Writing Instruction as an Authentic Context for Targeting Speech and Language Therapy Goals for Deaf and Hard of Hearing Children

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Note: Although ASHA supports the use of person-first language, the deaf community prefers identify-first language. Since the population of students referenced in this manuscript involves children who are deaf and hard of hearing, we will follow the preferences of that community and refer to them as deaf/hard of hearing individuals.

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Abstract

Purpose: This tutorial describes how a speech-language pathologist (SLP) might incorporate writing-based principles into therapy sessions to target a variety of speech and language goals for Deaf and Hard of Hearing (DHH) children in addition to writing. We present an illustrative example of one SLP's experience implementing Strategic and Interactive Writing Instruction (SIWI), an approach to writing instruction designed for DHH students, within a public elementary school setting.

Method: We motivate this tutorial by first reviewing the literature related to the challenges for SLPs in targeting written language within therapy settings and then discuss writing and communication difficulties for DHH students. We describe the components of SIWI with illustrative examples of how one SLP applied these principles within her therapy sessions with DHH students. The SIWI instructional approach integrates well with the roles and responsibilities of an SLP in providing therapy across a variety of communication domains for the DHH students. This tutorial describes how the SLP scaffolds production of various morphological and syntactic linguistic structures as a natural part of co-creating text with her students. The highly interactive nature of SIWI allows for targeting pragmatic language goals with student-student and student-SLP interactions. Students also have opportunities for practicing articulation when generating or revising ideas for the co-created text and when rereading the text.

Conclusions: SIWI provides a framework to address DHH students' speech and language goals within authentic writing activities which may support increased generalization into classroom academic tasks. We provide suggestions about how an SLP can incorporate the principles of SIWI into therapy sessions to integrate writing instruction with the various speech and language

goals they already target as a part of implementing a student's Individualized Education Program.

Keywords: writing instruction, writing intervention, speech-language pathologist, clinical practice, deaf

Writing Instruction as an Authentic Context for Targeting Speech and Language Therapy Goals for Deaf and Hard of Hearing Children

Writing is a complex linguistic activity that relies on skills across a variety of language domains including syntax, vocabulary and other areas of semantics, and metalinguistic knowledge. It further requires application of other cognitive abilities such as considering the audience, planning, and goal setting among other executive functions. There is a large degree of overlap between the types of goals that speech-language pathologists (SLPs) work on in therapy and the skills that are required for creating written text. Not only is there overlap, but the American Speech-Language-Hearing Association (ASHA) has published a position paper outlining the SLP's role in providing assessment and intervention for writing, indicating that "SLPs play a critical and direct role in the development of literacy for children and adolescents with communication disorders" (ASHA, 2001, para. 1).

Even so, many SLPs report inadequate training in graduate school for addressing writing (Blood et al., 2010) or other barriers to implementing written language assessment or intervention. Ehren and Ehren (2001) reported a number of personal and interpersonal barriers to implementing written language assessment and treatment including the belief that some SLPs may hold that their role is to specifically support spoken language. There is also the perceived loss of autonomy if adhering to district or state guidelines for writing instruction, or unfamiliarity with the guidelines. Further, SLPs are frequently expected to coordinate assessment and treatment for increasingly complex and diverse caseloads with approximately 50 students on average per SLP with a large range of students supported (i.e., between 10 and 96 students in one study; Brandel, 2020). High caseload numbers and paperwork requirements may result in SLPs questioning whether they have the time to integrate writing into their sessions (Katz et al., 2010;

Woltmann & Camron, 2009). Here we present the argument that structured writing instruction can address some of these barriers, resulting in more streamlined work on the part of the SLP and greater generalization of language skills for students with communication disorders, particularly for Deaf or Hard of Hearing (DHH) children. While this is not the first time this suggestion has been made (see Nelson et al., 2001), ASHA's recent report on SLP Caseload and Workload Characteristics indicates that only 36% of SLPs regularly serve students in the area of reading and writing and those SLPs serve, on average, a caseload of 13 students with reading and writing goal areas (ASHA, 2020). There clearly remains a large number of SLPs for whom writing instruction could play more of a role in their day-to-day clinical practice.

The Strategic and Interactive Writing Instruction (SIWI) approach to writing instruction has been studied across a number of studies with DHH students who use a variety of communication approaches (Bowers et al., 2018; Dostal et al., 2019; Wolbers, 2008; Wolbers et al., 2015, 2022). Although it has been primarily used by teachers during classroom writing instruction, we present here a case study describing how SIWI has been integrated into treatment sessions by a speech-language pathologist in order to target a variety of speech and language skills within the authentic functional activity of writing where authentic refers to the fact that the activity of writing has a real purpose and a real audience

Communication Challenges for DHH Children

DHH children frequently present with communication challenges due to reduced access to communication (e.g., Hall, M., Hall, W., & Caselli, 2019; Hall, W., 2017). High quality early intervention and educational instruction as well as full access to communication is necessary for DHH children to progress appropriately in language skills (Hall, M., Hall, W., & Caselli, 2019; Lederberg et al., 2013; Meinzen-Derr et al., 2020; Moeller, 2000; Wolfe et al., 2021). Producing

the written form of a spoken language such as English is an area in which DHH children frequently require additional instruction and practice due to a variety of factors. These factors include limited first language competency seen in cases of language deprivation, approaching the task as a second language learner (for those whose primary language is a signed language), or through difficulties in accessing all of the spoken language phonemes via cochlear implants or hearing aids (e.g., Hoffmeister & Caldwell-Harris, 2014; Lederberg et al., 2013; Wolbers et al., 2014). Therefore, access to an evidence-based approach designed specifically with the needs of DHH learners in mind provides professionals with confidence when implementing high quality instruction. SIWI is one instructional approach to writing that has been tested with DHH students in a variety of states, educational settings, communication styles, and hearing levels (e.g., Dostal & Wolbers, 2014; Wolbers, 2008; Wolbers et al., 2013; Wolbers et al., 2015; Wolbers et al., 2021).

For this tutorial, we follow identity-first language to refer to DHH children. Although the American Speech-Language-Hearing Association advocates for the use of person-first language (e.g., an individual who is deaf or hard of hearing), the Deaf community in general prefers identity-first language. There are different reasons and goals for each of these styles of language (such as emphasizing the person over their disability vs. expressing cultural and identity pride) and the American Psychological Association's publication manual, 7th edition (2020) allows for either type of language to be used depending on the expressed preference of the people within that disability group. Flink (2021) and Duncan and O'Neill (2020) discuss the issues of person- and identity-first language in further depth, including how this discussion can relate to DHH individuals. Since the Deaf community as a whole prefers identity-first language, we will follow that style here. It is important to note that not all individuals who are deaf or hard of hearing

prefer identity-first language or identify as members of the Deaf community. While we acknowledge this important fact, we also want to honor the expressed preference of Deaf community to use identity-first language.

Structured and Interactive Writing Instruction (SIWI)

SIWI Principles

SIWI follows guiding principles rather than a step-by-step or scripted curriculum. The goal is to guide students through the writing process as students and teachers co-create, monitor, and revise a text (Wolbers, 2008). SIWI is driven by three overarching principles within an authentic and balanced framework: 1) Strategic, 2) Interactive, and 3) Linguistic/Metalinguistic (Wolbers et al., 2021; see Figure 1). Strategic instruction describes the process of explicitly teaching students about the writing process as a recursive rather than linear process. It involves teaching strategies for genre-specific writing skills (e.g., recount/narratives, persuasive, expository, information sharing). SIWI intentionally leverages visual scaffolds to represent the writing process and various strategies. For example, students are taught the major elements of the writing process using an acronym such as GOALS (Get Ideas, Organize, Attend to Language, Look Again, Share) and are provided with a visual depiction of each of the stages both on the classroom wall and their individual desk (see Wolbers & McGaughey, in press, for an example of the GOALS visual scaffold). Further visual scaffolds are incorporated for each genre of writing. For example, the acronym OREO represents the components of persuasive writing: Opinion, Reason, Example, Opinion. The image of the cookie and cream layers of an oreo cookie help reinforce students' understanding of these components.

The second SIWI principle is that the writing process is interactive. Students and teachers co-create text based on thoughtful and authentic consideration of a specific purpose and

audience. This interactive writing process allows for students to share their thought processes, help one another with problem solving, and explore genre- and grammar-related features. The teacher facilitates these interactions but it is a student-led and interactive process. By posing open-ended questions and thinking aloud, the teacher positions themself as a member of the learning community rather than the ultimate authority, and allows for the students to be actively involved.

The third main principle involves developing linguistic and metalinguistic knowledge. For bilingual students using American Sign Language (ASL) and English, this process often includes comparing and contrasting linguistic structures in ASL and English, and engaging translanguaging pedagogies (e.g., Swanwick, 2017). Translanguaging involves fluidly drawing upon students' multiple languages and full linguistic repertoire to make meaning, produce language, and interact with text. This complex phenomenon is a common process for DHH individuals who use a variety of languages and modalities (e.g., spoken English, written English, ASL, other signed systems). For students using spoken language, these metalinguistic processes often involve clarifying conversations, understanding the processes of language, or implementing techniques for elevating students' expressions (e.g., Garber et al., 2012; Most et al., 2010; Paatsch & Toe, 2020). The metalinguistic/linguistic principle is often enacted in the language zone, a physical space devoted to using, examining, and discussing language such as English and ASL. Various tools (e.g., gestures, drawing, role play, pictures, or videos) can be employed in the language zone to ensure shared understanding among teacher and students, and to practice expressing, translating, or complicating languages (Dostal et al., 2019). The language zone can be an area of the room with a white board or smart board with various visual aids and technology accessible or it could be as simple as a large flip book of paper used to draw, write on, gesture

towards, act out or interact with. Students are encouraged to contribute their ideas to the group, drawing on their full linguistic repertoires. The teacher captures students' expressed ideas in the language zone at their initial level of contribution, regardless of the complexity of language, and scaffolds language learning from there. If the student offers an expression that is a close approximation of English (i.e., needing only minor revisions), the teacher will add the idea to the written text, while using the language zone to guide students in enriching or expanding their language output (e.g., adding figurative language or increasing descriptive sensory words).

If the student's initial contribution is clear but contains features of ASL, the discussion in the language zone can focus on the grammatical differences between ASL and English, and how to translate ideas into an equivalent English expression (c.f., Koutsoubou et al., 2007). The teacher is able to support enrichment and expansion in their English writing after engaging metalinguistic awareness that supports translation from ASL structures into written English. Such an examination is in alignment with Cummins' framework of a common underlying proficiency to language acquisition in bilingual learners (e.g., 1979, 2016). While the surface features of each language may differ (e.g., syntax, vocabulary, morphology), building language proficiency in either language supports cross-language transfer of language and metalinguistic skills.

Finally, if the students' initial contribution is unclear (such as can be the case for students with significant language deprivation), the teacher and student/s first work in the language zone to arrive at a shared understanding of the idea through more concrete and accessible forms of expression (e.g., artifacts, pictures, acting). Techniques such as expansion, recasting, and parallel language are then used by the instructor to facilitate language development (Cruz et al., 2012). The student's idea is expressed in either grammatically-correct ASL and/or spoken English,

which can be translated to written English, and also expanded and enriched. In all of these cases, once new ideas have been added to the collaboratively-generated text, the instructor will prompt students to reread, which promotes familiarity with new language forms that came out of the language zone work (Skerrit, 2017).

One supporting principle of SIWI involves the creation of authentic texts that have a meaningful purpose and an authentic audience. For example, students might recount an event that happened on the playground in a letter to their principal, or they may write a persuasive letter to a radio station advocating for closed captioning on their online video content (see Dostal et al., 2015). Additional activities include recounting a shared event with a grandparent and sharing the final narrative with them. With purposeful writing, students are motivated by communicating with authentic audiences (Magnifico, 2010), and they also have the advantage of practicing all aspects of language, including morphology, semantics, syntax, and microstructure/macrostructure features. One important principle of SIWI is that instruction gives balanced attention to word-, sentence-, and discourse-level skills.

SIWI was developed for DHH students and designed to be responsive to student's specific language experiences. Many DHH students start school without a fully-developed foundation in a first language due to limitations in access to spoken language (e.g., Yoshinago-Itano et al., 2010) or signed language (W. C. Hall, 2017; M. L. Hall, 2020; W. C. Hall et al., 2017). It is important to note that these limitations are not universally present. For instance, some DHH children have considerable auditory access to spoken language through hearing aids and/or cochlear implants. Additionally, children who are deaf ASL signers have full access to language if their caregivers are also deaf ASL signers. However, the vast majority (90-95%) of DHH children are born to hearing parents (Mitchell & Karchmer, 2004) and, without an early

commitment from families to learn and use sign language, many children can experience language deprivation due to limited language access to both signed and spoken languages (W. C. Hall, 2017; M. L. Hall, 2020; W. C. Hall et al., 2017; Yoshinago-Itano et al., 2010). DHH students who present with language deprivation face a daunting task of learning to read and write while also developing language.

The writing performance of secondary DHH students ranges from emerging to grade level, and such wide variation is largely attributed to mild to severe experiences of language deprivation (Wolbers et al., 2021). Students with varying levels of proficiency in ASL draw on their full linguistic repertoire (including ASL lexicon and grammar) to express their ideas in writing, showing some similarities to the writing of other English Learners (Kibler, 2010; Wolbers et al., 2014). DHH children with varying levels of language deprivation tend to exhibit phrasal errors in their writing which are unintelligible expressions in both ASL and English (Bowers et al., 2018). Additional characteristics of writing among DHH students include errors with function words (Singleton et al., 2004) and limited vocabulary (Singleton et al., 2004; Scott & Hoffmeister, 2018), although vocabulary appears to be mediated by first language proficiency in ASL (Singleton et al., 2004). A writing approach must consider these areas of need as well as language development unique to DHH learners.

SIWI demonstrates a number of strengths in facilitating linguistic output across a variety of student needs. It is powerful for bilingual individuals as it allows students to leverage strengths in both of their languages during the co-constructing and writing phases (Wolbers, 2008). It is also effective for DHH students who use spoken English, as they receive frequent language scaffolding through interactive exchanges in which their teacher and peers are creating meaning together. The language scaffolding is contextualized within meaningful communication

which can work to ameliorate limitations in DHH students' incidental language learning from situations in which the auditory signal is not optimal (e.g., with background noise, if their equipment is not functioning properly; Dostal et al., 2017). For instance, if a student has missed out on a concept that others have acquired incidentally, for example, that the possessive 's' is used to convey ownership, the instructor can incorporate this explicitly during writing activities coupled with visual aids to support multimodal access to the information. Additionally, through explicit language instruction, students increase metalinguistic knowledge related to syntax and vocabulary, and regarding the appropriateness of their language for the intended audience.

SIWI Evidence of Efficacy

In an initial investigation, SIWI was implemented for an eight-week intervention period in a middle school setting to compare performance of DHH students in one classroom (SIWI classroom) with DHH students in a different classroom in which the teacher continued with the standard writing instruction curriculum (Business-As-Usual classroom; BAU; Wolbers et al., 2008). Instruction in both groups consisted of approximately 2.5 hours per week spent on writing instruction. Students in the SIWI classroom made statistically-greater gains on an informative writing task than the BAU group in both higher-level writing traits (such as introduction to the topic, topic development, paragraph development, etc.) as well as lower-level traits (such as number of compound sentences, use and correctness of infinitives/prepositions/conjunctions, verb consistency, etc.; Wolbers, 2008).

More recently, SIWI was tested against a BAU comparison group in a randomized control trial involving 15 teachers (8 in the SIWI group) and 79 students (43 in the SIWI group) in grades 3-5. Students in the SIWI group were taught writing strategies associated with three different genres (recount, information report, and persuasive) across three 9-week periods, one

for each genre (Wolbers et al., 2021). Students in the BAU group participated in their standard writing curriculum which consisted of tasks such as prewriting activities, grammar instruction, and ASL-English language contrasting, but they did not approach the tasks with the apprenticeship model and writing for authentic audiences that SIWI employs. In SIWI, the apprenticeship model refers to the concept that students do not learn about writing passively from lectures or lessons but instead learn through doing – they actively engage in writing with peers and instructors and learn how to think about, structure, formulate, and revise through actively doing these tasks with support from others. The BAU group in this study targeted language structures within decontextualized practice or lessons and used additional drafts rather than recursive writing practices. Recursive writing involves continually reading and rereading previously-written text even as the authors work to add additional sentences and paragraphs. The approach of writing additional drafts involves writing a draft from start to finish before editing and revising the draft in order to form a next draft.

Writing samples were scored for genre-specific elements as well as language features (e.g., T-units consisting of independent clauses and related dependent clauses) and students were given standardized tests of writing including a measure of broad written language from the Woodcock-Johnson III Tests of Achievement (Woodcock et al., 2007). Students in the SIWI group made statistically higher gains in the genres of recount and information report writing which were maintained through the 9-week maintenance period after instruction ended on those genres (see Wolbers et al., 2021 for statistical calculations and report of findings). Students made numerical (but not statistically significant) gains in persuasive writing (the genre targeted in the last treatment period). Results indicated that language clarity was statistically higher in the information-report writing genre with moderate to large effects in all three genres for the post-

SIWI group as compared with the BAU group. Language clarity was reflected by a word efficiency measure calculated by adding the number of words in correct T-units, T-units with minor errors, and correct word strings of three or more words in sequence without errors divided by the sum of the total words in the sample. Non-significant numerical gains in words per T-unit were additionally observed in the SIWI group but this trend was not observed in the BAU group.

In addition to overall increases in language clarity and complexity, SIWI instruction has been shown to positively impact the quality of DHH students' written expression. The cross-linguistic transfer of ASL features onto written English productions was shown to be reduced following SIWI instruction across DHH students using a variety of communication approaches including those who use primarily ASL, primarily English-based sign systems such as Signed English, primarily spoken English, and those who use a combination of approaches (Wolbers et al., 2014). After SIWI instruction, students were better able to produce English-specific sentence structures when writing in English as compared to their pre-treatment writing samples, indicating a better understanding of the differences in the grammar and structure of each language.

Even a 5-week instruction period using SIWI principles resulted in statistically-significant gains in the genre-specific features of 4^{th}-6^{th} grade DHH students' information report writing samples (in the areas of establishing a topic, providing details of events, and organization) that were not observed following five weeks of regular writing instruction for the same students administered before the SIWI period (see Dostal & Wolbers, 2016 for a report of the statistical tests and results). Gains have been seen for DHH students engaged in SIWI regardless of their starting language proficiency across both recount and information report writing, even though students were only instructed in the elements of recount writing using the SIWI principles (and not information report writing). The observed generalization from one

genre to an untreated genre was also seen in a study that varied order of presentation of genres (recount/information writing/persuasive vs. recount/persuasive/information writing; Dostal et al., 2021). They found that students were able to generalize what they had learned during recount and persuasive genre instruction when producing information writing text prior to direct instruction on that genre.

Qualitative analysis of DHH students' experiences across a one-year SIWI instructional program indicated that they were more positively oriented toward writing after SIWI instruction (Dostal et al., 2015). They were more inclined to participate in writing activities voluntarily and expressed more self-efficacy towards writing: "…We know what authors do. We are authors" (p. 11). They knew how to attack the task of writing and felt confident in the process of producing written work.

SIWI Compared to Other Approaches to Writing Instruction

Although there are other approaches to writing instruction such as Self-Regulated Strategy Development (SRSD; e.g., Graham & Harris, 1999; 1993) and Cognitive Strategy Instruction in Writing (CSIW; e.g., Dole et al., 2014), SIWI is unique in that it is designed for DHH students and does not require the same adaptation that is typically required of programs designed for typically-hearing children (e.g., Vostal & Ward, 2015). SIWI combines elements from second language acquisition research (e.g., Ellis, 1994), strategic instruction based on cognitive theories of composing (e.g., Flower & Hayes, 1981), and interactive approaches (e.g., Englert et al., 2001; Englert et al., 2006). There are a number of ways in which SIWI overlaps with SRSD and CSIW including use of strategies for composing and revising as well as metalinguistic approaches to writing. The SIWI approach is different from these other approaches in that 1) texts are co-created by the student(s) and instructor, 2) it utilizes

metalinguistic strategies during authentic writing activities, and 3) instructors incorporate the language zone to facilitate understanding language differences between American Sign Language (ASL) and English and how to use translanguaging pedagogies to facilitate written expression. SRSD emphasizes use of strategies for planning, writing, and revision as well as procedures for regulating the use of these strategies (e.g., goal setting, self-monitoring, and self-instructions) but does not focus on multilingual components, instruction of linguistic components that are taught and applied during authentic activities written with the audience in mind, or co-creating texts during interactive writing tasks. While SIWI and SRSD (or other writing programs) may employ similar linguistic and metalinguistic strategies, SIWI has been studied with DHH children (both those who use sign language and those who use spoken language) and thus has an evidence base of efficacy with DHH students.

Use of SIWI with DHH Students Who Use Spoken Language

Although SIWI has been most frequently studied with DHH students who use ASL (e.g., Dostal et al., 2016, 2019; Wolbers et al., 2015, 2021), it has also been shown effective for DHH students who use spoken English for communication (Wolbers et al., 2012, 2014, 2015). DHH students are highly variable in their language experience and in fact, students who are reported as using only speech or only sign language may have had early language experience in another communication modality (Hall & De Anda, 2020). Such early (or informal) experience with ASL likely influences the writing of DHH students who use spoken language as ASL features were observed in their written productions that subsequently reduced in frequency following SIWI instruction and practice in the language zone (Wolbers et al., 2014). The language zone is an important element of SIWI for DHH students who use spoken language as well as sign language. These students appear to benefit from linguistic and metalinguistic discussions that arise from

the interactions in the physical space of the language zone (e.g., Wolbers et al., 2014). While further investigation is necessary to more fully understand the unique effects of SIWI for DHH children who use spoken language, the few studies thus far have suggested positive outcomes.

SIWI Professional Development

The professional development (PD) training for SIWI involves a week-long summer workshop where attendees learn about the driving principles and practice co-constructing a text with students. During the school year, researchers provide biweekly online support to SIWI instructors, discussing students' progress and problem-solving implementation questions. SIWI instructors also video-record their SIWI lessons throughout the year for researchers to conduct fidelity checks and for the educators' own self-reflection. First year instructors additionally attend a three-day training during the fall semester to reflect on their own teaching by watching their recorded instruction and integrating modifications as appropriate. They also receive support with reviewing their students' writing samples and setting appropriate writing and language objectives for the next genre they planned to teach. After one year of PD, instructors are, on average, enacting SIWI at 70-75% instructional fidelity, and this level has been shown to impact students' writing and language outcomes to a degree of statistical significance compared to students who are receiving regular language and literacy instruction (Wolbers et al., 2021). By the end of the 3-year PD program, instructors are demonstrating 95% instructional fidelity on average (Wolbers et al., 2016). While this tutorial cannot provide sufficient explanation and practice to implement SIWI with fidelity, it will illustrate how elements of SIWI can be incorporated into an SLP's therapy session in order to target a variety of speech and language goals.

SIWI Instruction

SIWI instruction has been implemented in periods ranging from 5-9 weeks per genre type with standard implementation involving 2-2.5 hours of instruction per week on average (Dostal et al., 2016; Wolbers et al., 2021). The SLP reported on here (pseudonym "Candace") was able to negotiate 45 minutes per session, four times per week because of her involvement in this research; however, she stated that in her clinical judgment, SIWI instruction could still be implemented within a standard 30-minute session, three times per week but might require longer than the 9-week period to sufficiently teach the genre. Candace reported that she has used SIWI principles in therapy sessions for groups of three to 10 students, but reported that 10 is not ideal because of the cognitive effort to hold all of the students' goals in mind during the lesson and to be able to provide each student with sufficient individualized attention. Therefore, she viewed group sizes between three and six students as ideal for SIWI implementation.

Genres are typically covered in the following order: recount (or narratives), information report, and persuasive (Wolbers et al., 2021). Each genre has associated visual scaffolds that help students learn and remember the organization for each genre such as the oreo image described previously for persuasive writing (Wolbers & McGaughey, in press). Genre-specific elements are taught during each of the periods dedicated to that genre (see Table 1). For example, during instruction on the recount genre, the SLP described what an orientation statement is - that it conveys who is involved and when/where it occurred. She used this opportunity to provide direct instruction on various wh- question words (see Table 2). She used exemplary texts (i.e., a mentor text) to illustrate how the orientation statement is used in authentic texts such as *Alexander and the Terrible, Horrible, No Good, Very Bad Day* (by Judith Viorst). After identifying orientation elements in the mentor text, the students practiced co-creating an orientation for their own recount writing (e.g., a recount of how the principal demonstrated appropriate playground

behavior). The SLP used the visual scaffold of a hamburger to illustrate how to organize recount writing: the top bun indicating the orientation, the bottom bun indicating concluding with a personal comment, and the different toppings indicating the events. She incorporated instruction and practice throughout the therapy session on developing vocabulary and rich descriptions with sensory details. Instruction for subsequent genres followed a similar pattern including the use of mentor texts and visual scaffolds. Candace was able to incorporate each student's individual speech and language goals into these authentic writing activities.

In order to explicitly target specific linguistic components (e.g., a particular grammatical structure), Candace incorporated focused mini-lessons (called "NIP-it lessons" within the SIWI framework) where appropriate, such as illustrated in Table 3 with regular past tense. She would 'N-notice' when a student or several students were having difficulty with a particular linguistic structure. In this case, the student omitted the -ed morphological marker. She would then pause the collaborative writing or the editing and would 'I-instruct' the students on the specific linguistic structure. They might study that item in isolation before returning to the group writing and incorporating or 'P-practicing' the structure within the authentic communicative context. In this instance, the students had an immediate opportunity to practice what they had learned by applying this knowledge to another regular past tense word in the same sentence: "squeeze." Pairing this in-the-moment, strategic instruction with immediate contextual application helped the students internalize the structure and they responded positively to these NIP-it lessons.

Candace apprenticed her students in the metalinguistic tasks involved in planning out different genres of writing, how to consider the audience, and how to structure the text to be logical and complete. She walked them through the processes used to create and organize each component of the text for that genre. As the students became more confident and independent,

she slowly removed the amount of scaffolding and support she offered to allow them to become more independent. She further used both direct questions and think alouds to guide the students in discovering and applying the morphological and syntactic rules of forming grammatically-correct sentences. With each co-constructed sentence, Candace prompted the students to reread and continually revise their work by providing additional questions to consider (e.g., Will the audience understand this? Is this work missing any words or grammatical features? Do you want to add any additional descriptive details?).

The language zone is a powerful tool in the SIWI approach in which the instructor can explicitly target metalinguistic instruction. Candace used the language zone to focus on shaping students' English productions into more detailed or grammatically-correct utterances while clarifying the intended meaning. For example, Table 4 relays a portion of a recount lesson describing the principal's instructions on how to play appropriately on the playground. The interaction illustrates how Candace took advantage of a naturally-occurring opportunity to focus on expanding the student's metalinguistic understanding of verb tense. She wrote exactly what the student dictated and then directed attention to the verb to clarify whether it was occurring in the present or had occurred in the past. She described how -ed can be added to indicate past tense. As she did not include a lengthy description of how regular past tense is constructed by adding a -d or -ed, it is likely that Candace had previously introduced this topic with additional explication and this was a reminder and expansion of that lesson. Candace then demonstrated how there are multiple ways to correctly say the same thing and let the author decide the final form (e.g., "grabbed" and "was grabbing"). This exchange also provides an example of the interactive nature of the SIWI lessons – all three students were involved in editing and suggesting content and one student even corrected the other student's articulation with the plural

-s on “bars.” The integrated and recursive nature of the SIWI approach seamlessly blends linguistic instruction within the context of making meaning clearer to the audience.

Because the SIWI practice is to write with the audience in mind, Candace guided the students in selecting the audience for this written text. The students decided that the recount writing of this experience would be given to the principal. Candace frequently referred to the audience when they were deciding what to include in the text. She further asked if the principal would understand certain descriptions that were unclear or grammatically incorrect. This reminder that a real person would be reading their text gave the students motivation and context when formulating their writing and encouraged their cognitive perspective taking, an additional known area of difficulty for DHH students (e.g., Peterson, 2004).

Because of the very flexible, student-driven approach used in SIWI, Candace was able to tailor the feedback and conversations during the co-construction process to meet the individual needs of each of the students. Students naturally asked for clarification on various linguistic structures, which may have contributed to students generalizing these learned skills due to the contextualized nature of the writing. In follow up interviews, Candace reported that the integrated SIWI approach appeared to support better carryover of these skills to the classroom. Students saw the benefit of understanding the reason behind the language goals because they were actively and interactively engaged in authentic application. Candace reported that they seemed to make progress toward their language and articulation goals faster than when she had used a more traditional approach to therapy.

Candace worked closely with an educator of DHH children in her school who was also trained to implement SIWI in order to facilitate continuity across environments for her students. This is an important collaborative opportunity in situations where the SLP and teacher of DHH

students both are able to approach language and writing instruction similarly. Although Candace opted to follow a push out model for implementing her therapy sessions that involved SIWI principles, both push in and push out models are likely to be beneficial for students working on these types of language and writing goals and activities. SLPs must weigh the benefits of each approach in light of their particular students and intervention goals to determine which approach is the best fit for their students.

Targeted Skills of SIWI Lessons

This section describes how specific areas of communication typically targeted by an SLP might be incorporated into lessons following the SIWI approach to writing instruction.

Articulation/Phonology. Candace incorporated articulation and phonology intervention within SIWI lessons during group conversations when co-constructing text, and also through the rereading of the text aloud for editing purposes. If one of the students had a specific articulation goal, she would be sure to have that student reread the text containing that phoneme to provide an opportunity to practice. Such practice often occurred with the pronunciation of the regular past tense morpheme (-ed), plural (-s), and possessive (’s), which can change the phonetic realization depending on the context of its use. For example, when discussing recount writing, the student stated, “Last week, Dr. [Name] taught us about the rule on the playground.” Candace guided the student in differentiating whether their intended form was ‘rule’ or ‘rules.’ Because the student intended to produce the plural form, she further probed what that plural -s should sound like (either pronounced as /s/ or /z/ depending on the voicing of the final consonant of the uninflected noun). Candace marked which allomorph matched that particular word with a colored marker and practiced pronouncing the word in isolation and in context. This is particularly important for Candace’s students as these word-final endings, particularly fricatives

such as /s/ and /z/ are generally difficult for DHH individuals to perceive and produce (McGuckian & Henry, 2007; Moeller et al., 2007). Candace reported that this type of integration of articulation and morphology within an authentic writing context appeared to result in better generalization because the students were motivated to include the correct morphological marker in their own generated writing. They seemed to understand the grammatical significance with greater completeness due to the contextual nature of its usage in meaningful writing.

Candace was also able to include practice with phonological awareness by presenting some words as individual phonemes and allowing the students to blend the phonemes together (e.g., /s/ /ɪ/ /v/ /ɪ/ /l/ forming 'civil'). The students also requested this segmented presentation of words at times suggesting that they were engaged with this phonological awareness activity. Not every student blended with perfect accuracy when presented with the segmented phonemes suggesting that even in middle to upper elementary school, they were still in the process of learning this phonological awareness skill. Providing support in this manner during the SIWI lessons created an authentic opportunity to seamlessly integrate practice in articulation and phonological awareness.

One important point to note is that for DHH students who use spoken language and produce a number of articulation errors, they might need additional therapy time dedicated to teaching specific sounds before those sounds can be practiced in context during co-construction of texts. Utilizing a SIWI approach does not mean that every encounter with a student is limited to writing instruction, but rather that writing instruction as presented with SIWI can form an authentic context for learning and practicing speech and language goals in context. Individual students' needs drive goals and services, and students may require therapy time devoted to other goals presented in an alternate manner.

Morphology and syntax. Capturing students' productions in written form allows for them to critically reflect on their own syntax in concrete ways as compared to transient speech. They could read and reread their sentences to ensure they produced all the words in the correct order. For example, while editing and revising, Candace asked students where they might add "the small word 'on'" in the following student-generated sentence: "Dr. Martin Luther King Jr. was born in Atlanta, Georgia January 15, 1929." After some consideration, the student correctly identified that it sounded better with "on" added between Georgia and January. Because the text was visible and static, the student was better able to evaluate what component of the sentence was missing.

Candace was able to target a variety of morphological structures during the writing process including verb tenses such as third person singular and regular past tense verbs, possessives, and regular and irregular plurals. For example, the students generated the following sentence about Martin Luther King Jr. with an error in the possessive morpheme: "His wife name is Coretta Scott King." Candace was able to guide the students to fixing the error through questioning: "Do we need to change anything? Where?" When the student correctly identified how to fix the error, Candace followed up with an explicit explanation of why that morpheme is needed: "The name belongs to her." She additionally used the opportunity to revisit the vocabulary label for this type of linguistic structure by asking, "And what do we call the apostrophe 's'?" When the student incorrectly answered "proper noun" she provided a phonemic cue and several of them identified the correct term "possessive." There were additional discussions about 'be' verbs prompted by the student's contribution to the writing of "He arrested." Candace used that opportunity to ask if the student thought they needed to add any more words. She then inquired from the other students what they thought should be added. In

this way, Candace encouraged discovery and peer editing rather than simply telling the student the right answer.

Table 5 illustrates the interactive nature of co-constructing a text while additionally focusing on morphology and syntax. In this portion of the lesson, all three students who were present provided suggestions for editing. The interactive format of collaborative writing encouraged students to be actively thinking about and contributing to the group text, and to receive various levels of scaffolding from the instructor and their peers. After Candace wrote down the student's initial expression verbatim, "Tom Siwa father doctor," she asked for input on what words need to be added. Two different students suggested adding "is" and "a" to the sentence, making it "Tom Siwa father is a doctor." Candace at that point suggested they move the location of the word "father". When students appeared unable to problem solve this piece, the SLP modeled the expression for students and used a think aloud strategy. She said, "Her father, Tom Siwa. So we can put it here." This dialogue shows the SLP adjusting the amount of scaffolding needed by students – providing less scaffolding through open questions in areas where students are building independence and more scaffolding through modeling in less familiar areas.

One thing to note is that Candace verbally provided the correct grammatical form on two separate occasions (e.g., "Her father, Tom Siwa, is a doctor" and "Her father") but when she asked the same question just moments later, the students were unable to provide a grammatically-correct sentence. However, after they had co-constructed the sentence with the correct morphology and syntax, they were then able to produce the correct grammatical structures. Following this activity, the students continued co-constructing additional descriptive

sentences while they repeatedly read and reread the previous sentences multiple times providing additional exposure and practice to morphosyntactic forms that were less familiar to students.

Semantics and vocabulary. Vocabulary knowledge is one area in which the SIWI writing activities provide rich context and discussion opportunities, which is important given that vocabulary is a known area of need for many DHH children (Moeller et al., 2007). Sibold (2011) suggests an effective way to present new academic vocabulary following this pattern: 1) Introduce the word, 2) Provide synonyms, 3) Describe or explain the word, and 4) Use the word in a sentence. Candace demonstrated these principles in the exchange depicted in Table 6 during a lesson focusing on information report writing. She used a variety of approaches in building the students' understanding of *strong* versus *strongly*. She provided links to previous learning, an example of it in context, and also provided a non-example. The exchange provides opportunities for students to make connections and deepen their vocabulary knowledge as well as metalinguistic knowledge regarding adjectives and adverbs. Because the instruction was presented within the authentic task of information report writing, students were able to immediately incorporate the new vocabulary word into a functional setting.

Other areas of semantics were seamlessly integrated into SIWI instructional lessons. Table 2 illustrates how Candace integrated direct instruction on the meaning of various wh-question words within the context of an authentic writing task. Across numerous days, Candace reiterated what kinds of information answered each wh- question, asked students to provide the answers to these wh- questions for new orientation sentences, and asked which wh- question a given component addressed. In this way, students had a number of contextualized opportunities to understand the meaning of each type of wh- question.

In many instances Candace was able to target semantics and vocabulary while also targeting articulation and morphology simultaneously during co-construction due to the amount of language generated, the metalinguistic discussions, and the interactive exchanges. Candace would often provide definitions of words while collaboratively co-constructing text with students. In doing this, she could easily link the new vocabulary terms with their pronunciation to allow students the opportunity to integrate their articulation goals in this process. Vocabulary words would then be repeated and reinforced through reading and rereading the generated text.

Additional ways in which Candace targeted semantic aspects of language include incorporating descriptive words and sensory details. She included a discussion on the different senses and modeled how to include more descriptive language into their writing during the interactive co-construction of text. She provided examples from a mentor text (e.g., *Alexander and the Terrible, Horrible, No Good, Very Bad Day* by Judith Viorst) and discussed how details allow the reader to "make a movie in their head" of what they are reading. She modeled how to incorporate figurative language such as "flew" or "raced" instead of "ran" and how they could add words like "delicious" and "hot" to the orientation sentence: "They ate (delicious) ice cream on the (hot) playground."

One final example of how Candace incorporated semantic instruction during the SIWI activities was illustrated by targeting the production of prepositions. DHH children tend to have an atypical pattern of acquisition and production of prepositions and determiners which may require additional explicit instruction (see Cannon & Kirby, 2013 for review; Kawar, 2021). Throughout the SIWI lessons, students had opportunities to produce sentences containing these types of structures within an authentic context. These opportunities allowed for group discussion of these "small words" as the SLP referred to them. For example, a student stated a sentence

about “gum in his shoe” when he meant “gum on his shoe” and Candace used that opportunity to discuss how the different preposition changes the meaning of where the gum is located and how gum *in* his shoe was less desirable than *on* the bottom of his shoe.

Pragmatics. Participation in the group effort to co-create texts provided ample opportunities for students to interact with each other and practice their pragmatic skills such as repairing conversational breakdowns, providing on-topic comments, taking conversational turns, asking and answering relevant questions, responding to feedback and constructive criticism, and thinking flexibly about the content of the writing. Because the group worked to create the text together, students had to adapt to others’ ideas and consider their perspectives. Additionally, because of the authentic nature of the text, the students had to consider the perspective and knowledge of the intended audience in order to structure their writing with the appropriate amount of details and information. For example, they needed to not be overly explanatory if the audience had a fair amount of working knowledge of the topic, but if the content was unfamiliar to the audience, the students had to consider how many additional clarifying details they needed to include.

Discussion

We have presented examples of how one SLP (“Candace”) was able to target therapy goals across a variety of speech and language areas within the framework of Strategic and Interactive Writing Instruction (SIWI). Candace integrated intervention in a number of areas of speech and language including articulation/phonology, morphology/syntax, semantics, and pragmatics within writing instruction lessons and supported practice for writing. When language and metalinguistic knowledge were targeted in an authentic context with explicit instruction, students were able to quickly and thoroughly integrate that knowledge. The main principles of

SIWI meshed seamlessly with the SLP's practice by encouraging interactive peer-to-peer interactions while using strategic approaches to guide the organization of their writing at the sentence, paragraph, and discourse levels of communication.

Figure 2 depicts additional ways in which various speech and language goals can be integrated within the principles of SIWI. The metalinguistic principle is often utilized throughout SIWI instruction to guide students in making meaning through various linguistic structures. Students learn about how language works, why an author might choose a specific linguistic structure, and what different language elements convey (e.g., -ed is used for actions that have already occurred). SLPs can utilize the inventory of grammatical structures presented in Kilpatrick and Wolbers (2019) to help guide morphological and semantic instruction. They present three tiers of linguistic structures organized in a written language inventory for DHH students' writing. Structures span a variety of components from plural nouns and present tense verbs (Tier 1) to object pronouns and a noun plus a relative clause (Tier 2) to the most difficult level containing structures such as perfect verb tense and question word noun phrases as seen in the sentence 'The house where I live' (Tier 3).

The interactive principle of SIWI encourages peer-peer questions, answers, repairing communication breakdowns, and considering others' perspectives and knowledge. They can monitor their own productions as well as the verbal and nonverbal cues from their communication partner(s) in order to identify and repair communication breakdowns. For example, while co-constructing text for the recount genre, a student said, "Can I get [unintelligible phrase omitted] to train" referring to getting on a train, but the SLP misheard it as "to China." This opened up an opportunity for Candace to ask for clarification and the student to repair the conversational breakdown. The structured principle of SIWI guides students in

planning, organizing, prioritizing, and self-monitoring during both verbal discussions and production of written language. Using visual aids (such as a hamburger or oreo cookie) allows for students to be reminded of the components of well-formed recount/narrative or persuasive text.

Candace demonstrated a variety of techniques for building the students' vocabulary including examples and non-examples. SIWI provides ample opportunities to dive into task-related vocabulary such as 'orientation' and 'adverb' but also vocabulary related to the topic (e.g., udder). This approach is in alignment with the recommendations from a literature review of approaches for developing academic language for DHH students (Strassman et al., 2019). They found that teaching academic language within accessible but content-rich texts was an important feature of effective language development, as well as teaching new vocabulary through multiple modalities (e.g., reading, writing, speaking), teaching across a variety of purposes (e.g., information sharing, persuasive, narrative/story-telling), and creating an engaged community of writers to provide feedback throughout the writing process. Candace reported that one of the strengths of SIWI in her experience is that the students are exposed to a lot of different vocabulary as well as sentence structures and grammar.

Conclusion

We have described one way in which authentic writing experiences can form the context for working on various student goals from a holistic, language-centered perspective for DHH students. Although incorporating the SIWI principles into therapy was challenging at first, Candace reported that after a number of years, these practices became second nature to her and ultimately have saved her time by not having to prepare numerous individual materials and lessons. Rather, students' individualized goals were addressed in a contextually-dependent way

that in her experience resulted in greater carryover to classroom and academic tasks than with typical approaches to therapy. This approach also provided continuity in content across therapy sessions promoting repetition and recall of key concepts and vocabulary. Candace was able to target all the same goals she would have with traditional therapy. By situating the speech and language practice within a topic area selected by the students, she achieved a high degree of motivation and "buy in" from the students. Because of this structured and interactive approach, the students learned about the writing process and benefited from application practice with the linguistic and metalinguistic skills involved in generating texts and communication interactively with peers.

The SLP that was interviewed and observed for this study mentioned she has taken a number of different professional development and continuing education courses over the years in order to maintain her Certificate of Clinical Competence (CCCs), but reported that SIWI has been "the single most effective tool I've been taught in my practice." ASHA's position statement on the roles and responsibilities of SLPs with respect to reading and writing with children and adolescents is clear: SLPs are critical members of the assessment and intervention team (American Speech-Language-Hearing Association, 2001). We have presented one SLP's response to that call to provide evidence-based, authentic individualized therapy within the context of a strategic writing instruction framework resulting in positive outcomes for all stakeholders.

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Figures

Figure 1. SIWI Principles For Speech-Language Pathologist Implementation.

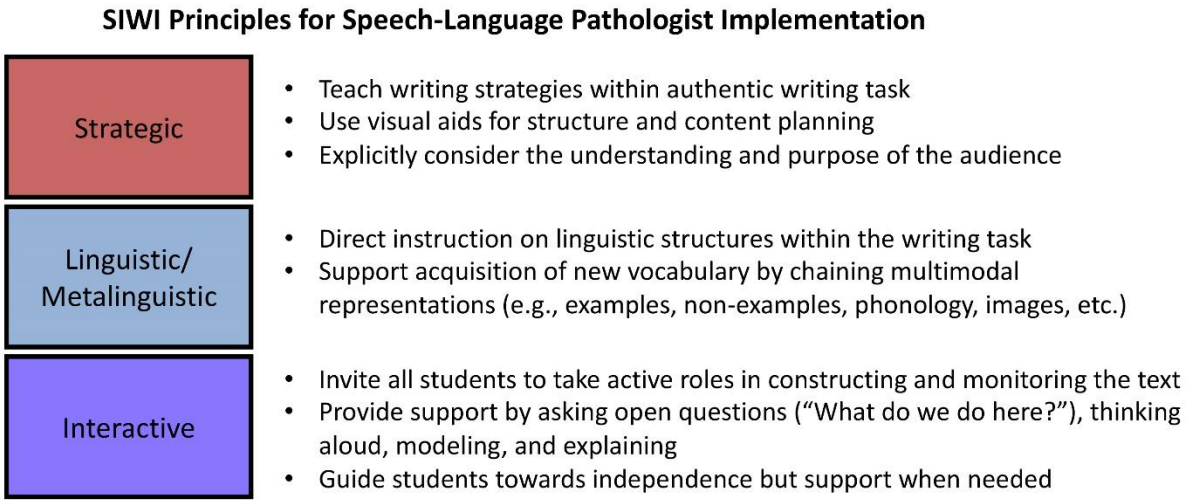

Figure 2. Alignment Between Sample SLP Activities and SIWI Principles.

	Strategic	Metalinguistic	Interactive
Articulation			
• Reread text aloud to target any speech sound	✓		
• Select topics that will contain target sounds	✓	✓	✓
• Collect data on students' own sound production	✓	✓	
Morphology/ Syntax			
• Discuss verb tenses that naturally arise in the writing process		✓	✓
• Include direct instruction of derivational morphemes	✓	✓	
• Target regular and irregular plurals in context	✓	✓	
Semantics			
• Integrate sensory details and other descriptive language	✓	✓	✓
• Expose to new linguistic and metalinguistic vocabulary and knowledge	✓	✓	✓
• Explore contextually-dependent meanings of multiple meaning words	✓	✓	✓
• Discuss correct prepositions given the target context	✓	✓	✓
• Expand vocabulary knowledge in depth and breadth	✓		✓
• Include transition words for building discourse cohesion	✓	✓	
Pragmatics			
• Practice asking and answering questions	✓	✓	✓
• Experience accepting and offering feedback	✓		✓
• Engage in repairing communication breakdowns	✓	✓	✓
• Infer others' knowledge or reactions	✓	✓	✓
• Adjust register depending on context	✓	✓	
Metalinguistics			
• Identify components of different genres (e.g., narrative vs. expository)	✓	✓	
• Implement executive function skills such as planning, prioritizing, and self-monitoring	✓	✓	

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