

## **PRACTICES AND ROUTINES IN SIWI LESSONS THAT DEVELOP READING PROFICIENCY FOR D/HH LEARNERS.**

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The average performance of Deaf and hard of hearing (D/hh) students on tests of reading comprehension is several grade equivalents below their high school hearing peers. This study explored how the reading-writing connection evident in instruction driven with a high fidelity to the principles of Strategic Interactive Writing Instruction (SIWI) addresses the literacy challenges of D/hh learners. The video footage of SIWI lessons in two grade three classrooms 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. 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.

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). 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). This study was used to investigate the range of instructional and learner practices and routines of participants (teachers and students) engaged in Strategic Interactive Writing Instruction (SIWI) lessons in an ongoing study on student achievement. The goal was to identify, in the context of the unique classroom settings involved in the study, those practices and routines specific to the application of the principles of SIWI that contributed to the development of word identification skills as one measure of reading proficiency.

### **Literature Review**

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, 2005; 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 American Sign Language (ASL) or their native sign language has a structure that is different from English and some unique grammatical properties that are modality specific (Wolbers, Graham, Dostal, & Bowers, 2014).

### **Strategic Interactive Writing Instruction (SIWI)**

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) demonstrated the "reciprocity of language learning" (p. vii) 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

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fluency and writing independence of D/hh students and reported gains in both outcomes.

SIWI, far from being a strategy for teaching writing, is actually a framework that has several pedagogical pillars that guide writing instruction. The pillars or driving principles are listed and defined in Table 1. SIWI can be used to teach any genre of writing. 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).

**The Reading Writing Connection**

Teaching reading and writing as a simultaneous approach has been grounded in research and fore-grounded in solid theoretical frameworks. 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.

**Table 1. Driving Principles of SIWI and Definitions**

<b>Principle</b>	<b>Definitions</b>
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.

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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 converge 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.

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, analyse 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).

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 (Tierney & 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.

## **Research Method**

### **Context for the Present Study**

There were 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, 2008, 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 one-half hours of SIWI were 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.

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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 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 in grades 3-5 to improve writing and language outcomes. The design of this project had 63 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, 1965).

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 with different teachers in the study and the range in scores for teachers' fidelity to SIWI (60.4%-89%) begged for a follow up study of the practices and routines that occur during co-construction of text.

### **The Current Study**

The recently mentioned need for a follow up study was the focus of the current study. 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), there was concern 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.

**Participants.** The participants for this multiple-study case comprised of two grade three classes from the treatment group in the second year (Year II) of the above-mentioned 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 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. 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.

**Data collection.** Classroom lessons throughout the year were recorded using a video camera that captured both teacher and students' interactions. 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. Assessment data used to select the two grade three classes that made gains in writing, language accuracy and complexity, ASL sign receptive skills and word identification 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

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identification ability using the Slosson Oral Reading test-Revised (SORT-R) (Slosson & Nicholson, 1990).

**Data analysis.** A comingling of an inductive and interpretive model of data analysis was used to analyse the data. 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. Initial viewing of the video and interview data was done to establish *frames of analysis* that framed the data into analysable parts.

The next step into the process of data analysis was identifying the *domain categories* that emerged around nine semantic relationships (Spradley, 1979). 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 was 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 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 were formed. This step in the analysis also added to 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 encapsulated what it all meant. As the researcher looked across domains, a careful search for similarities and differences were made. 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 involved peer debriefing with the developer of the SIWI model and a monitor who visited the case sites and observed several 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.

## **Results**

### **Instructional Practices and Routines That Develop Skills in Reading**

**Engagement in cognitively demanding classroom discourse.** The teachers in both the total communication (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. A key feature of the classroom discourse was persistence in questioning. Particularly, 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 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. 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.

**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 labelled the drawings. They made frequent references to the varied representations either in sequence in a kind of chaining or sandwiching effect or by referring back at later times during the discourse.

**Attending to language.** Teachers were consistent in calling the attention of students throughout the lesson. They used the ASL sign

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*READY!* that was always accompanied by the raised brow and did not proceed until everyone was ready to attend. The Deaf teacher 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 the Deaf teacher came up with a variety of new and interesting ways to manage the behavioural problems and get the students back on task.

**Learner Practices and Routines That Develop Skills in Reading**

**Repeated and wide reading.** Students were required to read either independently or at the teacher's direction, from Internet and traditional text sources as part of the planning phase in preparation for expository writing. They read text written in the *language zone*- a space used to build meta-linguistic awareness and to revise and edit text toward closer approximations of written Standard English- as well as on the writing spaces dedicated to planning, organizing and writing English sentences. They read prior to editing English sentences and then each time a new chunk of edited and revised text was being reread, it was read from the beginning of the passage. In the bilingual class, their reading took on a different approach as it involved back translation as they moved from the English text back 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. 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 instruction that fits within the paradigm of reading-writing connection. 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. The wide reading accomplished by means of the research writers did as they planned for a writing project, and when they read model text that exemplified genre related features, exposed students to sentence structures, contextual language and a wide vocabulary that was used to enrich their writing and reduced the struggle students faced as they tried to express their thoughts down on paper.

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.

### **Significance**

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). This study also had several implications for teachers of the D/hh 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

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read-write connection on both the level of instructional practice and learner skill development.

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