuasive essay. The teacher ends the class by offering to type up the essay with the survey section included, for distribution.

Unit Two: Persuasive Writing- “Which Makes the Best Pet? Cats”

Planning and organizing. At the start of this lesson, Diane introduces another strategy to get students to attend to language input in the class by being constantly aware of who is talking and signing. The teacher then sets up the writing by asking students what kind of pet they think is the best. Having received different responses, she establishes that there are different opinions and this would give them an opportunity to learn to argue for both sides. By means of intense classroom discourse, they state their opinion and then come up with reasons and examples as to why cats make the best pet. To teach perspective taking, Diane suggests that they will write from the perspective of dogs being the best pet when they are finished with the current paper and then send both writing pieces out asking their audience- students in the high school- to vote on it. As

they work on the reason and examples, Diane reminds them of a book they read in which a boy needed to persuade his father to provide him with his personal space. The lesson ended with Diane showing images on the internet of hedgehogs enroute to coming to shared understanding regarding a pet that Nicole has at home and stimulating a discussion among the students on a novel concept- a hedgehog for a pet.

Writing, editing, and revising. The opening of this lesson offers a glimpse at one of the recurring features of Diane's classroom discourse where she invites the students to share their life experiences. They talk about their weekend activity and the weather. Surely this is not off task for these students because they get an opportunity to vicariously experience important events in the lives of their peers, to be exposed to the language being used to talk about those experiences and to benefit from any clarification in vocabulary use as the teacher tries to come to a shared understanding of those experiences. When those exchanges are over, Diane invites them to use the planning sheet to bring back into focus the ideas that those words help them recall, as they get ready to construct their English sentences. Diane recently introduced the use of a bean bag to get students to attend to the person making a contribution to the class discussion. While it is yielding great results in getting students to attend to the language input of their peers, Diane still calls on students to restate contributions to the writing made by their peers prior to her scribing the text. And I find it interesting that these students are collectively engaged in thinking about the sentences to be written as they are often all signing what they think should go into the sentences.

During the lesson, some practices that get my attention include: Robert signing to himself while he is thinking; Diane's use of non-examples and implausible propositions to spontaneously get students to offer alternatives (Diane: "*Are we comparing cats to snakes?*") Students: "*No,*

dogs.”); and the students taking the initiative to cross off ideas on the planning sheet as they have been represented in written English sentences. I am also intrigued with the seizing of opportunities to enrich students’ vocabulary so that they use more and different words as they write (Diane: “*What can we say instead of can? Do you know of another word that we can use instead of saying can can can over and over again.*” [wait time]... “*OK I know another word.*” [Diane writes the word *able*, and then writes the word *are* in front of *able* on the board and Luke right away voices “*able!*”] “*It is a different phrase that means can. They go together.*”). Another example during this lesson is her introduction of the phrase *take care of* and the various settings for which that expression would be used when we write. As usual they reread the text several times during the construction of written English sentences. They also have opportunities to read the text when Diane invites them to check for any edits needed.

Unit Two: Persuasive Writing: “Which Makes the Best Pet? Dogs”

Planning and organizing. After reintroducing by means of questions, the procedural facilitator being used for writing persuasive text- OREO- Diane draws attention to the planning sheet they used to prepare for writing about cats being the best pets. As she elicits ideas from the students in support of the opinion that dogs are the best pets, Diane commends them for their good thinking and I feel this impresses on the student that writing involves thinking. The discussion among the teacher and students that ensues as they brainstorm the reasons and examples for dogs being the best pets is rife with questions, drawings and non-examples. It also brings into the classroom discourse their collective personal experiences, and pictures from the internet that spark discussion on related topics.

Writing, editing, revising and publishing. To get started on their topic sentence, Diane explains the need for stating their opinion definitely. I appreciate her efforts to provide students

with the language used to talk about writing. She frequently asks students questions regarding what they need at various points in the text, such as *a topic sentence* or what a particular aspect of mechanics is called, such as *indenting*. As they write English sentences to express the reasons and examples for dogs being the best pets, Diane consistently reminds them not to read the words from the planning sheet but to use those words to help them think about and generate the English sentences. She even tells them that on future planning sheets, she will represent their ideas with drawings of pictures. The examples being given come from students' own experiences and the teacher takes time to expand on those experiences. This provides abundant opportunities for multiple exposures to language use, new words, and familiar words used with different shades of meaning. Diane's request to have students dramatize the meaning of their sentences not only evokes humor but also it impresses on students the power of words to convey meaning. The students stop to edit the text and engage in rereading of the written English sentences on several occasions. Each time Diane is careful to point at the text. The unit ends with a discussion about the final format before sending out to the high school students and their teachers to read and vote on their preference between a cat and a dog for their favorite pet.

Section 2: SIWI in a Bilingual Setting

Tina is the instructor that I have the privilege of observing as she teaches two units of writing using the principles of SIWI in a bilingual setting. Tina is Deaf and while she signs ASL, she is consistent in mouthing the English voiced equivalents of the signs that she uses. Table 4 provides some insight as to what her students bring to the learning experience in terms of their communication background. Tina's students sign and any vocalization they use is rarely a match for spoken English. Alice and Brandon do not use any amplification devices and Russel and Peter use their hearing aids infrequently. There is one girl among the four students. Russel and

Peter are brothers who were previously in a TC setting. Their father is hearing and while their mother is Deaf, her use of ASL is limited. Brandon is the only student with an additional disability identified as Attention Deficit Hyperactivity Disorder (ADHD). It appears that while this is a lower functioning group, Alice is operating at a higher level than the three boys. Having observed five months of instruction with this group of students, I can attest that the teacher was challenged to address unrelenting attention and behavioral issues.

Tina has a print rich classroom that features a classroom library. I immediately identify with the space she has marked out as the language zone with its combination of text and drawings left over from previous writing projects. She uses the smart-board as a whiteboard during planning, writing, editing and revising to which she attaches large sheets of writing paper with magnets. One sheet of paper is used when planning and organizing, and the other sheet that is adjacent is used for writing English sentences. On her classroom walls are large size versions of the procedural facilitator she uses to teach the writing process in SIWI that is specific to Deaf students, namely POSTER (Plan Organize Scribe Translate Edit Revise), and other visual scaffolds. There is a computer station that is used by students to do research during the planning phase of their writing and Tina has the smart-board in the class connected to a laptop with internet access. The students sit in a semi-circle that is typical of many classrooms with Deaf students to allow them visual access to the teacher and their peers during classroom interaction. A chair is placed near the smart board that a student who may be leading the writing activity would occupy.

Unit One: Expository Writing- “Nocturnal Animals”

Writing, editing, revising. It became apparent soon enough that the unit was started in a previous lesson as evidence of planning and organizing of this expository text was already on the

Table 4.

Demographics of Student Participants in the Bilingual Setting

Student	Hearing Loss in dB (better ear without amplification)	Student Amplification	Amplified Hearing Loss in dB (better ear with amplification)	Primary Expressive Language	Fluency in Expressive Language	Primary Language Used at Home
Brandon	Profound (91dB+)	None	N/A (No amplification used)	ASL	Difficulty expressing many things fluently	English and ASL
Russel	Profound (91dB+)	Hearing Aids	N/A (information unavailable)	ASL	Can fluently express some things	ASL
Peter	Profound (91dB+)	Hearing Aids	N/A (information unavailable)	ASL	Difficulty expressing many things fluently	ASL
Alice	Profound (91dB+)	None	N/A (No amplification used)	ASL	Can fluently express many things	English and ASL

Note. ASL = American Sign Language

board. Tina starts of the lesson by handing out personalized copies of the procedural facilitator that strategically guides students through the writing process. Soon after eliciting from students the purpose of the planning section of the board, she removes the scaffold because it is proving to be a source of distraction. This was my first awakening to Tina's relentless efforts to address any lack of attention or off task activity on the part of her students. As the introduction to this lesson continues, Tina questions the students to conduct a review of each component of the writing process and the relationship that specific components have with the language zone, the planning and organizing sheets and the writing sheets. She labors at making clear the distinction between English and ASL by drawing attention to the representations they have in the language zone (which Tina labels *ASL Holding Zone*) and how different it is from the corresponding written text on the planning sheet. Upon doing this she points out the need for translating from ASL to English. During this interactive discussion, I am drawn to Tina's readiness to reward

students with star stickers for correct responses to her questions and for other ways that they meaningfully become involved in the lesson.

Next on her agenda is a focus on the audience to which their current piece of writing is being addressed to. As she steers this discussion, I begin to see another pattern emerging in her use of questions to get students to think and to respond. Tina very often will either give students choices, present them with an unlikely proposition or she will suggest what may be the opposite of what she is looking for. The students are writing an expository piece on nocturnal animals and they have already decided on giving the paper to the 3rd grade science class. In her effort to have them thinking again about the audience before they proceed further with working on the text, she inquires as to why she has written 3rd grade on the board and after the students respond that she is referring to students, Tina asks whether it is the gym class. The students spontaneously reject her proposition and identify the science class as their audience.

Tina now invites the students to read the first sentence that they had written in the previous lesson. However, she does not proceed until she has the attention of all the students and of all her many attention getting strategies in her behavioral management toolkit, the holding of the raised hand until all students are ready to attend to the task at hand is most pervasive and effective. During the rereading of the sentence, I am intrigued by a marked difference in the style of rereading. The English text reads, *Nocturnal animals are night animals. They are awake all night.* The class signs this as: *fs- NOCTURNAL ANIMALS THEMSELVES NIGHT ANIMALS. THEY (2h)CL:C AWAKE-cont. "all night"*. In the above example, the students move fluidly, from the English text into their primary expressive language- ASL-, making use of classifiers, three-dimensional space and very meaning-based ASL signed representations of the copula. Consistently when they reread, Tina prompts them to use the many other visual and spatial

grammatical structures specific to ASL as they sign the English text. I began to reflect on what I had seen in the TC setting when students reread the text and how it may have been different, though consistent with what had been written about rereading during SIWI lessons.

In the previous literature on SIWI, there was much explicated about print-based signing when the teacher and students engage in rereading the text that they had constructed collaboratively. As Wolbers explains, print-based signing “is a more complex and non-communicative form of contact sign that was utilized when rereading and revising English text as a class. It was hopeful that students would develop a rhythm for written English – in all its complexity” (2009; p. 106). When editing and revising written sentences, students would read the text by paying attention to the exact written English and expressing the meaning visually in sign. The teacher would lead the rereading by pointing at the text with one hand and then signing or by signing and then pointing or even by pointing while simultaneously signing with one hand. The rereading involved representing as much English as possible while maintaining a measure of conceptual accuracy. There are many functional words in English that are not represented in ASL and it is often the case that there is not a one to one correspondence between the English and ASL text, and the functional words tend to be fingerspelled while the words for which there is no one to one correspondence are fingerscanned so that students make a connection with the signs.

As Tina tries to elicit the next English sentence, she supplements her interrogative script used to direct attention to the subject of the sentence with a cue card. These visual scaffolds are readily available at the bottom of the smart-board to assist students in syntactically structuring their sentences. When scribing each additional sentence that is added to the English sheet as dictated by the students, Tina omits any appropriate capitalization and punctuation with the goal

of giving students an opportunity to reread the text and suggest ways in which it could be edited. As soon as they edit each sentence in response to her thumbs up or thumbs down stimulus, she seeks and waits for their attention and invites them to reread the sentence. When they become stuck, Tina directs them to the language zone and the planning sheet to independently figure out what the ASL sign for the English text should be. Soon enough another pattern becomes noticeable in the way that the rereading is done in this classroom. Tina invites individual students to come to the front of the class and take the lead in rereading the text while she tells the other students to follow along and copy the signing. I became interested in whether the students were merely copying the lead student or slacking off and pretending to sign along- a practice that Kuhn and Schwanenflugel (2009) calls *social loafing*, or if they were reading the text on their own. The other students actually read the text individually and signed it while paying attention to cues by the lead signer or the teacher as to what should be fingerspelled and any signs that they were unsure about. Tina stepped in to offer those cues only when the lead signer appeared to be in need of some prompting. As text is added to the English sheet, the students check the planning sheet and cross off the corresponding information that has been written.

Intending to continue writing in the next lesson, I notice that Tina opens the class by taking advantage of dissonance caused by the presence of a *Happy Birthday* sign on the smart board to engage the students in conversation that train their reasoning skills. I am impressed with how students take responsibility for setting up the planning and writing sheets as soon as Tina asks them if they are ready to continue writing. It gives me the sense that they understand the role that each of these structures play and that they are appropriating the processes that expert writers use. Tina first starts with a rereading of the text written in the previous lesson and then invites another student to lead the construction of the next English sentence. Although there is

one student at the front of the class, Tina makes the construction of the sentences an interactive process by urging the lead student to ask their peers for help when they are stuck. She herself may invite the others to make a contribution if they have raised their hands or she role-shifts during her questions to tacitly imply that she is keenly interested in what they are thinking. With Tina, I am also noticing a pattern of asking the same question three or four times before requiring students to respond. She provides wait time in between each question set, and if the students are still struggling, she either rephrases the question with the same repetitive script or switches to a different approach to get them to think and respond appropriately. As this lesson ends with the writing of an introductory paragraph, Tina negotiates with the students which pair will write about owls and of the other pair whether they will write about wolves or mice. She tells them that they will do some research using the computer and available books and develop a plan of the ideas they would like to write about.

More planning. The next day before the students set about to continue with their research and planning, Tina reminds them by means of leading questions as to the nature of their audience and their goal of teaching the third grade science class about nocturnal animals. She then explains and provides them with a web shaped graphic organizer to assist them with their planning while conducting their research. Everything about Tina's instructional practices makes me think that she is determined to shape her students as independent learners. She never tells them anything but skillfully leads them in the path of discovery by means of cognitively demanding questions. After explaining the purpose of the web and taking the students through a discussion of the multiple meanings of the word web, she questions them about possible categories of knowledge they could search for when they commence their research on the computer or in the books. She explains that there is an overwhelming amount of information on

the internet and a plan like this prior to searching for information is useful. During this exercise, I continue to observe Tina's frequent references to the language zone and the planning sheets to remind students of the words they had already been exposed to for concepts they were struggling to find language to express. As Brandon's partner is absent, Tina works with him to use a book and the computer to do his research and develop his plan, while the other pair move to a computer station.

Back to writing, editing, and revising. The next day as the students have completed their research and planning, Brandon wonders why they still need to write about the wolves and Tina takes time to show him the difference between the text in their web planning sheet and the sentences in the introductory paragraph they had completed earlier. After she points out her displeasure with the tantrums he is throwing, she gets Brandon to start independently writing English sentences for his paragraph on wolves while she works with Alice on revising some details of her group's planning document. One trend that is clearly seen among students is the tendency to fingerspell words and I could not help but muse about whether fingerspelling was being used as a place holder which among Deaf readers is one strategy that could signal the same concern that teachers have with what hearing students do when they *bark* at print (voicing words without understanding). I had already seen that this was not the case with the Deaf students in Diane's class as they fluidly moved back and forth between signing and fingerspelling. And now in Tina's class my musings were laid to rest when she would readily inject a question about the meaning or the sign for words that students fingerspelled and they would just as readily supply a correct response.

As the writing continues, Tina is relentless in getting and maintaining the attention of the students and during this lesson she introduces the first in a series of behavioral management

strategies that are tied to a reward system. Perhaps the star stickers she was apt to use earlier were losing their glimmer of appeal. This time Tina writes their names on the board and places a mark that signals they have lost free time when they become inattentive or she removes the mark to indicate that they have earned free time when they either participate meaningfully. By this time many more sentences about wolves have been constructed and students are exposed to new words. Tina spells new words multiple times moving from careful to rapid spelling, and also provides snippets of personal experience to anchor the language they need to express certain concepts. For example, to support their construction of an English sentence about the young that wolves give birth to, Tina provides a comparison to her giving birth to her son and uses that to explain how to change the word form of *born* to *give birth*. The lesson ends with numerous examples of what I am beginning to call *back translation* as the type of repeated reading I am seeing in Tina's class. Each time she invites the students to reread the text, she is careful to guide them toward generating ASL versions of each English sentence. I am also pleased to continually see her almost scripted practice of relentlessly questioning students rather than telling them what to say. This not only ensures understanding but also it gets students to think, and to themselves produce the language needed to express their understanding.

In the next lesson the second pair of students writing the paragraph about owls as another example of nocturnal animals take to the writing stage to construct their sentences. They benefit from Tina's use of questions that serve multiple purposes including checking that they have a correct understanding of the meaning of the words they have written, eliciting from them better lexical choices to improve the style of the text, and leading them to implicitly acquire the word order for their sentences that is consistent with either English grammar when constructing

written English sentences or ASL grammar when they reread those sentences with the goal of editing and revising them.

Publishing. The use of questioning during the subsequent rereading of the English text to draw attention to the different grammatical structures needed for meaning equivalence across the two modalities, became more apparent after Tina became explicit about the expectation that they sign ASL when they reread the text. As mentioned earlier in my commentary on previous lessons taught by Tina, her approach to rereading looks much like what interpreters call *back translation* and she does not assume that her students will do this instinctively. During initial attempts at rereading newly added chunks of text and when rereading text ready for publishing, Tina uses questions with the specific intent of teaching the students the ASL structures needed to sign the text visually in ways that preserve the meaning with all its complexity. This makes sense since she sets up the publishing of the writing to the intended audience in a both written and signed format.

To illustrate this specific kind of questioning, during the repeated reading of the published expository writing on nocturnal animals, I observe that her questions teach the students to use the following ASL structures that would translate certain English grammatical constructions with conceptual accuracy: the process for ranking or listing in ASL when presented with English word lists separated by commas; the use of a *when* question with the appropriate facial grammar that precedes telling the timing of an event if the English sentence features an adverb of time; the use of the ASL-specific rhetorical structure with the question word *why* to represent the English word *because* or *due to*; and the use of the ASL-specific rhetorical structure with other *wh*-word questions that are followed by a comment-type response when the English sentence provides information. After their final practice session involving rereading the

published text, I took a moment to mentally applaud Tina for putting images of those nocturnal animals the students had heard about in their class discussion but for which they did not have the opportunity to explore. They are now able to pair these images with the language they were exposed to. There even ensues some student driven discussion about the animals.

Independent writing. Although Diane, who taught SIWI lessons in the TC setting fluidly moved from guided writing to shared writing, I was not able to peer into practices and routines during independent writing since this site had special arrangements for independent writing to take place with another teacher involved in the SIWI implementation program. However, when I saw Tina setting the students up for independent writing before moving on to the next genre, I donned a special lens of interest. To get them started, Tina explains the writing prompt. The students are writing to potential students who may attend their school to appraise them of what a day in their school life looks like. She then reminds them of their previous use of post it notes to do their planning and organizing and directs their attention to resources in the classroom such as their daily schedule, pictures on a PowerPoint slide that illustrate an example of a daily schedule of activities and a word list that would help with the planning and organizing of their writing. While this is independent writing, Tina steps in when she observes that individual students are stuck to provide assistance, not by telling them what needs to be done, but by using questions that leap them across their current zone of proximal development.

As the students continue working, she reminds them to next write their sentences. When they express concern about the ability to spell some of the words needed, she tells the students that while she wants them to do their best with the spelling of words, if they are stuck, asking her to spell the words is not an option. She explains that they should write down the best way they knew how to spell the words they were struggling with and they would work on the spelling

when they were finished. Tina seizes opportunities to commend the students for the progress they are making and to express her confidence in them that they have appropriated the skills in the writing process. When I introduced this group of students to you, I described them as a low functioning group. Yet in spite of this and the other challenges that Tina faces in terms of their attention and behavioral issues, she holds and communicates the highest of expectations for them as writers. At the end of the writing period she repeatedly commends all the students with specific comments on their follow thru on each of the components of the writing process and she displays to the class each student's work as proof of their individual accomplishments. She then prepares them for a second independent writing exercise about the habitat of spiders that is expected to take place the following day.

While I was not privy to the independent expository writing the students did on the habitat of spiders, the next lesson allows me to look at another independent writing exercise that aims to inform an audience of potential students about the many types of games that are played in the gym class. Again Tina gives them their sheets for planning and brainstorming, and tells them to write without undue concern for the spelling of words. She also provides them with pictorial illustrations of the many games played in school. During the lesson, Tina checks in on students on a one on one basis, and faithfully adheres to her questioning script to move students along in their writing.

Unit Two: Persuasive Writing- “Allow Science Students to Watch Movies on Friday Afternoon”

Planning and organizing. As the students are introduced to a new genre of writing, they are reminded about a familiar book, *Click Clack Moo: Cows That Type* that exemplifies persuasive writing, and Tina also directs their attention to the writing they did in class yesterday

in which they wrote about being given two hours of homework in the afternoon. She explained that while they wrote reasons supporting the idea that they should be given two hours of homework, she as their teacher did not share that viewpoint. Next Tina introduces and explains the visual scaffold that will be used as procedural facilitator to strategically help them with writing to persuade their audience. After inviting them to talk about their experience with eating oreos (the cookie), she then explicitly teaches the meaning of each part of the acronym OREO.

Tina follows up this introduction to the genre-related features of persuasive writing by reading a model persuasive text on the preferred use of cloth bags when grocery shopping. As she reads she employs a kind of code switching- “a purpose-driven and planned instructional strategy used by the teacher”-, known as *storysigning* and it is signaled by *fingerscanning* where she points to the text so that the students can connect the words to the signs (Andrews & Rusher, 2011, p. 410). Tina augments her introduction of new vocabulary in this model text with pictures from the internet and connections to the students’ own experiences of going grocery shopping with their parents and she then proceeds to decompose the written paper in order to identify the opinion, the reasons, the examples and the restating of the opinion. This lesson is another great example of classroom discourse that immerses the students in language use, repeated exposure to words and a deepening understanding of new and familiar words.

The next day as she rereads the model text, she uses PowerPoint’s transition and animation features to label and underline with the objective of drawing attention to the sections of the text that correspond to OREO. She also uses questions to get the students to read parts of the text with the same goal of identifying the examples of the features of persuasive writing. Later in the lesson she reads the book *Click Clack Moo: Cows That Type* and they use an OREO planning sheet on the whiteboard to document the students’ responses to her questions on the

text. Tina's question scripts are replete with instances in which she repeats her question at least three or four times most often before even allowing a response or at least until she gets a correct answer. Here is one example from this lesson: *"So what is the cows' opinion? The cows, what is their opinion? The cows, their opinion? What is the cow's opinion?"* Brandon answers: *"The cows are typing."* Tina asks, *"But what are they typing?"* She then turns to a page in the book and Brandon volunteers to come up and read the opinion. He reads the correct section and Tina asks, *"Now, what are you thinking is the cows' opinion? What are you thinking is the cows' opinion? What is the opinion? The opinion?"* After telling them that they will use an OREO planning sheet to record the examples of the features of persuasive writing in the book *Click Clack Moo: Cows That Type*, she resumes her questioning, *"OK, how does Farmer Brown feel? How does the farmer feel? How does Farmer Brown feel?"* When Alice and Peter respond, *"Angry!"* Tina asks, *"Why is the farmer angry?"* Alice replies, *"He does not believe that cows could type and rebel?"* And the questioning continues until the opinions, and reasons are identified.

Now that the students have demonstrated an understanding of the genre-related features of persuasive writing, they commence planning to persuade their audience to allow them to watch movies on Friday afternoon after having worked hard on science all morning. Tina uses her stream of wh-questions to elicit their opinion, the reasons in support of that opinion and the examples. Just as she did during the construction of the expository text, as students express their ideas, Tina represents them on the ASL holding zone and then references this visual graphic version of their thoughts when they use their English vocabulary to record in the planning and organizing sheets and then later when they construct their sentences while writing.

Writing, editing and revising. One by one the students come to the board and use the planning notes to construct English sentences. This lesson features a strategy that I see being used frequently for getting the students to express more known words when they write. Tina asks for other words they could use other than the ones they suggest. For example, instead of repeating *third grade*, they suggest *children* at her request for another word. During the lesson, Tina asks the students to explain to an adult who visits the classroom, their opinion about watching movies on Friday afternoon instead of doing more science learning in the classroom and their reasons for wanting to do this. This is a motivating strategy as the students excitedly produce the language needed to develop their paper. Tina may have planned this since the adult leaves the room without attending to any other business.

The students complete their written persuasive paragraph and Tina has them come up to the front of the classroom as a group. Just prior to taking turns signing sections of the text without actually reading it, Tina drills the students with questions that build their fluency with the ideas that they have just written. As I take a close look at her interaction during the co-construction of text, it dawns on me that another by-product of her questioning style is the implicit development of the part of the students a sense of not only the contextual language specific to each genre but also both the phrasal nature of English and ways in which they could move beyond simple sentences to compound and complex sentences. For example:

Tina: *What did you sign about your brain?* [points to OREO planning sheet]

Russel: *My brain needs uh* [Tina points to OREO planning sheet and scribes on the writing sheet] *to think.*

Tina: *Think a little bit or a lot?*

Russel: *A whole lot.* [Tina scribes on the writing sheet. She calls up Peter to help with the next sentence and her questioning aims to connect to the previous written sentences which explain that because the students are working hard at science Monday through Friday morning, they have been using their brains to think a whole lot.]

Tina: *Why do you want to watch this movie? Why do you want to watch this movie? Why do you want to watch this movie? Why do you want to watch this movie?* [Tina responds to an off topic contribution by Brandon.] *Why do you want to watch this movie? I am asking you. Why do you want to watch this movie? Why do you want to watch this movie, Why?*

Russel: *Because we want to relax.*

Tina: *Yes, you want some relaxation in the afternoon. Spell relax.*

Russel: *fs-RELAX*

Tina: *So you want to relax in the afternoon, what do you want to do?*

Russel: *We want to watch a movie?*

Tina: *You want to watch a movie to relax?* [Tina repeats what Russel says as a question?]

Publishing. Following the construction of this last sentence, Tina invites the students to practice signing the sentences and while doing so she uses her question scripts to direct them to sign ASL when they read the English text. After two rounds of practice she does a final filming to be sent to the third grade science teacher.

Unit Two: Persuasive Writing- “The Merits of Going on a Field Trip to Study the Revolutionary War”

Planning and organizing. Tina starts this lesson by reminding the students that they were able to watch their movie on Friday as a result of their persuasive video and now they get to persuade their Social Studies teacher. As this lesson begins, I reflect on how much emphasis

teachers of writing place on writing to learn in the content areas from fourth grade and I compare that with Tina connections to the content areas as she teachers writing to her third graders. The students have been learning in their Social Studies class about the Revolutionary War and their teacher has sent them a signed video offering them the opportunity to decide if they would prefer to stay in class and read and write about the Revolutionary War or visit the actual places connected to the events involving the war. They need to convince her of their choice. Tina brings one of their Social Studies notebook to the front of the class and points to the notes they have been taking about the Revolutionary War. She questions them regarding the content of their notes and the process they used to learn all those things they wrote about the war. She then suggests that their teacher is extending the opportunity for them to go visit some of the places they read about, if only they would convince her.

Using questions and their OREO planning sheet, Tina walks them through an analysis of the video prompt to identify the two possible opinions they could choose from and as they sign, she writes the opinions on the board. After they tell her that they prefer to go on a field trip, she uses their notebook to talk about the places and things of interest both to build their enthusiasm and to develop the reasons and examples as to why such a field trip would constitute a viable learning experience. Even though Tina is responsible for teaching writing, she is conversant with the Social Studies content and her discussion with the students provides another opportunity for them to use language to talk about the Revolutionary War. In addition, what makes this discussion particularly supportive of literacy development is that she directs the students' attention to the text in their notebook throughout the discussion. Tina next distributes individual OREO planning sheets to the students and asks them to record their opinion. Everything Tina does is proving to be strategic in ensuring gains in understanding on the part of the students.

Even though they had already come to a consensus as to what their opinion was, some of them either wrote both opinions down or wrote that they wanted to stay in school to read and write about the Revolutionary War and then go visit the places of interest. This proved to be a teachable moment to clarify the need for taking a stand on issues when we need to persuade someone.

The following day Tina questions them again about their opinion and with the use of the ASL holding zone, she works with them to identify and label the places, people and things of interest that they could visit as part of their field trip to learn about the Revolutionary War. Tina uses drawings to illustrate the cities- Lexington and Concord, statues, the North bridge, museums, and places to see re-enactments of the war. I appreciate the collegial relationship Tina has with her students. Alice tells her that she could do a better job of drawing the mode of transportation they will use for the trip and Tina concedes that she is not an expert at drawing. When students use classifiers to express their ideas, she is very deliberate in getting them to specify the properties represented in the classifier by providing the English words that would be used to represent the concept. This is a challenge for Deaf students as ASL classifiers often simultaneously make use of three-dimensional space, and the handshape and movement of ASL signs to express location, movement, descriptions, semantic categories, parts of the body, elements of the earth, plurality, the manipulation of objects, and the use of the body to enact verbs. As the lesson progresses Alice expresses signs that she is aggravated by their inattentiveness, and when Peter and Russel act as if dismayed by her outbursts, Tina asks them to let her tell them why she is so exasperated. She explains that she is frustrated with the constant playing and the resulting frequent distraction when the teacher has to stop and attend to them.

After this flare-up, the students get back to a discussion of the reasons why they should go on the field trip.

Writing, editing and revising. I am surprised to find a gentleman wearing the personae of a parent and sitting next to Peter for the entire class. This visit marks a turning point in his behavior in class and it makes me wonder if the visit was a behavioral strategy in Tina's classroom management toolkit. As the writing of English sentences begin, I am again following closely Tina's use of questions to implicitly get the students to appropriate contextual language. Here is another example from the first sentence:

Tina: *So yesterday we drew all of this.* [points to ASL holding zone] *Now, having finished with the ASL, we are ready to write English sentences, English sentences. What is the English sentence? So who, tell me who? Fifth grade?*

Peter: *Third grade students* [Tina writes]

Tina: *What are they doing, third grade, what are they doing here?*

Peter: *They are going on a field trip.* [Tina writes]

Tina: *Where are they going?*

Peter: *fs-LEXINGTON*

Tina: *You need to add fs-TO, remember we learned about that, using fs-TO.* [points to a chart on her desk that she holds up] *Where do we need to add fs-TO. Remember we talked about that, when we say going to somewhere we need to add fs-TO.* [Tina writes] *Where are the going? What did you say?*

Peter: *fs-LEXINGTON*

Tina: *Is that it? Just one place? Is that all?*

Peter: *Many many.*

Tina: *What is the name of another place?*

Alice: *fs-CONCORD*

Tina: *Why? Why? Why?*

Alice: *To see the canons.*

Tina: *What is that about?*

Alice: *The Revolutionary War. Fs-REV war.*

Tina: *Come on elaborate, spell that out.*

Alice: *fs-REVOLUTIONARY fs-WAR*

The rest of the lesson is spent editing, repeatedly reading, revising, more planning, translating, and adding new sentences. There are times when as Tina writes on the board, students are seen fingerspelling the words she is writing. I could not help but notice with amusement the look of quandary on the face of the father sitting through the lesson as the students engaged in conversation with the camera audience about what they were doing in class. Needless to say Tina addressed this and warned them to have their conversations with her and not with the camera.

During the lesson on the following day when writing, editing and revising continues, Tina uses the internet, the students Social Studies notebook with maps, and their personal planning notes to elicit ideas for their written sentences. These sources provide for multiple exposure to printed material that is related to their discussion. They also constitute opportunities for wide reading either when Tina points and reads from these sources or directs the students' attention to the text and ask them to tell her what it says in response to her questions. As they complete their writing, Tina has them identify and read to her the sections of their writing that correspond to the genre-related features of persuasive writing based on the OREO procedural facilitator.

Publishing. As the students practice reading their completed writing, Tina encourages them to memorize the words as it would make their attempt at persuasion more convincing. I realized that I had seen her do this with their previously completed persuasive paper which she made them sign entirely from memory. Now that I was seeing for a second time this approach to have the students memorize the text they had written in preparation for publishing, I am thinking that this would also be supportive of word recognition since the students would have to hold an image of those words that will support their signed version of the text without being totally dependent on the actual text to use as recall. Soon enough the Social Studies teacher appears in the classroom and the students present their persuasive piece. They are beside themselves with excitement when the teacher tells them that she is convinced they should go on the field trip and a date is set for the field trip.

Unit Two: Persuasive Writing- “Our Choice of Gift from Hannah”

Planning and organizing. This lesson proceeds in the same manner we have become used to in Tina’s previous writing lessons. She always sets up an authentic purpose for writing. Hannah Dostal who is heavily involved in SIWI is planning a visit to this school and has sent a video asking the children to choose between coloring books and puzzles as their preferred present. Tina shows them pictures of each item, they discuss which they would prefer, and then write their opinions on the OREO planning sheet.

Writing, editing, revising and publishing. While the students are constructing their written sentences, they have an excellent opportunity to appreciate further the role of revising. Hannah’s visit occurred before they could complete their writing and she has brought both coloring books and puzzles. Now they need to go back to their planning documents and make changes to their opinion so that it reflects their choice of what present they will prefer to be given

rather than their preference for what is to be brought. Tina brings the coloring books along with several related items and the puzzles into the classroom and use this to stimulate her discussion as to the reasons they could give Hannah about their choice of present. When they complete their writing, the students engage in repeated reading of the text and I am careful to observe whether they are merely copying the signing of the lead student or actually reading the text and signing individually. They confirm what I had been noticing all along. The students are reading along with the printed text during the repeated reading of their writing. Tina finally has them go through their writing and underline each section as it corresponds to OREO- the genre-related features of persuasive writing.

The unit ends with the students videoconferencing with Hannah Dostal to persuade her regarding the items she will give them from among the presents she brought during her last visit. Afterward, Tina engages them in a discussion about how they could use their newly acquired presents to make something to send to Hannah.

Section 3: Findings and Discussion of Practices and Routines Supportive of Developing

Word Recognition Skills of D/hh Learners in SIWI lessons

Introduction

My first and grand tour of the data (Spradley, 1979), also known as first cycle coding by Saldaña (2013), commenced with the video footage of 18 lessons (two units) in the TC setting and was followed by analyzing the 31 lessons (two units) in the Bilingual classroom. I followed Spradley's suggestion to use a broad sweeping lens of inquiry that would give me a sense of the practices and routines in SIWI relative to its primary goal of teaching writing as well as attending to my narrower focus- the development of reading skills (1979). This grand tour led to descriptive memos of the physical learning environment, the classroom management approaches,

behavioral and attention challenges and related personality traits of students, expansion and compression techniques as teachers moved between the two language modalities, overt differences in communication styles by both the teachers and the students, demands on instructional time per student made by pull outs during lessons, and instructional and learner practices and routines that were either SIWI driven or specific to each class. As I coded and categorized my codes using hierarchies based on Spradley's semantic relationships I was able to document my emerging thoughts about how these practices and routines were connected in analytical memos and notes I made with links to each lesson. I then coded the teacher and student interviews, examined the student surveys for insights on student characteristics, and re-examined the assessment scores for the two classes.

In my second or mini tour (Spradley, 1979), otherwise known as second cycle coding (Saldaña, 2013), I looked more carefully at the data on a scripted level to explore the processes associated with each code in what Spradley calls "smaller aspects of experience". This led me to attend to very interesting but specific patterns such as the number of times an instructor would routinely ask a question before allowing students to respond. I was able to refine my descriptions that led to the classroom stories I presented at the beginning of this chapter.

My next step was to debrief with the Dr. Kimberly Wolbers, the researcher who has authored the design of the SIWI instructional framework. Dr. Wolbers was not involved in the collection nor the analysis of the data and provided for some sense of detachment that prompted useful questions and fresh perspectives to challenge and guide my analysis. After discussing the patterns in the data and examples of these patterns, we identified a few other perspectives from which the data could be mined. This third tour of the data was now more focused to include the additional considerations that emerged out of the peer debriefing session and to pay special

attention to those codes that appeared to be most significant based on the number of times that they were coded. The latter narrowed focus was prompted by the use of an exported file from Nvivo that provided details as to the number of times a pattern was coded and in how many sources in the data we would find evidence of this pattern.

Finally, before getting to this point where I direct attention to the findings, I prepared a *thick description* in story form of the two units of instruction. My intentions were to offer readers what may be described as a *ring side seat* or an invitation to join me as a *wall flower*- a view I repeatedly experienced for 49 lessons of SIWI instruction split between two case sites. As I review the findings, I am excited by the potential for transferability and generalization as the results were based on analysis of multiple cases that represented the major educational and communication philosophies reflective of education of the D/hh on either an institutional or class level, both here in the United States and in Trinidad and Tobago where I hope to use much of what I have learned in improving the quality of literacy instruction for D/hh Trinbagonians.

Engaging Students in Cognitively Challenging Classroom Discourse.

In both the TC and Bilingual setting, but to a heightened degree in the latter where the instructor was Deaf, classroom discourse that was cognitively challenging took on a predominant role. Between the two settings there were some differences in style in the interactions between the teacher and the students during every phase of the writing process. While coding the data, I assigned the patterns I observed relative to discourse in the classroom to the following terms: classroom discourse, language use, connections to experiences, problem solving, use of questions to elicit vocabulary, persistence in questioning, thinking, and repeated exposure to words. It was during my peer debriefing that I was directed to the research interest of one of my colleagues and his associate (Smith & Ramsey, 2004), and subsequently to research done by

Kluwin (1983) and Harris (2010). This led to revision and greater precision in the terminology used to think about the facets of classroom discourse in these SIWI lessons and to a consolidating on the codes.

Extending discourse. Both teachers seized opportunities to extend the knowledge of the students by involving them either collectively, on an individual basis with visual access to the discourse by the group or in one on one dialogue. Some of the opportunities were signaled by the students' own references to their personal experiences or to their being privy to snippets of world knowledge related to the current task. Other opportunities presented themselves when the students gave evidence of being confused or hesitant to respond. Yet in other cases the teachers engaged the students in literate thought that was related to the teacher's experiences or their store of world knowledge or to content found in model texts that was being read to them as part of the decomposition of genre-related examples.

While there were times that Diane and Tina cautioned the students about going off topic and even applied behavior management strategies to curb the tendency to deviate from the task at hand, the frequent active involvement in extended discourse implicitly provided the students with linguistic, cultural and cognitive tools (Vygotsky, 1986). The language use to which the children had access during the extended discourse are appropriated into their own inner speech as structures of their thinking.

Making connections to personal experiences. The data is replete with examples of extended discourse that involve connections to either the personal experiences of the students or the teacher. When the students arrive for a writing lesson, Tina notices a happy birthday banner on the white board and she expresses surprise as to who put up the banner, and when and why they had done so. Her discussion not only models inquiry, problem solving and hypothesizing for

the students but her use of wait time invites them to follow the line of deductive reasoning. Tina later tells them that she celebrated her birthday on Saturday and that may be the reason for the banner being placed there. She muses that she was not at school over the weekend so why would they have put the banner up. Tina lets them know that they would get to the bottom of the posted banner later on. On another occasion, Tina goes into the merits of placing one's hand by the mouth when coughing so as not to spread germs. She could have addressed the inappropriate practice of coughing indiscriminately by simply reprimanding the student but consistent with her custom of not simply telling students what she thinks they need to know and do, she demonstrates the proper behavior and initiates the following discourse:

Tina: Which do you think is proper to do when you cough, to spread the germs or to place your hand in front of your mouth? [Brandon coughs with his mouth exposed again.] Hey, if you do not cover your mouth when you cough you will spread the germs all over the classroom.

Alice: May I say something. This morning I coughed [Brandon coughs with his mouth exposed again.] and I placed my hand in front of my mouth.

Brandon: I am not spreading any germs, it's my throat bugging me. I am not spreading anything."

Alice: Hey, you still should cover your mouth because you can still spread germs."

During the writing phase of the expository piece on nocturnal animals, the students have provided a sentence about the young that wolves that give birth but they are struggling with how to change the noun *born* to the verb phrase *give birth*. After they feel they have exhausted editing and revising the sentence, Tina tells them that they have missed something and they appear out of wits. Of course she is not going to simply tell them. She *fingerscans* the words in the sentence,

stops at *mother wolves* and signs and mouths the text, and then stops at *born*, pointing twice at the word and then nods her ahead while allowing wait time. This exchange follows:

Tina: *You know the word BORN, BORN, hey you there, BORN, it is spelt fs-BORN. But how do we change that? You know the mother wolves WHAT-DO?* [This sign which is frequently used both as a rhetorical structure to inform about some action has also been a staple of Tina's questioning script to elicit from students, verbs or verb phrases in sentences.] *GIVE* [mouths give] *fs-GIVE BIRTH* [mouths birth] *fs-BIRTH. What does fs-BIRTH mean?* [waits for a response] *Let me tell you about my son when I was finished giving birth to him. So wolves give birth to babies. OK.*

Later when Tina is teaching persuasive writing, she talks with the students about their experiences with eating cookies and how they felt about eating a cookie that had no filling inside or one that had the filling but only one wafer. As they talked about the difference and how important the filling and both wafers were, she connects their experience of preferring a cookie filled with cream to a strong opinion that is backed up by many reasons and opinion stated at the front and back end of the argument. Likewise, as she reads and decomposes a model persuasive text, she extends the discourse to engage the students in a discussion about their experiences going grocery shopping with their parents and the kinds of bags they observe being used and why this might be the case. I was thrilled to see Alice raise her hand to explain that she knew about the ozone layer surrounding the earth and then later walk to the front of the class during this discussion and declare: *"If the earth breaks down, we cannot move to another place. That would be the end of the earth. We need to cherish the earth."*

Extended discourse that engages students in conversations about personal experiences also takes place in Diane's classroom. As they prepare for the expository piece on how to make

ants on a log, Diane reenacts the steps involved and asks students about their experiences at home with tasks that bear some similarity to the steps she is performing and about which they will later write. When they move to working on persuasive writing, she spends a sizeable amount of class time discussing their personal experience with insufficient iPads for class use, the problems they encountered and the results gained when they convinced the principal to provide more iPads for the class. Diane used questions to get the students talking about this experience. For the persuasive piece on water versus soda, Diane uses the life experiences of the students which they share with the class as she questions them to identify the reasons and examples for water being the preferred liquid. Since Diane and the rest of the class has to come to a shared understanding about each student's experience with the use of water, there is much exposure to scripts of inquiry. As I review the video footage for this part of the lesson I am reminded that many of these forays of extended discourse into the personal experiences of the teacher or students are not one time events, but those experiences are brought back to the discussion table during planning, organizing, writing, and repeated rereading of the text, especially when the text being constructed drew on those experiences for its content.

Diane used both her experiences with her cats and dogs and the students' experiences with their respective pets to talk about the advantages and disadvantages of having either a cat or a dog as pet. The students learn the cognitive skill of perspective taking, drawing comparisons, and evaluating the merits of a course of action by considering the evidence. During this discussion one student identifies her unusual pet. Look:

Diane: Robert and Nicole both said that they like dogs, but I really appreciate your input. Even though you said that you like dogs you were able to think of things as to why people might like cats better. And that is very important with persuasive writing that even though you may not

agree that you can still think of why Jesse might like cats better. So next week Jesse and Luke might do the same for you. They will help think of why dogs might be better. OK. That is a very great skill and I appreciate your input. Do you have any animals at home?

Robert: *Yes*

Diane: *What?*

Robert: *Two cats and one dog.*

Diane: *So you have experience with both, you know which you like better. Good.*

Nicole: *I have two animals. A dog and a /h/u/d/g/h/o/g. [signs HH]*

Diane: *A what!*

Nicole: *a /h/u/d/g/h/o/g.*

Jesse: *I don't know what that is?*

Nicole: *It has a long nose.*

Practicum Student: *It's a kind of dog maybe.*

Nicole: *It's not a dog.*

Diane: *A fs-HEDGEHOG for a pet at home.*

Nicole: *Yes [nods]*

Jesse: *What is that?*

Diane: *Not like inside your house?*

Nicole: *Yes [nods]*

Robert: *Outside*

Nicole: *Inside a cage. [signs the dimensions]*

Diane: *A fs-HEDGE, she says she has a fs-HEDGEHOG as a pet.*

Teacher voices from next door: *I want a hedgehog as a pet.*

Diane: *She says she has one as a pet.*

This conversation continues with the teacher inquiring about what she does with the hedgehog, and then as more students say they are clueless about the identity of the animal, Diane offers to show a picture on the internet. She drills the student with questions about the lifestyle of the hedgehog as a pet, and the student's interactions with the animal. Diane also asks for a picture if the hedgehog to be sent by Nicole's parent. After she inquires from the other students about their pets at home, Diane talks about her experiences with pets, including having put her dogs to sleep and then shows pictures of the hedgehog. Its no surprise that this further stimulates an exciting discussion about the idea of a hedgehog as a pet.

Making connections to world knowledge. The teachers also extended the discourse to make connections to the students' store of world knowledge or their own. At times the world knowledge was connected to curriculum content material and in other cases it was related to previous knowledge that the students had. For example, after Diane introduces the word stalk as the name for the part of the celery they were eating, the visiting SIWI mentor asks them if they knew of other plants or foods that had stalks. This leads into a discussion about the harvesting of corn. The students in this class live in the southeastern United States and are familiar with the history of corn, its harvesting and uses. They were able to relate to this extension of the discourse, because it was part of their world knowledge. When Tina tries to develop the reasons they would give their Social Studies teacher to convince her to take them on a field trip, Tina uses one of their Social Studies notebooks and questions them about the details of the Revolutionary War. She is conversant with this aspect of her world knowledge and is able to draw upon it to get the students talking about the war, the prominent people and places involved and the significant events. In addition, the students have already covered much of the

information about the Revolutionary war in the previous two months with their Social Studies teacher. Tina also makes use of internet images and text as well as drawing that she and the student construct to support this extended discussion.

Another example of these extended discussions beyond the here and now, takes place during the co-construction of the expository piece on nocturnal animals. While the writing takes the students into detailed research about owls and wolves, while they were reading and discussing they briefly encountered passing references to other nocturnal animals. Tina extends this knowledge by showing images about very interesting nocturnal animals that spark an exciting discussion. It was amazing to see students who had some knowledge about the animals provide their input into the discussion. Related to this were the many discourse opportunities that were seized during the reading of model text. For example, when Diane reads the essay on the preferred use of cloth bags when grocery shopping, she goes beyond labeling or a routine of yes-no questions into an elaborate, precise and multifaceted exchange. She involves the students in drawing inferences and making predictions regarding the use of plastic, paper and cloth bags.

Persistence in questioning. A second major dimension of cognitively challenging classroom discourse is the persistence in questioning. This specific approach to developing the thinking of the students and to elicit language from them was again more distinctive in the bilingual setting and somewhat different in style. Unlike Diane who while making use of a great deal of questions, tended to engage in knowledge-telling, Tina rarely if ever told students what they needed to know or do. She was pervasive in her questioning both in terms of repetition of the same question three or four times before even allowing the students to respond and in changing the questions or line of questioning as she moved the students along developing their understanding.

To illustrate those instances when I observed a difference in style of questioning note the two sets of exchange presented below. Diane is working on a persuasive text about water being better than soda.

Diane: *OK. Look at Robert.*

Robert: *Water.*

Diane: *Yeah. Would it be OK if [write it in a sentence] Let me read it. Do you like water or soda. We think it is better to drink. Would that be fine?*

Class: *No*

Diane: *No. Because we have not yet said which we preferred. It could mean soda, could mean water. So first we have to set up, What are we talking about?*

Jesse: *Water*

Diane: *Same as if Ben was writing about his brother. First sentence, he could say, He is seven years old. Could?*

Class: *No.*

Diane: *No. First he has to set up. I am talking about Ben. Ben is seven years old. Then [signs ONE-LEVEL-DOWN] he can switch and say he. So first you have to set up what are you talking about? OK. O we can't say it right here. [Diane makes the changes in the sentence.]*

Now let us take a look at Tina's line of questioning during the writing phase of the expository piece on nocturnal animals.

Tina: *So what does this word say?*

Peter: *Wolves*

Tina: [points to next word] *Do you know the sign for fs-ELK? Do you know the sign for fs-ELK? What is the sign for fs-ELK? Your sign, what do you think fs-ELK is?*

Brandon: *ELK*. [sign and voices elk]

Tina: *Yes, it is similar to the sign for moose.*

Brandon: *Elk has narrower horns.*

Tina: *Yes, the horns of the moose are wider.*

After some more discussion about the shape and size of the horns on the animals listed,

Tina asks:

Tina: *Now we have this list of animals, how do we separate it? Brandon, do you know what to do? (Brandon, inserts commas in the text.) Peter are you seeing that. What is Brandon doing?*

Peter: *He is putting commas in between the words.*

Tina: *Why is he doing that? Notice we have a list, and he puts commas and then before the last word he puts and. Good job Brandon. So, what is next?*

Brandon: *Wolves*

Tina: *Wolves what?*

Brandon and Peter: *Baby*

Tina: *Baby what? What are the babies called?*

Brandon: [view is blocked]

Tina: *OK so write the sentence. What did you say?*

Brandon: [Tina copies his signing] *Mother wolves born baby called fs-PUPS.*

In the unit on persuasive writing, Tina questions for a different purpose.

Tina: *Tell me what?*

Russel: *Third grade*

Tina: [turns to the class] *Third grade what? [waits] Want or don't want which?*

Russel: *Wants*

Tina: *Wants what? What is the word for that action? Look at the drawing?*

Russel: *To see*

Tina: *To watch.* [writes] *Watch what? What did you say?*

Russel: [responds but my view is blocked.]

Tina: *When?* [face class] *When are we going to see the movie? When are we going to see the movie?*

Peter: *In the afternoon.*

Tina: [writes] *In the afternoon, so what are we going to do in the morning? What are we going to do in the morning? What are we going to do in the morning?* [points to a diagram in the ASL holding zone] *What are we going to do in the morning?*

As mentioned earlier both teachers use questions and they do so to achieve a variety of objectives. These range from eliciting vocabulary, drawing attention to phrasal units and genre-related contextual language, getting students to think through the ideas they are writing about, and developing a meta-linguistic awareness as they move between ASL and English text. The only salient differences are the level of intense persistence in questioning on the part of the Deaf instructor and a greater use of wh-questions, while the hearing instructor uses many leading questions that require a yes or no response and she tends more toward knowledge telling.

The Role of Engagement in Cognitively Challenging Discourse in Word Recognition.

Classroom discourse involving multiple turn taking that develops the lesson specific objectives and which also goes beyond the here and now of lesson content provides D/hh students with opportunities to pair both ASL and English language text with their experiences and ideas. Kluwin (1983) who examined discourse in classrooms with D/hh learners taught by

hearing and Deaf teachers also noted differences in the episodic style. Deaf teachers tended to persist in their questioning when these are met with non-responses or incorrect responses, whereas the hearing teachers of the D/hh resorted to providing the information. If the Deaf teachers ask lower order questions such as requests to describe, designate, describe, state or report, then they might expand the scope of the question, for example, by using a superordinate term. If they are asking a higher order question that may involve explaining a procedure, evaluating an action, expressing an opinion, justifying an action, or some other cognitively demanding line of reasoning, the teacher may opt to downshift the cognitive demand of the question. Kluwin concluded that characteristics of the discourse of successful Deaf teachers included the strategic use of higher order cognitive questioning, persistence in questioning, allowance of wait time and a refusal to kowtow to knowledge telling when students failed to answer questions.

A feature of classroom discourse examined by Harris (2010) involves the role of extended discourse in bilingual settings. This refers to conversation, not about the “topics present in the area or immediately visible in the text” (p.121) - which she calls *immediate talk* - but it focuses on talk that is either “about the present in a different conceptual space, for instance, the past or the hypothetical” (p.122) or on talk that involves topics which have no visible presence in the texts being read, or the visuals in the classroom environment. Many new words are repeatedly used in these extended discussions and connections are made to constructs that have some familiarity to the students.

Smith and Ramsey (2004) described the discourse practices of a Deaf teacher in a fifth grade classroom. His description resonates with the discourse practices of both teachers in the current study. As with the Deaf teacher their Smith and Ramsey’s study, Tina and Diane’s

discourse reflected the elements of instructional conversation and description as defined by Goldenberg (1992). The teachers selected themes from either the model texts or the student selected writing topic to ground the discussion. Tina used an entire lesson to discuss the merits of using cloth bags so as to develop the students understanding of giving examples in support of arguments so as to make the arguments strong. Both teachers activated the students background knowledge and allowed for extending the discussion beyond the here and now specific objective if a student's contribution signaled moving to that direction without going off topic. Diane developed the persuasive paper on whether cats or dogs were the best pet, entirely on the collective experiences of the students in the class and allowed of a significant amount of class time to explore the experience of one student whose pet was a hedgehog. They seized opportunities to provide direct teaching as illustrated when Diane explained the commas for lists.

Another feature of Tina and Diane's discourse was the goal of getting students to extend their contributions to reflect greater complexity of language and expression (Goldenberg, 1992). Tina asked the students why they wanted to Lexington and Concord, and when one student responded that they would look around, Tina asked in return whether they were planning on simply driving the bus through the city. This led to an intense discussion of the specific sites and things that they would do to better understand the Revolutionary War. Tina was good about requiring students to make connections with their contribution to sections of the text they were reading or drawings they had made when planning. When students responded, the teachers not only restated their contributions, but would point students' attention to it, require that the student repeat it if others missed it, or ask a question based on the contribution. There was multiple turn-taking, and while the teachers regulated self-selected turns because of the visual nature of classroom dialogue and the need to ensure that other students were ready to attend, students felt

free to participate in the class discourse. The preponderance of wh-questions involved students with opportunities for open-ended responses.

The conversations in both class sites were cognitively demanding and the students experienced the use of words to talk about challenging topics like ecology, pollution, nutrition, healthy dietary lifestyle, caring for unusual pets like hedgehogs, the Revolutionary War, and many others. Their practice of cognitively challenging classroom discourse resonates with Cummings strong view that “animated discussions and debates about the social and moral issues embedded in both fictional and expository text should be the norm rather than the exception” (2011, p.145). As the teachers extended the discourse, they take advantage of the students’ visual capacity to access their skilled signing, and make use of images and additional text to make connections between the signed discourse and English words. This had the effect of immersing them in a rich and engaging language environment that runs counter to the pattern of limited language socialization that is the experience of D/hh learners and for which Hart and Risley credit the low academic achievement of non-D/hh children (Hart & Risley, 1995, 1999). According to Hart and Risley, the grander conversations that children have, the more they gain experience with the “all of the quality features of language and interaction” (1995; p. 145)

The role of discourse in building cognitive skills has been long supported by Vygotsky’s sociocultural theory (1986) and the transference of cognitive and linguistic skills through discourse in ASL to skills in English language finds its support in Cummins’ linguistic interdependence hypothesis (1981). Vygotsky credits the development of higher-order cognitive functioning to an initial mediation on the interpsychological domain between interlocutors- one of whom is the more knowledgeable and experienced- and the artifacts referenced in their discourse. The exchange must actively involve the child rather than be an exercise in knowledge

transmission. The language used in the discourse becomes the mechanism for meaning construction and transformation. The consequent learning that takes place is then appropriated by the individuals on the intrapsychological domain.

One of the uses of questioning that both teachers embraced was the development of implicit competence in the linguistic properties of English as well as being able to move back and forth between English and ASL- a skill that requires a heightened sense of meta-linguistic awareness. The discourse included numerous utterances and turn-taking scripts that drew attention to linguistic structures during the construction of English sentences. Rather than follow the traditional approach of decontextualized grammar instruction, the teachers used questioning as part of their discourse to expose the students to patterns of English and ASL. They also modeled the code-switching skills by using a repertoire of linguistic strategies that served “to bridge meaning between ASL and English during the reading” (Andrews & Rusher, 2010, p. 412). Cummins (1981) justified this approach by explaining the validity of linguistic interdependency where knowledge and literacy skills in students’ first language is transferrable to second language development of said cognitive and literacy skills by virtue of first language proficiency with the cognitive and literacy skills and numerous exposure to the second language. The exposure was certainly provided through numerous opportunities to read and write English during the SIWI lessons.

It is however true that at times the discourse became more explicit. For example, Diane suspended writing to talk about when students should use the indefinite articles and both Diane and Tina spent time explaining and illustrating the use of commas and the conjunction *and* when writing lists in English. Yet the use of ASL to teach the linguistic properties of English provides numerous opportunities for students to pair their ASL signs and phrases with English words and

phrases. This is in keeping with Krashen's view (2003) that language is acquired through comprehensible input and learning is best accomplished through problem solving than deliberate study. Krashen believed that "grammar teaching has a peripheral effect" (p. 30) and he was not in support of exclusive direct grammar instruction.

High Volume of Reading and Writing.

The students in both classes experienced mass opportunities to repeatedly read their own writing, to independently read in preparation to edit or revise text, to read several model text, to read material in books and on the internet during planning to develop the content of their writing, to read writing prompts, and to be read to by their teachers and peers either as listeners or active co-participants. Likewise, there were many opportunities to write. Students took turns constructing sentences in English. But even when they were working in the language zone or on their planning sheets, the teacher involved them in writing and drawing. They wrote notes when they did research in preparation to write expository pieces. There were even times when the teacher engaged them in decomposition of model text and required the students to identify the section of the text that were examples of genre-related features and write the examples on planning sheets.

Engagement in repeated reading. The role of repeated reading for the purpose of editing and revising is built into SIWI. Wolbers (2010) designed this practice as an integral way to get students "to pay attention to the exact written English and express the corresponding meaning through a manual/visual mode" (p. 108). Wolbers called this type of rereading *print-based sign*. Teachers were expected to point to the text while using the other hand to sign. They may sign and then point to the text or point to the text and then sign. Regardless of the sequence between pointing and signing, the goal was to always provide support for the signing with visual

reference to the written words. Reading with conceptual accuracy was still achieved by fingerspelling words that were not a part of the ASL lexicon, and choosing meaningful equivalents when there was not a one to one correspondence. Even when the teacher signed as close to the English text as possible rendering the signing more English-based than ASL, this was not seen as a roadblock to comprehension as the text was produced by the students, and thus bore the stamp of comprehensible input. This made the reading a high-success activity.

In the TC setting print-based signing was used for repeatedly reading the text. Diane did not wait until an entire piece of writing was ready for editing, revising or publishing. Often, after one or two sentences were added to the English sheet students were summoned with the voiced and signed *Ready!* and after getting every student's attention, reading commenced. Diane took the lead reading the text most times with students reading along. I was interested to see whether students merely copied her signing or independently read the text. Students were actually reading the text but switched their eye gaze or took advantage of their peripheral acuity to take cues from Diane's signing if they struggled with vocabulary or signing the text in a way that made sense visually. There were times however, when Diane had the students individually come to the front of the class and read the text and the other students read and signed along- again not simply copying the signing. One thing that I found noteworthy is that Diane often cautioned students not to engage in rereading the words they had written down on their planning sheets, since the text there did not constitute sentences. She often urged them to use the words there to think about their English sentences and when they reverted to reading from the planning sheets, she promised and made good on her promise to limit the representations on the planning sheets to drawings.

In the bilingual setting, I was in for a surprise. I recall many arguments of teachers very early in my teaching career adamantly insisting that if we want D/hh students to appropriate the language of English written text, we must use English-based signing when reading to them and when they read to us (Personal Communication, 2005, 2010). Tina's approach to rereading unveiled evidence that ran counter to the claims of those teachers. When Tina led the rereading of the written English sentences- which was rare- she read in ASL and signed with conceptual accuracy while pointing to the words or *fingerscanning* the text. Her custom though was to have individual students come up to the board and lead the reading. Each time she did this, which was practically after a new sentence was added, she would call the students attention by signing and mouthing *Ready!* and only when they were all truly ready, would she invite them to follow the lead signer and read along. Again, I paid attention to the fact that the students individual read the actual text and fed off the signing by the lead students or Tina when they needed help with vocabulary or with expressing a concept with conceptual accuracy.

What was particularly unique about the re-reading in the bilingual setting was the consistency with which the text was read with conceptual accuracy. Earlier I used the interpreting and linguistic term *back translation* (Brauer, 1993). Tina used questions to get the students to appropriate ways of signing the text in accordance with ASL grammar when they read. As mentioned in the description of the SIWI lessons in the bilingual setting, Tina's questioning script or modeling of the process during the initial attempts at re-reading each new chunk of English text taught the students to use the following ASL structures that would translate certain English grammatical constructions with conceptual accuracy: the process for ranking or listing in ASL when presented with English word lists separated by commas; the use of a *when* question with the appropriate facial grammar that precedes telling the timing of an event if the

English sentence features an adverb of time; the use of the ASL-specific rhetorical structure with the question word *why* to represent the English word *because* or *due to*; and the use of the ASL-specific rhetorical structure with other *wh*-word questions that are followed by a comment-type response when the English sentence provides information.

While both teachers engaged in repeated reading of written English sentences, the number of times that this was done was far more pronounced in the bilingual setting than in the TC setting. Also unique was the fact that Tina involved the students in repeated readings of the model text as she referenced it during various phases of the writing process when students struggled with genre-related features in their own writing. It is also noteworthy that both teachers invited students to read the words they had written in the language zone and on the planning documents numerous times during the co-construction of written English text. This observation is not to contradict what I said about Diane's frequent request to students sitting in the author's chair not to read from the planning sheets when generating English sentences. This was specific to getting them to use the text on the planning sheet -which were not written in sentence form- as stimulus for thinking about the English sentence rather than reading off the sheet as if it was already a complete sentence.

Reading to edit. Each time a new sentence or larger chunk of text was written on the English board/sheet, students either responded to a thumbs up or thumbs down as a cue to reread the text independently and check for needed edits at the word and sentence level. What fascinated me more was that all they sometimes needed to cue them to read and suggest edits was for the period to be placed at the end of the sentence along body language that indicated that either the teacher was finished scribing or their peer/s were done writing. Students reread the text before suggesting the edits and when they came up to make the changes they were seen rereading

before executing the changes. When the teachers in both sites served as scribes for text that students dictated, they purposely wrote the sentences down without attending to mechanics of English unless these were part of the dictation. This provided opportunities for students to constantly check the text by reading it and then suggest the needed revisions.

Engagement in wide reading. In addition to the reading of the generated text during the writing, editing, revising and publishing phases of the writing process, students were involved in reading numerous other texts. As they were introduced to each new genre of writing both Diane and Tina read model text as examples of the genre- a minor component of SIWI related to the use of examples and non-examples. The words in the text were read several times as they decomposed the text. The reading of these books or essays often followed a routine: the reading would be modeled by the teacher with her pointing at the text while reading; later during the decomposition exercises segments of the text would be reread to identify the genre related features and genre-specific contextual language; and then the content of the text was made the subject of extended discourse. So much was this a valued part of teaching that the teachers expressed in their interviews the need for a database of model text comprised of popular third to fifth grade literature that matched the skills they were teaching and the content areas that could be incorporated into writing. Students also echoed in their interviews the voluminous amount of reading that was done in their writing lessons.

There were some differences in the way that the model text was read in the TC setting and the bilingual setting. Although I believe the difference may be due to teacher characteristics, I found them noteworthy. In the TC setting, Diane instructed the students to sit back and observe the text being read to them. Often they would start signing along and she would stop and remind them to sit back and pay attention to the reading. Diane also read the text with print-based

signing. In the bilingual setting however, Tina modeled the reading of the text being read and used what is called storysigning or *storyreading*, both forms of code-switching that “represent a purpose-driven and planned instructional strategy used by the teacher” (p. 410), but which differ on how much of a literal translation it is (Andrews & Rusher, 2010). *Storysigning* is reading in ASL an English text at the story or narrative-discourse level whereas *storyreading* is the more literal sentence-by-sentence translation. This is very similar to the end product of *back translation*, except that for the most part, the text- except for those that Tina herself constructed as models- were not first translated from ASL to English. Nevertheless, the students were exposed to words repeatedly in authentic text that supported their writing. Often, Tina required students to reread parts of the model text when the students struggled, and she used computer technology to highlight and label parts of the text which she either reread for the students or drew attention to it.

Another opportunity for wide reading that I observed in Tina’s class was the requirement for students to read books and internet sources in preparation for their writing. This may have been done in the TC setting since the students worked on independent writing in a different class with another SIWI instructor. However, since those independent writing lessons were not part of my data set I have no way of confirming this. During the planning of the expository piece on nocturnal animals, Tina required the students to work in pairs at the computer station to read and search internet pages with information about owls. Another pair was provided with books and access to a computer with a search engine to research the information on wolves. While I was only able to see the product of the research on owls, the data presented opportunities to see Brandon reading information on the internet to find out about the habitat, reproduction, varieties, and feeding habits of wolves and the characteristics that made them best suited to be nocturnal

animals. As Tina worked with Brandon, whose partner was absent, he either read and made notes on his own or at times Tina pointed while signing the text and then discussing the information. During the writing phases of this essay, the students were called upon to reread their notes as they generated English sentences. There were also times when Tina located information relevant to the writing they were working on such as when they were writing about the Revolutionary War, and she had students reading the text off the screen or she read it for them.

In Diane's class, students participated in wide reading but it was not authentic text. The students were struggling with differentiating between opinion and facts. To address this, Diane read information from a book that explained the difference between the two concepts and then used the computer to read sentences which she followed up with signing. Those sentences were examples of either an opinion or a fact and students needed to decide which was which. Following this the students were given a worksheet with sentences that were read by the computer and signed by an adult in the room. Each student had to individually reread the sentences in their personal worksheet and mark whether it was an opinion or a fact. The group then followed up with a discussion about the correct response. The next day the teacher made connections with that exercise and the reading of another model text.

Varied opportunities to write. Another practice that teachers and students highly rated in their interviews was the volume of writing they did. Students wrote at each phase of the writing process in Tina's class. They wrote and drew in the language zone, on the planning sheets, and on the writing sheets. In Diane's class, she scribed the text that was dictated most if not all of the time. Students wrote on themselves when they did independent writing in a separate class. Nevertheless, the many opportunities to either write or share in the generation of written sentences provided students with occasions to be exposed to words often.

The Role of a High Volume of Reading and Writing in Word Recognition

Schirmer, Therrien, Schaffer and Schirmer (2009) conducted an experimental study involving repeated reading with D/hh second graders, some of whom were at least reading on a first grade level. This purpose of this study was to examine the role of repeated reading with D/hh children on fluency and achievement. Students repeatedly read passages until they made no more than two errors or had read the passage four times. They were then administered a comprehension assessment. Significant results were reported for running records with a large effect size and fluency measures where the effect size was small to moderate. This study confirmed the findings of Ensor and Koller (1997) and Therrien (2004) that repeated reading improves the reading speed and other measures of reading fluency such as automatic word recognition. Cunningham and Stanovich (1993) add their support to the role that volume of exposure to print plays in developing word recognition that is particularly supportive of this approach for the D/hh. Cunningham and Stanovich were able “to separate the variance in orthographic processing skill from variance in phonological processing ability very early in the reading acquisition process” (p. 201) and they reported that this finding was consistent with similar research that was done previously with older readers. They were able to link the variance contributed by orthographic processing to exposure to a print rich early literacy environment.

The repeated reading components in the study by Schirmer et al. (2009) and Therrien (2004) were very similar to the repeated reading done in Tina’s class. Students read aloud or signed visibly, they received corrective feedback and they read until the instructor was satisfied with their performance. The latter component was more carefully monitored in Tina’s class than in Diane’s class, since Tina had students taking turns leading the reading or reading directly to her. Tina also video recorded the published readings of the students, and this would have

provided further opportunities to provide corrective feedback that did not involve interrupting the students. Ensor and Koller (1997) found that the quality of teaching with which the rereading was packaged led the students to discover a variety of cues of a morphological, syntactic and prosodic nature that led to more fluent reading on the part of D/hh students. In outlining the findings, I discussed the quality of Tina and Diane's questioning scripts that accompanied initial and sometimes subsequent rereading of the text and how this implicitly led students to discover the above mentioned cues.

Allington (2014) and Kuhn and Schwanenflugel (2009) testified as to the connection between repeated reading of instructional level text and the development of word recognition to a degree of automaticity. More specifically repeated reading leads to developing a set of words that can be recognized in ways similar to sight words. But Allington and Kuhn and Schwanenflugel was even more confident about the research pointing to the role of wide reading. What he believes is needed for developing word recognition and fluency is "expanding not only the volume of reading but also expanding the numbers of text students read" (2014; 15). Kuhn and Schwanenflugel conducted a multi-year study which investigated the impact of time spent reading, the level of engagement in reading tasks and the support received during reading on measures of fluency: accuracy, automaticity and appropriate prosody. They designed lesson plans that provided for the following: extensive practice in reading connected text; discourse surrounding the text read; repeated reading of the same text; reading of varied text; echo, choral, partner and independent reading; and support for reading text that was challenging. The study involved four groups of early elementary students over a period of six weeks: one group experienced repeated reading of a single text three times a week; a second group experienced wide reading of three different; a third group listened to the text read by the second group; and

the fourth group received the literacy instruction that is typical of that used in literacy curricula. Both groups that had repeated and wide reading made substantive gains over the listening and non-intervention groups in isolated word recognition, accuracy in passage reading and reading fluency.

Both Diane and Tina's use of a wide variety of authentic model text and reading materials used during research in preparation for writing provided opportunities for practice in reading and even more exposure to a greater repertoire of words- both new and familiar. The texts they read from were of different genres providing exposure to varied uses of words in terms of contextual language. The repeated reading, wide reading and voluminous opportunities for writing in these two SIWI classes provided for much practice and numerous instances of repeated and distributed exposure to various forms of word representation that promoted the automatic retrieval of words- the gains that our students made in their word recognition abilities. In defense of repeated reading, wide reading and level of involvement in the reading task, Allington (2014), Kuhn and Schwanenflugel (2009), Kuhn, Schwanenflugel, and Meisinger (2010) point to theoretical links in Logan's (1988) instance theory. Logan explains that the amount of practice is critical to both how much students retrieve and how fast they are able to perform this retrieval with gains in autonomy, effortlessness and speed of automaticity (Kuhn, Schwanenflugel, Meisinger). Instance theory is based on the assumption that each time a stimulus is attended to, it is encoded, stored, and can be retrieved separately. With each exposure, a trace is left that leads to what Logan calls memory-based processing. Additionally, the learning that takes place as a result of the repeated and wide exposure can be incidental as long as the individual attends to the stimulus. How much the stimulus is encoded is a product of both the quality and frequency of attention. This theory aptly aligns with the focus on multiple

exposure to words during SIWI by means of the varied ways and multiple repeated instances of exposure to text through rereading and writing.

Regarding the code switching that is particularly evident as a reading strategy in the bilingual setting, Andrews and Rusher (2010) conducted an experiment to see if there was a relationship between code switching and its associated level of exposure to written text if there is repeated practice and gains in word recognition. Their hypothesis that a higher volume of exposure leads to increases in the learning of words was confirmed. In the SIWI lessons in both settings but more consistently so in the bilingual setting, code switching was modeled by the teacher when she read from English texts. The students developed the skill through both guided back translation using questioning scripts to implicitly train them in the process of code switching and by means of direct explicit grammar instruction. The *back translation* process has been proven to be capable of conveying linguistic equivalence and proves that ASL is an adequate linguistic medium for transmitting many kinds of complex information (Bruaer, 1993). This provided for a fluid dual coding of verbal information in two different modalities- a visual-spatial language and a written linear language.

Multiple Representation of Words

In both the TC and the bilingual settings, students were exposed to representations of words in numerous ways and numerous times. In Diane's class, words were represented in the following ways: speech by both the teacher and some students to which some of the students had access with the use of amplification devices; mouthing; signs both ASL and English-based; fingerspelling, drawings, and written text. In Tina's class all of the above representations were used with the exception of speech.

Speech. In the TC setting Diane and many of the students used speech while signing. This communication system is known as simultaneous communication (Sim-Com) and is often practiced under the guise of the TC philosophy or used to provide access to communication in settings where the use of speech is emphasized or where students have sufficient residual or amplified hearing to access speech. In Tina class, with the use of amplification, two of the students operate within normal limits of hearing, one has a slight hearing loss, four have mild hearing loss, one has moderate hearing loss and one has moderate to severe hearing loss. The two students with the greatest hearing loss with amplification- moderate (41- 55dB) and moderately severe (56 – 70dB) were in the class for only the unit on narrative writing and were moved a higher functioning group. The students who remained or joined the group for the second unit were either classified as within normal limits of hearing (0 - 15bB), slight (16 - 25dB) or Mild (26 - 40dB). There were brief periods when Diane used ASL without voice. Otherwise she used Sim-Com. The students also used Sim-Com except for Ben and Rose who signed. If students attempted to use speech only, they were reminded to sign along with their speech so that others could access their communication.

Mouthing. The mouthing that took take place in both class sites and which is being referred to here is not a reference to the mouth morphemes specific to ASL grammar and critical to conveying meaning in ASL signs. The mouthing that constitutes a representation of English words is more consistent with that done when Deaf people use one sign that has multiple English word meanings or more strictly speaking with the mouthing of English words minus the voice. In Diane's case there was a greater use of spoken English while she signed. Tina, who is Deaf and a proficient signer, would likely restrict her mouthing- during native-like signed communication- to the mouth morphemes that are features of the non-manual grammatical markers involved in

the phonology of ASL signs. There are a few occasions when she engages in fast paced exchanges with the students and her signing takes on all the native-like features of two adult proficient native signers. Otherwise, Tina consistently mouths the English words that corresponded to the signs she used. She does not use mouthing when signing concepts that are based on the visual spatial properties. This was done so consistently throughout her communication with the students

Signs. Class communication was primarily through sign. In Diane's class there was a mix of ASL and English-based signing, but in Tina's class only ASL was used. Much of the communication in sign made its way into print so students would have connected both known and new words to the ASL signs they used, whether there was a one to one correspondence or not. Communication in sign also meant that the students had comprehensible input when it came to the meaning of words. As students repeatedly read written text for the purpose of editing and revising they signed the words and phrases they were reading. Prior to editing text, students read the sentences and they are observed signing while reading to themselves to figure what editing was required. Even during the construction of a given sentence, after the teacher scribes what has been dictated, the students were seen signing the text that had already been written so as to generate the remaining portion of the sentence. When students worked during shared writing, they mostly signed without voice with their peers. For example, in Tina's class, when the students worked on a small group project, they only augmented their signed communication with voice when they interrupted their work to communicate with the teacher.

Fingerspelling. A constant in terms of word representation throughout SIWI lessons is the fingerspelling of words. According to Valli, Lucas, Mulrooney and Villanueva (2011) fingerspelling has very specific usage in ASL resulting from language contact with English such

as for spelling proper nouns as in names of places, people, books, and movies. Deaf people also fingerspell English words when an ASL sign has multiple English word meanings that may not be easily determined from the context. They tend to fingerspell for these other reasons: to emphasize; to represent spoken language representations of letters as in *fs-TV* for television; to express acronyms like *fs-FBI*; and to convey written electronic expression such as *fs-LOL* for *laughing out loud* (Valli et al.). Really, one can fingerspell just about any word, even though there is an established sign for that word (Patrie & Johnson).

There are three types of fingerspelling: careful, rapid and spelling in a lexicalized form. Careful fingerspelling is performed by a sequence of signs in equal duration and emphasis, each representing a letter in the written version of the word and this production triggers a reconstruction of the written version of the word (Patrie & Johnson, 2011). Careful fingerspelling is often signaled prior to performance by either looking at the hand to be used or pointing at it with the other hand and it is accompanied by English-like mouth movements. Rapid fingerspelling is performed with more speed, it is less complete, and often used when the receiver has already been primed to activate or retrieve the fingerspelled or written template for the particular word. Rapid fingerspelling functions like actual signs and the production is tied to the meaning of the word. Then there is fingerspelling that is a result of morphological processes known as lexicalization called lexicalized fingerspelling. Some of these processes involve the deletion of signs, addition or reduplication of movements, handshape, location or orientation changes, addition of a second hand, and addition of grammatical information (Valli et al.).

Most of the above uses and types of fingerspelling were evident in the communication used in both classes, and I found that both teachers and students used fingerspelling in ways that supported or reflected word recognition. There was a tendency to spell new words, words for

which a sign was being sought, and words needed in response to a question during sentence generation that was aimed at eliciting English vocabulary. In Diane's class, for example, one student was commended for using fingerspelling to help with decoding the word *stalk*. Sherry was observed signing the *S* in stalk and then mouthing the word talk while completing the fingerspelling. The students in Diane's class often fingerspell the words she is writing on the board. When the teacher spells words, she pays attention to the configuration of the fingerspelling which supports its receptiveness and she pauses at the end of a fingerspelled word as is consistent with careful fingerspelling. This pause at the end of a fingerspelled word is also consistent with the range between consultative to formal register that is appropriate for the discourse used in the ASL classroom (Fisher, Rothenberg, Frey & Ebrary, Inc., 2008), and it also serves to draw further attention to fingerspelling. The teacher would sign a word and then follow this up with fingerspelling or fingerspell the word and then sign it- a practice known as sandwiching in which signs and fingerspelling are alternated. A similar practice observed in the classrooms is known as chaining in which a sign, a printed or written word or a fingerspelled word is connected for the purpose of "emphasizing, highlighting, objectifying and generally calling attention to equivalencies between languages" (Humphries & MacDougall, 1999, p. 90; Patrie & Johnson, 2011). Chains may have up to three or four parts.

In the bilingual setting, fingerspelling is also very noticeable. Tina very often fingerspells words and so do her students. I wondered if fingerspelling was being used as a placeholder for ignorance of the sign for a word. Careful review of fingerspelling by the students revealed that they fluidly moved back and forth between fingerspelling and signing. There were times when my concern about fingerspelling being used as a placeholder appeared to be on Tina's mind as well. I would observe her asking a student who responded to one of her favorite questions, *What*

does that word say? by fingerspelling the word, to tell her the sign for the word or the meaning. There are many scenes where students appear to be having fun fingerspelling words that other students were generating for the English board. Tina herself repeats the fingerspelling of words with as much consistency as she does her questions, sometimes as much as three or four times before she allows the students to respond with the sign.

Drawing. The language zone is used heavily during translation from ASL to English. While it refers to a whiteboard space or sheet of paper most times, it is really a phase in the writing process specific to SIWI that supports the development of linguistic skills and meta-linguistic awareness as students move their ideas as expressed in a visual manner to closer approximations to English text. If students struggle to express themselves in ASL the teacher uses the language zone to come to shared understanding. This may be done by means of drawings, pictures, objects, gestures, roleplay, the use of a middle person in the form of another student (I was often amused when Tina would ask another student, *What is he/she saying?* while pointing to the student signing.), pursuing with leading questions or even circumlocution. Most often the method used to represent the word that were being translated was drawings and after completing the drawing, and arriving at the appropriate English word, it was standard practice to write the word next to the drawing.

Writing. Of course as mentioned earlier, there were many opportunities for students to write the words they were reading, signing and fingerspelling. They wrote during guided, shared and independent writing. Many of the words that they wrote were written repeatedly during planning, organizing, and then writing of English sentences. They also saw the teachers scribing the text that they dictated or writing words that were being used as they engaged in discourse with the students.

The Role of Multiple Representation of Words in Word Recognition.

There are numerous ways of expressing the same concept and both teachers and their students took turns to represent the word meaning they were communicating by expressing it in different ways. This included speech, mouthing, signing, fingerspelling, drawing and writing or typing. Easterbrook and Baker (2002) refer to this variation in representation as recasting

Recasting is consistent with pragmatic theory, which tells us that there are numerous ways of expressing the same intent. In recasting, students and teachers take turns representing concepts by saying something in a different way, by demonstrating graphically, by writing it in yet a different manner, and by commenting on the recast, among other actions (p. 184).

These phenomena of varied and repeated representations of words aligns with our earlier consideration of Logan's (1988) Instance Theory, which addresses the quality and quantity of repeated instances of exposure. The multiple ways of representing words strengthens the quality of the representation and adds to the number of instances to which the students are exposed to the word. Sadoski and Paivo (2001) explain that

Cognition in reading and writing consist of the activity of two separate coding systems of mental representation, one system specialized for language and one system specialized for dealing with non-verbal objects and events...The linguistic coding system is referred to as the verbal system; the non-verbal system is often referred to as the imagery system because its main function involves the analysis of scenes and the generation of mental imagery (p. 43).

The critical element of this dual coding theory is that the two systems are linked and that learners are trained through a direct stimulation of the dual imagery and verbal system. The multiple representation of words in SIWI lessons can be classified into either one of these two systems.

Padden and Ramsey (1988) identified fingerspelling as a specific staple form of signed discourse in the bilingual classrooms they studied that provided access to English words and directs attention to print. Educators of the D/hh have long thought that fingerspelling played a significant role in the development of reading skills “due to its direct 1:1 relationship between handshapes and English letters, and have devised ways to use fingerspelling systematically (using sequences called ‘chaining’ and ‘sandwiching’) when introducing new English vocabulary” (Stone, Kartheiser, Hauser, Petitto & Allen, 2015, p.3; Humphrey & MacDougall, 1999; Patrie & Johnson, 2011). The reference to the 1:1 relationship between ASL fingerspelling and English letters involves the fact that each sign in the ASL signed alphabet corresponds to a letter in the English alphabet. The chaining and sandwiching refers to the practice of introducing a word in a sequence of associated forms such as fingerspelling, signing and then fingerspelling again or signing, pointing to the written word and then fingerspelling. Padden and Hanson (2000) argued that fingerspelling operated as a mediational tool that provided a foundation for mapping the phonemes of English words. In a study that compared fingerspelling and reading performances in D/hh readers ages 8-14, Padden and Hanson found strong correlations between the two variables and noted that the children were able to identify English words that were fingerspelled once, with about 95% accuracy.

Stone, Kartheiser, Hauser, Petitto & Allen (2015) stated that in light of the fact that young D/hh children in the pre-reading stages are able to discern the “segmental and distributional probabilities of English letter combination” (p. 4) as a result of their experience

with fingerspelling, there is reason to make connections between the mastery of fingerspelling and skills in word recognition. In a study involving 31 D/hh participants from Gallaudet University and the Washington, D.C. metropolitan area, Stone, Kartheiser, Hauser, Petitto & Allen controlled for “cognitive functioning, working memory, age of ASL acquisition, ASL proficiency, and fingerspelling skill as predictor variables of reading fluency” (p. 8) and their findings revealed that fingerspelling skill significantly predicted reading fluency over age of ASL acquisition and ASL proficiency. They also found that proficiency with decoding fingerspelled words predicted proficiency with decoding English printed words. They conclude that early experiences with fingerspelling augurs well for reading achievement as those experiences serve as a platform for accurate and automatic word recognition.

As mentioned earlier there was a predominance of two of the three types of fingerspelling in both classes. The teachers are observed using careful fingerspelling the first time they introduce less familiar or new words. The signals they use to draw attention to the hand used for fingerspelling tells the students to shift either their main or peripheral gaze from the face to the hand. The way that they perform the sequence of fingerspelled letters is such that each sign is distinctly perceptible, with equal duration except for the last sign and that the intention to perform the spelling in this way is a given understanding on both the part of the signer and the receiver. Tina and Diane’s use of careful fingerspelling allows the students to be primed cognitively to either activate or retrieve the appropriate fingerspelled or written template for the word (Patrie & Johnson, 2011). In fact, this pattern of careful fingerspelling also serves to ascribe to those words a status of contextual prominence. In so doing it communicates to the students that those words will be repeated in the dialogue. Tina is observed accompanying the

fingerspelling with mouth movements or in the case of Diane either mouth movements or voicing, that matches the vocal production of the word- not the letters of the word.

Tina and Diane would follow up future occurrences in the discourse of a fingerspelled word with rapid fingerspelling. In these subsequent fingerspellings, since the students have already been primed to activate or retrieve the template for the word, the reduced and rapid serial presentation of the fingerspelling is sufficient to recall the active template that is now tied to the meaning of the word (Patrie & Johnson, 2011). This is cognitively similar to what happens when signers present technical information, and they invent on the spot *nonce* signs like an *S* revolving in mid air to represent Saturn, and the nonce sign serves to temporarily express the intended meaning. The rapid fingerspelling now becomes the means for direct lexical access to the meaning of the word.

Attending to Language

The primary access to language for D/hh learners is through their visual sense. However, their attention to language competes not only with many other visual stimuli in the learning environment but with their own inattentiveness that may be related to motivation, Attention Deficit Hyperactivity Disorder (ADHD), Behavioral disorders, lack of self-regulation or any of a number of potential distractors that are off task. Learning is maximized the more learners are on task and this requires getting and maintaining their attention. For hearing learners, they are still able to access language even if they are attending to another source of visual stimulation. This is hardly the case with D/hh learners, even though we have established that they have more acute peripheral vision (Dye, Hauser, & Bavelier, 2008). A recurrent motif in both class sites was the relentless drive to get students to attend to the instructional and learning activities taking place. Various means were used to get students to attend to language that included: pointing at the text;

dramatic body movements; raising the hand and waiting for attention; use of a bean bag; and a repertoire of behavioral management strategies some of which were tied to reward systems.

Attending to words in text. When the teachers read to the students or when students read during the repeated reading of co-constructed text there was a consistent effort to point to the words while reading. This pointing at the words occurred whether the type of reading was print-based signing or *back translation*, *storysigning* or *storyreading*. If a point was being discussed and there was a print or electronic version of the concepts, the teachers would inevitably point to the words and ask *What does it say?* With the electronic versions of model text, Tina made use of PowerPoint features to label and underline the areas of the text she was discussing. Additionally, in both classes, students were conditioned to locate the text on the planning sheets that they had used to generate English sentences and to cross or check these off once the sentences were written down, edited and revised. While this was only observed in Diane's classroom, I thought it was worthy of note that she required students to count words and sentences of their published text. I perceived this as another opportunity for students to attend to words in the text.

Attention grabbing strategies. Before proceeding with the next instructional or learner activity, the teachers would always ask students if they were ready. This was typically done by signing one of many discourse markers that Smith and Ramsey (2004) identified in their study. Both Tina and Diane frequently used *READY!*; *OK!*; and *NOW!*. It was particularly noticeable in both the TC and bilingual settings at the start of the rereading of text for the purpose of collaborative editing and revising. In the bilingual setting however, the students in the class demonstrated significant tendencies toward inattention that in one case was attributed to a diagnosed disorder, but with two of the other students it appeared to be a failure to exercise self-

regulation. Tina never moved on in the lesson until she had students' attention and she accomplished this invariably by asking if they were ready or by raising her hand. The students had internalized this so much that Alice would imitate the strategy when she realized that the teacher was about to move on and the boys in the class were playing or in some other way distracting themselves. Diane in the TC setting would typically voice and sign *OK* and students right away would get back on task. She did however employ dramatic movements to draw students' attention to specific concepts being developed in the discourse. Those movements included stomping the ground while lowering the hips, signing one idea while bodyshifting to the left and then signing the other idea as she bodyshifted to the right, exaggerating the configuration of fingerspelled words so that the fingerspelling flowed from the left side of the body to the right side with a dramatic pause at the end and throwing a bean bag back and forth between the student making a contribution and herself. The latter was explicitly explained to the class as a strategy meant to get them to be aware of any student about to contribute to the class discourse and to attend to it.

Behavior management. As mentioned before, the students in Tina's class exhibited a lack of self-regulation that was not typical of your average third grade class. Her patience and calm amidst the constant inattentiveness maintains the positive learning atmosphere that reduces anxiety and keeps students open to input (Krashen, 2003). Yet she was persistent in monitoring and managing their attention. Tina used a range of strategies that became more complex in nature. These included: awarding star stickers for meaningful participation; placing marks and later smiley faces or sad faces next to their names on the whiteboard that awarded or deducted minutes of free time; marking stars on a sheet of paper placed on her desk that had some other reward system attached to it.

Role of Attention to Language in Word Recognition

There are many strategies used to direct attention to printed words and these include both verbal, non-verbal and electronic. Roy-Charland, Perron, Boulard, Chamberland and Hoffman (2015) examined the role of electronic highlighting and pointing at text with the fingers in getting increased attention and matching fixations on print in children from preschool to grade two. They used a combination of easy and difficult books that were accompanied with voice. The children were exposed to three conditions for reading text: neutral, pointing and highlighting. They found that there was increased attention and longer fixations when text was pointed at or highlighted. What I found even more interesting is that the half or more of the fixations on text were a mismatch for the voiced narration. I thought of the implications for this tendency on the signing that is accompanied by voicing or mouthing when text was being read. It would make sense that the consistent pointing at the text would support increased attention to the text itself and promote reading of the print instead of students merely copying the signing.

While it seems intuitive that the more time on literacy task on the part of students the more gains they would in literacy skills development, Sáez, Folsom, Otaiba and Schatschneider (2012) investigated role of student attention for predicting word reading achievements among 432 students. They found that of three predictive factors: attention-memory, phonological awareness and vocabulary knowledge, that attention-memory was the strongest. It was explained that attention-memory works to support memory processing which ultimately results in sustained focus and resistance to forgetting. When students attend to literacy instruction they are better able to manage the cognitive demands that are critical to learning in the elementary classroom environment. Sáez, Folsom, Otaiba and Schatschneider found that students with weak attention

exhibited an ongoing dependence on teacher task orienting activities. They also found that teacher practices related to task orienting activities, behavior management, individualizing instruction and scripts of redirection were related to good reading performance depending on how much the individual students relied on these practices to benefit from literacy instruction.

Smith and Ramsey (2004) identified several strategies that the Deaf teacher in their study on classroom discourse used to offer the right to communication. All of the strategies were evident in Tina and Diane's classrooms and they include: attentiveness to visual access; regulating the discussion so that students had a clear view of each contributor; arranging seating in a semi-circular format; and removing the desks when they became a source of distraction. The students in Smith and Ramsey's study also exerted their communication rights in much the same manner as the students in Tina and Diane's class. Alice very often pleaded with Peter and Russel to pay attention and even though the three boys were often the source of off topic comments or distracting play, they frequently took the initiative to get the attention of their peers to the discourse. They felt free to ask for repetition, and quickly took control of the bean bag process introduced to get everyone's attention on the speaker. The social dimension in both classes that supported attending to text also made a significant contribution to the quality of learning. The students were very supportive of each other, even offering to don the role of the teacher when the teacher's attention was temporarily shifted from the writing instruction or during opportunities for shared writing. While the culture of turn taking in Diane's class vested in her more control than in Tina's class, students were allowed to hold discussions with their peers even though the teacher was holding the floor. Additionally, the raising of the hand for both the teacher and the students in Tina's class was the customary way to signal and access a turn to make a contribution.

It is clear that the attention getting and behavior management strategies observed in both classes and particularly the persistence in application of these in the bilingual setting where students were more inclined toward a lack of self-regulation, had a critical role in supporting the word recognition skill development of the students.

Chapter Conclusion

In this chapter I invited you to peer into the daily classroom activities of students receiving SIWI instruction over two units in two different settings. I used this to prepare you for a later identification of the practices and routines that I found supported literacy skill development with particular reference to word recognition skills. You were then guided through a discussion of why these practices and routines from a theoretical perspective relate to student gains in word recognition skills. In the next chapter I will review the practices and routines from the teacher and learner perspective and offer some recommendations for future development of SIWI and the teaching of reading and writing off the paradigmatic platform of the reading writing connection.

Chapter 5: CONCLUSIONS AND RECOMMENDATIONS

The aim of pursuing this study was to document and understand the ways in which the teaching and learner practices and routines of the participants were realized, the potential impact on student achievement in the area of word identification skills, the implications for professional development of teachers using SIWI and the goals for effective instructional and learner practices and routines in lessons designed to teach reading and writing in a simultaneous approach. This study specifically addressed the following research questions below: 1) What were the instructional practices and routines of our top performing teachers using SIWI that supported the development of word identification abilities while in the process of developing students' proficiency in writing? 2) What were the learner practices and routines of students in SIWI lessons who made the most gain that supported the development of word identification abilities while in the process of developing their proficiency in writing?

Instructional Practices and Routines

Engagement in Cognitively Demanding Classroom Discourse.

The teachers in both the TC and the bilingual classrooms engaged in cognitively demanding classroom discourse throughout the lessons. Students were required to think through their responses. The teachers also extended the discourse beyond the here and now to make connections to their personal experiences and those of the students. They connected to world knowledge that was both curriculum related and that which constituted general knowledge. These extended discourses were appropriate for the small group of students that is consistent with D/hh classes as it allowed for active involvement by many if not all of the students. Harris (2010) found that many opportunities were seized for extended discourse by Deaf teachers of D/hh learners in bilingual settings during transition between lessons. At the end of lessons, there

was often some student initiated stimuli to extend discourse but it was often specific to one student and I were never really privy to the discussion as the teachers walked by and switched off the cameras. A key feature of the classroom discourse was persistence in questioning. There were some differences in the style of questioning, the repetition of questions, and the purpose for which questioning was used. Some of those differences were specific to the bilingual setting where the instructor was Deaf. In the bilingual setting, the teacher used many more wh-questions, she repeated her questions at least three or four times before requiring a response and some of her question scripts were intended specifically to develop the back translation skills of the students.

Involvement in a High Volume of Reading and Writing.

Many opportunities were seized upon for the teacher to read and write in high volumes. In the bilingual setting, the teacher read for the students from internet sources and their Social Studies class notebook. She was consistent in reading using storysigning or storyreading with an emphasis on back translating to ASL. Both teachers read from several model texts that illustrated the features of each genre of writing that they were working on. The model texts were either different genres of children's literature or text written by the teachers- either way they constituted authentic connected literature. The teachers also wrote on the whiteboard space that served as part of the language zone, the writing spaces for planning and writing –whether it was on the whiteboard, a large sheet of paper, an easel or on planning sheets for individual students. For each genre, they worked on several writing projects and this was instrumental in increasing the opportunities for the students to observe the teacher writing English words. The more they were exposed to words when written by the teachers, increased the opportunities for encoding, storage and retrieval without the added cognitive burden of personally hand writing the text.

Representing Text in Multiple Ways.

The teachers represented the language of text in various ways in the classroom. They spoke the words, signed the words, mouthed the words, wrote the words, acted out the words, fingerspelled the words using careful and subsequent rapid fingerspelling, drew the word's meaning and labeled the drawings. They made frequent references to the varied representation either in sequence in a kind of chaining or sandwiching effect or by referring back at later times during the discourse. This duality of coding that took advantage of different ways of expressing words and their meanings in both verbal and non-verbal forms served to immerse the students in numerous opportunities to be exposed to words.

Attending to Language.

If students are not attending to the learning experience, they are not going to benefit from it, even in the face of high quality teaching. Teachers were consistent in calling the attention of students throughout the lesson. They used the sign *READY!* that was always accompanied by the raised brow and did not proceed until everyone was ready to attend. Tina employed additional task-orienting signals such as raising the hand and waiting or performing the signed form of *HEY-YOU-THERE*. There were times when getting the students' attention required managing a lack of self-regulation and Tina came up with a variety of new and interesting ways to manage the behavioral problems and get the students back on task. Much valuable class time was lost addressing behavioral issues and I was especially concerned with this when I thought of the high quality teaching that these students were privileged to have.

Learner Practices and Routines

Repeated and Wide Reading

Students in the bilingual class were required to read from internet and book sources as part of the planning phase in preparation for expository writing. They did this independently and at other times at the teacher's direction. They read text written on the writing surface used as a feature of the language zone, on the spaces dedicated to planning, organizing and writing English sentences. They read prior to editing English sentences that they constructed and then each time a new chunk of edited and revised text was being reread, it was read from the beginning of the passage. There were also times when the students were required to read from model text being used to teach the genre-related features of writing. In the bilingual class, their reading took on a different approach as it involved back translation as they moved from the English text to signing ASL.

Frequent Writing.

In the bilingual classroom the students did most of the writing, both when planning, organizing and writing English sentences. They wrote on the board or on their individual writing sheets. The students in this class also wrote on their own in independent writing sessions. Writing took place somewhat differently in the TC setting. While the teacher did most, if not all of the scribing, it was the students who actually generated all of the text. In the TC setting independent writing was done by another teacher in a different classroom.

Representing Words in Multiple Ways

The students in the TC setting spoke and signed using SimCom. They fingerspelled very often either as an alternative to signing or to accompany a signed word. When they worked together without interacting with the teacher, they were observed signing and mouthing as well

as fingerspelling. In the bilingual class, they were given more opportunities to write words, draw their meaning, and to act out the meaning of words. They too, mouthed and signed words and fingerspelled words either as an alternative to signing or in accompaniment.

SIWI and the Reading-Writing Connection

The SIWI instructional framework exemplifies the instruction that fits within the paradigm of reading-writing connection. The fact that it is not a writing strategy but a framework with driving principles that guide evidenced-based instructional practices gives SIWI the flexibility to meet the individual needs of D/hh students in any grade level, any educational and communication philosophy context and in any subject discipline. This is consistent with teaching in the radical middle- a hallmark approach to instruction historically associated with the reading-writing connection and which endorses the use of evidence-based solutions to issues impacting learners without bias toward any single instructional approach or in the case of the D/hh, modality of communication.

Many of the instructional and learning practices and routines that were identified in this study as contributing to gains in word recognition have been identified as critical aspects of the reading-writing connection. Students engaged in authorial reading each time they read text in preparation to edit and revise and when they engaged in rereading the revised English sentences before continuing to write. They also participated in authorial reading when they reread text in response to the teacher's frequent reminders to consider their audience which was often followed up with question scripts to develop their understanding of how awareness of the intended real audience impacts their writing and their reading of the published text.

The classroom discourse and its dynamics in regard to written text that we saw in both SIWI classrooms resonates with Nystrand (2006) who confirms that such discourse develops

reading comprehension skills. The wide reading accomplished by means of research writers do as they plan for a writing project and when they read model text that exemplify genre related features, exposes students to sentence structures, contextual language and a wide vocabulary that can be used to enrich their writing and reduce the struggle that students often face as they try to express their thoughts down on paper. That aspect of SIWI, coupled with the linguistic skill building and the development of meta-linguistic awareness that we saw occurring through, persistent questioning and the language zone- used to guide students through the translation challenges of working between two language modalities with unique grammatical properties- contributed to the linguistic-experiential reservoir that D/hh students can draw on as they read and write (Rosenblatt; 1988).

Moreover, the extended dialogue that made connections to students and teachers' personal experiences and to their world knowledge, allowed for students to practice fluidly moving between an efferent and an aesthetic stance when transacting with the text. Students also had the opportunity to write about information they had read. While preparing for expository writing in both settings, the students wrote to real audiences about curriculum related material, and this preparation involved doing research that required reading from a variety of sources. This pattern was in sync with the functional view of the reading-writing connection that supports writing to learn in the content areas. Indeed, SIWI is to be regarded as a model instructional approach situated in the reading-writing connection paradigm.

Limitations of the Study

There are distinct advantages to being in the classroom when the data being analyze are classroom lessons. While I felt like a wall flower looking at the lessons through the videos, there were elements of instruction, teacher student interaction and student to student interaction that I

missed out on either because I was not on hand to ask questions about it or because the camera view was temporarily blocked by participants while they were engaged in the lesson. The teachers and the students did make a concerted effort to ensure that the camera view was unobstructed, but there were a few critical occasions where the view was blocked.

Some students were removed from the class at the end of one unit of instruction and although they were placed with a teacher with many years of experience teaching SIWI and who team taught with the teacher involved in the study, it limited further analysis with respect to how the individual student's scores were predicted by their own involvement in the practices and routines identified.

Recommendations

The researchers involved in developing SIWI are keen on identifying ways that classroom instruction can be adjusted to further develop the literacy skills of the students. After carefully analyzing the data from these two classes, I believe that SIWI instruction in all classes would further benefit from giving attention to four specific practices and routines. These are:

- 1) The practice of having individual students come up to the writing board and take turns writing the sentences themselves will increase the opportunities for writing on the part of students. The more they write the words, the greater the impact on attention, storage and retrieval. Students should also engage in independent writing with the same teacher who takes them through guided and shared writing. The independent writing that they do should be done with minimal support from the teacher that is of a strategic nature where the teacher would point them to the steps they took when they wrote together to problem solve and move forward in the writing. The teacher would also seize this opportunity to reinforce the self-regulatory scripts that

work toward persistence in the writing process and which build identity as writers (Harris, Graham, Mason, & Friedlander, 2008).

2) Students need to engage in more wide reading opportunities and one way to do this that is additional to the reading of various genres of text related to the writing genre, is to have students routinely conduct research as part of their planning to write. This was done in the bilingual setting but based on the data for the second semester of the Year 2 project, it was noticeably absent in the TC setting. I believe it should be structurally embedded into the instructional practices of SIWI.

3) When students engage in repeated readings, individual students from the class should come to the front of the class and lead the reading. The teacher's role would first be to monitor the reading to ensure that the signs being used by the lead signer are conveying meaning equivalence. Secondly, this approach would allow the teacher to more closely monitor the other students who we have seen to be actually reading the text itself and not necessarily merely copy the signing. I believe that this pattern of students reading and signing the text themselves is a more efficient approach to the rereading, but when the teacher is the one taking the lead at the front of the class, it limits how much the teacher is able to monitor not only attention to the rereading task, but accuracy in word recognition and fluency of reading.

4) I am a supporter of teaching in radical middle when it comes to being flexible about the approaches to teaching D/hh learners and selecting an approach that meets the needs of the diverse students we find in this cohort of learners. At the same time, I would recommend that the practice of back translation that we saw exemplified in the reading of English text in the bilingual setting be added to- note not necessarily replace- the practice of print-based signing.

Regarding the SIWI framework, I would recommend that consideration be given to formally including in SIWI as a major pillar, the concept of a **high volume of repeated and wide reading of text**. While this practice and routine is embedded in the major driving principles that is aimed at building linguistic skills and developing meta-linguistic awareness and the minor tenet of using examples and non-examples of writing genres, it would work toward teachers consistently structuring instruction that would result in increasingly repeated and widely varied reading opportunities. Additionally, valuable reading assessment measures should be added to the battery of assessments now being used in SIWI efficacy studies- pre and post- such as an informal reading inventory like the *Qualitative Reading Inventory- 5* (Leslie & Caldwell, 2011) and a standardized reading assessment instrument, both of which would provide information on reading gains beyond word recognition achievement.

I would also recommend further studies that makes use of the same data. One of the studies will be used to look more closely at the individual students in the bilingual setting who were with the teacher for the entire second semester of Year 2 and analyze how their scores were predicted by their individual interactions with the practices and routines identified. A second study should be used to incorporate the data from two of the low performing classes to identify the presence or absence of the practices and routines identified in the current study. A third study will involve performing a multiple regression analysis to see how strong these practices and routines were as predictors of word recognition. A fourth more in-depth analysis of the ways in which the teachers used recast as they represented words in multiple ways would prove insightful as a model of this aspect of exemplary instruction that serves D/hh learners.

Chapter Conclusion

This chapter presented the conclusions I drew from this research as to the instructional and learner practices and routines from a theoretical perspective, that contributed to the development of word recognition skills in D/hh learners participating in SIWI lessons. I also identified some recommendations for strengthening the role that the instructional and learner practices and routines could play across educational and communication philosophy settings. Some limitations of the present study were identified and a recommendation made regarding the SIWI framework. The findings from the study are situated in research on successful teachers and students. When I commenced my doctoral program, I read Michael Pressley's closing speech to the Literacy Research Association just before his death. His philosophy is echoed by Mohan, Lundeberg and Reffitt (2008) who talked about his favorite place when doing research on highly effective, engaging literacy instruction, as being in the elementary classroom. In reviewing his life's research, Mohan, Lundeberg and Reffitt listed the characteristics of effective instruction that Pressley identified and I was pleased to have observed instruction in these two classrooms that mirrored all of them. It is my hope that all teachers of the D/hh embrace the findings of this study in the literacy instruction.

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VITA

Paulson Skerrit was born and grew up in Trinidad and Tobago. He worked with the School Library Services for 16 years and then accepted an invitation to teach at a school for the Deaf and hard of hearing. After 6 months he left to obtain his teaching diploma and went on to pursue a Bachelor of Education degree with a concentration in Special Needs Education. During this time, he served as a sign language interpreter in both the court and education settings and established his own interpreting and reading intervention services company. Paulson Skerrit also worked with colleagues to set up the Trinidad and Tobago Association of Sign Language Interpreters and the first Trinidad and Tobago Sign Language Corpus for linguistic analysis of the language situation among his country's Deaf signers. In 2010, he obtained his B.Ed.: Special Needs Education, graduating with First Class Honors and received a post-graduate scholarship from the Government of Trinidad and Tobago with funding to pursue studies in a Masters and Doctorate program. He accepted a Graduate Teaching Assistantship in 2010 at the University of Tennessee that provided him with experience teaching at the college level, and over the past 5-½ years, he has taught both undergraduate and graduate level courses as the instructor of record. In December 2011, he earned a Master of Science in Education from the University of Tennessee, and in January 2012 he commenced pursuit of his doctoral studies. Upon acceptance of this dissertation, Paulson will have graduated with a Ph.D. in Teacher Education with a concentration in Literacy Studies from the University of Tennessee at Knoxville in 2015.