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Abstract

This study investigates the effects of using Strategic and Interactive Writing Instruction (SIWI) with deaf, middle school students who use American Sign Language as their L1 and written English as L2. Using a pretest-posttest control group design, the research explores whether students receiving SIWI made significantly greater gains compared to those not receiving SIWI on a number of variables. There are 33 total students, 16 in the treatment group and 17 in the comparison group. The intervention lasted a total of 8 weeks, during which time the treatment group collaboratively constructed two report papers using SIWI components, and the comparison group continued with their typical literacy instruction. The pre and posttest measures were scored, according to rubrics, for evidence of primary traits, contextual language, and conventions. The multivariate analysis of variance (MANOVA) and follow-up univariate analyses were statistically significant. Furthermore, effect sizes (d) were large to very large, ranging from 1.27 to 2.65, indicating SIWI to be an effective approach with deaf L2 writers.

Strategic and Interactive Writing Instruction (SIWI): Apprenticing deaf students in the construction of English text

Deaf and hard of hearing students form a unique subpopulation of writers, one that exhibits great challenges in learning to write English effectively and fluently. For this population, there are linguistic barriers to making sufficient writing progress (Albertini & Schley, 2003). One unfamiliar with sign language might assume that students using American Sign Language (ASL) are simply expressing English manually and visually. ASL is, however, a language in its own right with a unique grammar reliant on movement in space, body language/ facial expressions, and a visual, non-linear organization of concepts (Jackendoff, 1994; Pinker 1995). For instance, a person speaking English might use the following sentence to describe their recent flight: My flight from Chicago to New York was extremely turbulent. A person using ASL might sign: CHICAGO (set in space on the left of the body) NEW YORK (set in space on the right of the body) I FLY (movement begins in the space designated for Chicago and moves across the body to New York) HAPPEN PLANE-BUMP. The concept "extremely turbulent" is shown by moving the plane classifier in a way that demonstrates uneven action and is accompanied by facial grammar to express the extent of the movement. There is conceptual accuracy in the translation, yet there is also a lack of correspondence between ASL and English syntaxes. Ultimately, because ASL and English are two separate languages with distinct ways of expression, those who use sign language as their primary language develop written English as their L2 or second language (Enns, 2006). Yet, the process of developing written English is different from other L2 learners because many deaf students do not simultaneously develop oral fluency with English.

Additionally unique to the deaf is that many children have not fully developed a primary language prior to the start of school. With the exception of deaf children of deaf parents who may be exposed to ASL in early childhood, the majority of children do not have adequate quantity (i.e., due to lack of opportunities for communication via ASL) or quality exposure to ASL (i.e., due to lack of fluent models) to acquire it like any other language. Therefore, development of a primary language, if sign, is often delayed and/or incomplete. Similarly, due to the physical barriers of hearing spoken language and the difficulties of lipreading, deaf children have, at best, partial exposure to the English language. Often a reality is that deaf children are learning English and sign simultaneously in the schools through a multi-modal approach. This experience is contrary to typical L2 students who have fluency in a primary language at school-age. In this regard, deaf and hard of hearing students face specific and particular challenges—the impact of incomplete acquisition of a primary language.

At the same time, there are parallels that can be found in the writing of deaf students and the writing of other ESL students. Both populations of writers evidence struggle with the mechanics or grammatical features of English, have features of L1 that surface in their writing, and have longstanding syntactical, phonological, morphological or pragmatic problems even after years of English use and after reaching a level of expressive fluency (Valdes, 2006). Likewise, deaf education teachers have traditionally relied on instructional techniques (e.g., error correction) that are widely used in the field of L2 writing when it comes to addressing a-grammatical elements of student work.

The field of L2 writing has advanced instructional approaches with noticing and reformulating errors by involving students in the construction of language knowledge.

Students build a meaningful understanding of language forms when they talk about them—explaining, reasoning, questioning and even disagreeing with others (Tocalli-Beller & Swain, 2005). Likewise, using open-ended questions that prompt discussions and encourage student reflection on language form in context has proven to be more effective than an explicit emphasis on decontextualized language pieces (Pessoa, Hendry, Donato, Tucker & Lee, 2007). Discursive or interactive instruction is a promising way of approaching language forms with L2 writers. With respect to deaf education, these ideas remain largely untapped but potentially effective.

L2 writing research also recognizes the extent to which instruction with heavy focus on decontextualized language elements may steal time and attention from other writing skills. For example, practice with lower-level writing skills such as grammar and conventions can supersede writing as a whole to communicate meaning. Teachers who drill isolated language structures because students are not proficient in the L2 may find their students display difficulties writing text with a real purpose and audience (De La Piedra, 2006). Yet, students can and do write in their L2 before they have achieved proficiency if given experience with writing as a process (Reyes, 1991). For all levels of L2 writers, beginner through advanced, writing all-at-once in a non-linear process has resulted in greater writing fluency and quality (Ransdell, Lavelle & Levy, 2002). With traditional writing instruction of deaf students, it is the case that linguistic constructions are taught sequentially and in isolation from higher-level writing skills such as coherence, text structure and organization (McAnally, Rose & Quigley, 1994). However, when language and grammar instruction is situated in real writing activity, students effectively make progress with both lower-level and higher-level writing skills (Wolbers, 2007).

The purpose of the present study is to investigate the effects of writing instruction that interactively and strategically guides the simultaneous development of lower-level and higher-level writing skills among deaf L2 writers. Instruction of grammar elements, for example, happens while writing authentic pieces of text and while using the higher-level skills that support such a task during the writing process. The instructional approach, termed Strategic and Interactive Writing Instruction (SIWI), intends to mediate student learning through skillful use of discourse and writing strategies. Furthermore, SIWI acknowledges the specific linguistic challenges of deaf L2 students and, therefore, contains instructional elements to support further language development of ASL and English, to build metalinguistic knowledge of both languages and to arm students with translation strategies. It offers a comprehensive and inclusive approach to teaching writing to students who are dealing with two or more languages.

Strategic and Interactive Writing Instruction (SIWI)

SIWI largely involves guided and collaborative writing. Students work along with the teacher to co-construct, monitor and edit a piece of text. When the group reaches a consensus to add a phrase or a sentence to the text, the teacher writes the students' word-for-word expressions (including grammar and meaning errors as they are communicated) on an easel. She then opens the floor for further generation of ideas, or the beginning of revising or editing dialogue. Writing as a recursive process is demonstrated, for participants fluidly move back and forth between idea/ text generation, revising and editing. The teacher provides scaffolding and support to students in performing tasks beyond their current levels, with the expectation that students will gradually appropriate

these skills and strategies for independent use. As students grow in confidence, the teacher will move to paired or small group writing and then independent writing.

All writing is published for a predetermined and authentic audience. The use of authentic audiences establishes real-world purpose for writing. Writing is seen as a skill that is necessary and functional, rather than just an activity done in school (McAnally, Rose & Quigley, 1994). And, because students are publishing whole pieces of text, it is less likely that language or grammar aspects dominate the writing instruction; rather, students additionally must practice higher-level skills such as planning, organizing, formulating the text structure, etc.

In this particular study, SIWI was used to teach expository or informative writing to deaf middle school students. SIWI consists of two major instructional components: (a) the use of writing process strategies or *strategic writing instruction* and (b) apprenticeship in writing through guided and interactive practice or *interactive writing instruction*. In addition to these two elements, the SIWI curriculum has four minor instructional procedures that support the process of writing and the overall objective of increasing higher-level and lower-level writing skills: (a) use of writing examples and non-examples; (b) metalinguistic knowledge building of ASL and English; (c) use of visual scaffolds; and (d) *NIP*-it lessons (i.e., contextualized mini-lessons involving *N*oticing, *I*nstructing, and *P*racticing).

Strategic writing instruction. SIWI is strategic in the sense that students are introduced to the approaches of expert writers through the use of word or symbol procedural facilitators. These are temporary supports in place to guide students' planning

of successful action around writing processes. It is intended that students become deliberate writers during all parts of the writing process.

The mnemonic, POSTER, is an adapted version of the acronym POWER from the Cognitive Strategy Instruction in Writing (CSIW) Curriculum (Englert, Raphael, Anderson, 1989). POSTER (*plan, organize, scribe, translate, edit, revise*) is very similar to POWER (*plan, organize, write, edit, revise*) in that it represents the subprocesses of the writing process, yet it recognizes an additional practice encountered by linguistically diverse or L2 students, that of translation from a primary language to a secondary one. Each subprocess is accompanied by a set of instructional statements and questions that cue writers to action. These scaffolds are removed once the writer has gained control over the strategies and can employ them independently.

During *planning*, writers are prompted to consider who the audience is, in order to determine the purpose of writing and to brainstorm what they already know about the topic. If there is a need to access additional resources, students are asked to consider what they want to know and how they could find this information. *Organize* signals for students to group their ideas into categories of information and then sequence them according to an order of presentation for writing. In this study, students preferred conceptually mapping their main ideas and details using *Inspiration 8.0* (Helfgott & Westhaver, 2007); once finished with mapping, they changed the format to an outline that better supported their writing. *Scribe* instructs students to move from their conceptual maps or outlines to text generation by expanding or elaborating ideas, in the order they determined. The subprocess, *translate*, encourages students to become more aware of their language expressions by asking whether their ideas were produced in English, ASL

or some mixture of languages. Once one recognizes when non-English expressions enter the conversation or one's text, techniques for translation can be administered. *Edit* prompts students to reread and monitor their written text for ideas that need to be clarified and for any language or grammatical troubles that need to be addressed. *Revise* cues students to produce a clean copy of their work and publish. The POSTER mnemonic is not meant to be a linear set of procedures. Rather, writing is viewed as a recursive process, with fluid movement back and forth between the subprocesses. Consider for instance how *translation* may happen before writing during a class discussion, or it may happen after non-English linguistic features surface in one's text.

In the intervention classroom, the POSTER acronym was written on a large piece of posterboard and hung on the wall. Therefore, reference to the writing processes was easily made at any time during instruction. Additionally, each student had a laminated copy of the instructional statements and questions that accompanied each process. This scaffold, referred to as the student cue card, can be viewed in Figure 1. Each writing subprocess on the cue card was given a different color that coordinated with the colors of the classroom posterboard, and each subprocess was enhanced with a visual aid that represented the process.

Interactive writing instruction. With the exception of the direct instruction that is necessary for introducing POSTER and conducting NIP-it lessons, SIWI is designed to apprentice students in the construction of text through interactive or discursive instruction using an activity format comparable to the adapted version of Morning Message (See Wolbers, 2007 for further details). The collaborative format of SIWI provides a way for teachers to transfer the control of writing processes and strategies over to students.

Students are exposed to the thinking, words and actions of more-knowledgeable-writers in the context of activity and, over time, appropriate these for their own. Student participants may begin SIWI by relying heavily on the more-expert-others to create effective text and may only contribute as peripheral members. Yet, just as in Morning Message (Englert & Dunsmore, 2002; Mariage, 2001), the interactive nature of the writing space makes others' thinking visible and accessible. A teacher, for instance, may purposely model, think-aloud, or prompt particular strategies in front of the group to give them access to her thinking and approach. Or, when students offer suggestions, the teacher may ask them to explain why, when or how, thereby encouraging externalization of thought accessible to and adoptable by peers.

With a gradual transfer of knowledge—as more writing strategies, skills (higher- and lower-level) and processes are appropriated—participants move from guided and shared practice to independent writing of effective text. A skillful teacher helps facilitate this transfer to independence by using a series of "step back" and "step in" moves; stepping back to position the students as the expert decision-makers and evaluators of the quality of text, and stepping in to provide supports or instructional guidance only as necessary (Englert & Dunsmore, 2002). Students, through the use of guided and interactive practice, are apprenticed in ways of talking and thinking about writing.

Use of writing examples and non-examples. Students are presented with example papers, some good and some poor examples of the type of writing that is the focus of instruction. They analyze the components that either exist or do not exist to the benefit or disadvantage of the author. For instance, when reviewing a low quality example of informative writing, students examine the text critically, suggesting where the

weaknesses exist and how the author might make the text stronger. By examining a high quality example, students discuss and focus on elements of the paper that contribute to its effectiveness. This process of studying examples so students can decompose and emulate models of good writing is vetted in the literature on adolescent writing instruction (Graham & Perin, 2007) and has been utilized in L2 writing instruction (Huang, 2004).

Metalinguistic knowledge building of ASL and English. Metalinguistic knowledge building involves developing an awareness of the nature and structure of language (both written and visually expressed). By comparing and juxtaposing ASL and English, students become more conscious about the language particulars that make them unique from each other. As their knowledge of the languages grow, they may be more likely to identify them as distinct languages and produce them separately and purely.

In addition, knowing more about how expressions are equivalently represented in English and ASL can result in more accurate and complete translations for those students who conceive an idea in ASL and then translate to written English. For instance, consider the following sentence: "she cleaned the kitchen meticulously". In ASL, one might sign KITCHEN SHE FINISH CLEAN and then show that it was meticulously done with use of facial expressions to accompany the signs and through movement of the sign CLEAN to show the great care and precision involved (cf. Howeverton, 2006). Without consideration of how body and facial expressions relay meaning, one's translation from ideas to English words is deficient. Class discussions of adverbs use in each language, for instance, deepens metalinguistic knowledge. Students become cognizant of the nuances of ASL and how slight changes in position, location, movement or expression may change the equivalent in English words.

The SIWI intervention uses a "two easel" approach during co-construction of text which is necessary to keep the languages separate and help make distinctions between ASL and English features (Wolbers, 2007). When a student generates an idea during collaborative writing and the group has agreed to add it to the text, a discussion first ensues regarding the language of the expressed idea—whether it was offered in ASL or a form of English-based sign. If it is produced in English-based sign, and therefore is capable of being written, the teacher scribes the student's idea word-for-word on the English easel. If however, the expression is ASL, the teacher utilizes the ASL easel as an idea holding place while translation discussions take place. She may capture the idea given in ASL the best she can using gloss words, symbols, pictures or any other mechanism, making sure to note movements, facial grammar, and use of space.

Visual scaffolds. SIWI incorporates iconic or visually informative scaffolds to aid writing, for pictorial materials have been shown to improve the learning of deaf children (Fung, Chow & McBride-Chang, 2005) and other L2 writers (Dunbar, 1992). The scaffolds include but are not limited to the following: representative images, conceptual maps, and different colors (e.g., markers, paper) for different purposes. They are intended to support students in remembering and applying the writing skills or strategies of expert writers.

NIP-it lessons. NIP-it lessons are necessary when students are not making complex enough contributions to the collaborative writing. Because the teacher scribes students' exact ideas and offerings during the co-construction of text, it can be difficult to advance student writing when remaining at the level of student input. Advanced concepts can be introduced and incorporated into practice when a teacher models, explains or

thinks-aloud at a higher level. However, in order to introduce new constructions, for example, the teacher must first recognize that there is a void in a particular area and then make a conscious effort to bring this to the forefront of the activity. Because teachers may miss opportunities during the co-construction of text due to juggling multiple responsibilities, occasional teacher reflection becomes necessary.

The teacher must first *notice* what is missing in student writing or contributions. *Noticing* requires the teacher to step back from the guided writing activity and critically examine student progress or lack of progress with both higher-level skills and lower-level objectives. This can be done at the end of the day, or perhaps when observing students work in small groups or independently. Next, there must be *instruction* that directly and explicitly addresses the area in need. Lastly, *practice* is contextualized—students again participate in guided writing activity whereby the new material is incorporated. This is the point at which NIP-it lessons depart from the traditional writing mini-lessons. Whereas mini-lessons do require *noticing* and *instructing* (Atwell, 1998), they typically fall short of integrating *practice* into authentic contexts and guided writing.

If students are still not readily making contributions regarding the taught aspect during the co-construction of text, the teacher will need to initially guide usage through think-alouds and modeling until students gain more independence. The teacher may also create a classroom artifact—one that represents the skills and/or strategies addressed by the NIP-it lesson—and refer to it during guided practice, thereby scaffolding, reminding or prompting as needed.

<div align="center">Design</div>

This study uses a non-equivalent, pretest-posttest control group design. It is quasi-experimental in nature, for participants and contexts were matched but not randomized.

Research Questions

(a). Do students receiving the SIWI intervention make significantly greater gains with high-level skills (e.g., organization, coherence, evidence of appropriate text structure) when writing expository/ informative text compared to those students not receiving SIWI?

(b). Do students receiving the SIWI intervention make significantly greater gains with high-level skills when writing an untaught genre compared to those students not receiving SIWI?

(c). Do students receiving the SIWI intervention make significantly greater gains with low-level writing skills (e.g., contextual language, grammar, punctuation) compared to those students not receiving SIWI?

Participants and School Contexts

The participants of the study were two teachers of the deaf and their respective middle school students. There were 33 total middle school students, 16 in the treatment group and 17 in the comparison group. A power analysis using previous data similar in nature (Wolbers, 2007) indicated a moderate-high to high probability that the statistical analysis would detect an effect that is present, justifying the current sample size. Each of the experimental and comparison groups consisted of three classrooms of students who were categorized by language and literacy levels, low, mid and high. Students demonstrated varied levels of proficiency in ASL, yet all utilized ASL as their primary means of communication and expression. There were no significant differences between

students in each group regarding age ($M = 12$ years), level of hearing loss ($M = 93$dB), and initial reading level ($M = 2.77$).

The treatment and comparison group teachers were matched based on proficiency of sign communication, type of sign communication, educational backgrounds and teaching histories. The schools were matched based on the number of deaf education students, location of schools, and philosophy of educational and communicative practices. Socioeconomic factors favored the comparison group school district.

Procedure

The SIWI intervention applied to the treatment group lasted a total of 8 weeks, during which the teacher guided the collaborative construction of two expository or informative papers. Also during this time, students in the treatment group were exposed to two NIP-it lessons.

There were four videotaped observations during the intervention for the purpose of rating the implementer's fidelity to the instructional principles, and scores indicated high degrees of faithfulness (i.e. scores ranged from 4.32 to 4.93 on a 5-point scale).

The comparison classroom continued with their typical writing instruction which involved the use of authentic writing experiences such as mailing letters to penpals, the use of multimedia and hands-on activities during writing instruction (e.g., using Microsoft word track changes and classroom smartboard), vocabulary-building activities and explicit and structured grammar instruction. The comparison group allotted an equal amount of time to writing instruction as the experimental group, approximately 2.5 hours a week.

Sources of Data

Students were given writing assessments prior to and after the intervention to evaluate gains. The measures were scored, according to rubrics, for evidence of higher-level (i.e., primary traits) and lower-level skills (i.e., contextual language, and conventions). A second rater scored approximately 10 to 20% of the papers and obtained an interrater reliability of 0.93 to 1.0 using calculations on a cell-by-cell basis across subjects. The raters were accurate or within one point of each other 100% of the time.

Informative writing measure. There were two different informative writing topics, both of which were wild animals (i.e., the grizzly bear and the gray wolf). To control for content knowledge, half of each group received the grizzly bear topic at pretest and the other half received the gray wolf topic. At posttest, students were given the alternate. Additionally, each student received an animal fact sheet on either the grizzly bear or the gray wolf to control for background knowledge. Typically when writing informative papers, one must first gather resources or data prior to writing. This measure, however, was designed to assess organization and writing skills associated with production of informative text, not students' content knowledge or ability to read and extract information from resources.

The directions asked students to write a paper that informs an audience about the particular animal they were given. The audience consisted of persons from different countries such as New Zealand where grizzly bears or gray wolves are not typically found. Students were told that facts about the animals had already been gathered for them, and their next step should be to organize the information and convey this information through writing.

Scoring rubrics. There are three main components of the evaluation tool: the rubric for the primary traits of informative writing; the rubric for contextual language; the rubric for conventions. The rubrics were further divided into subcategories that were scored; they are listed in Table 1. The primary traits rubric was heavily influenced by the work of Englert (2000) and Warriner (1988). The contextual language and convention rubrics were derived in large part from the TOWL-3 (Hammill & Larsen, 1996). However, the contextual language rubric was further elaborated by drawing on the Test of Syntactic Abilities (Quigley, Steinkamp, Power & Jones, 1978) to capture the typically problematic language use of the deaf. Because many students borrowed language from the fact sheets during writing (making it hard to distinguish students' own language productions from the phrases and constructions provided to them), the informative essays were not rated for contextual language and conventions. Thus, the contextual language and conventions rubrics were only utilized for the generalization writing probe. Skills were rated on a 4-point rubric scale, 3 points indicating fluency in the skill or trait and 0 points indicating no emergence of the skill or trait at this time. One example from each of the three main rubrics is illustrated in Table 2. The internal reliability coefficient for the primary traits subcomponent ranged from .788 to .836. The internal reliability coefficients for contextual language and conventions were .802 and .717 respectively.

Generalized writing measure. Students were additionally administered a generalization probe at pre and posttest to examine their ability to transfer knowledge of informative writing to a different type of writing, namely personal narrative or personal experience writing. The test prompts were purposefully designed to mirror previous state standardized writing assessments given at the 7th grade level (See Michigan Educational

Assessment Program, 2004). It was hypothesized that students exposed to SIWI would simultaneously make gains on the state standardized test, extending and applying the skills and strategies they have learned from informative writing to personal narrative/experience writing.

As with the informative writing measure, there were two paper themes. The themes were divided among students in each group at pretest and posttest in order to control for any differences in writing that might be influenced by the topic itself.

<div align="center">Analysis and Results</div>

A one-way MANOVA was calculated to examine the effect of Strategic and Interactive Writing Instruction (SIWI) on dependent variables: primary traits of informative writing, primary traits of generalized writing, contextual language, and conventions. A significant effect was found, *Wilks' Lambda* $F(6,26) = 21.26$, $p < .000$, *partial-eta squared* = .83. Follow-up univariate ANOVAs were calculated for each of the dependent variables and are presented according to research question.

Research question A asked: Do students receiving the SIWI intervention make significantly greater gains with high-level informative writing skills compared to those students not receiving SIWI? To answer this question, a one-way ANOVA was calculated, using the total primary traits score of informative writing as the dependent variable. The univariate statistic indicated that high-level informative writing skills were influenced by instruction, $F(1,31) = 34.44$, $p < .000$, *partial-eta squared* = .53, d = 2.65.

Research question B asked: Do students receiving the SIWI intervention make significantly greater gains with high-level generalized writing skills compared to those students not receiving SIWI? Again, the univariate statistic indicated that high-level

generalized writing skills were influenced by instruction, $F(1,31) = 77.002$, $p < .000$, *partial-eta squared* $= .71$, d $= 2.07$.

Research question C asked: Do students receiving the SIWI intervention make significantly greater gains with low-level generalized writing skills compared to those students not receiving SIWI? To answer this question, two one-way ANOVAs were calculated, using the gain scores for contextual language and conventions as the dependent variables. The univariate statistic for contextual language indicated that low-level generalized writing skills were influenced by instruction, $F(1,31) = 50.001$, $p < .000$, *partial-eta squared* $= .62$, d $= 1.38$. Additionally, the univariate statistic for conventions additionally showed that low-level generalized writing skills were influenced by instruction, $F(1,31) = 41.72$, $p < .000$, *partial-eta squared* $= .57$, d $= 1.27$.

Following Cohen's effect size guidelines, 0.20 is small yet meaningful, 0.50 is a medium effect (i.e., half of a standard deviation difference in means) and 0.80 or above is large (Howell, 2002). The effect sizes (d) for these analyses were large to very large, with numbers ranging from 1.27 to 2.65. SIWI, therefore, had a significant impact on students' lower-order and higher-order writing skills.

Furthermore, students in the treatment group received two NIP-it lessons during the intervention time period that targeted lower-level writing skills. The first class consisted of students having fully developed expressive language skills and average to strong literacy skills. Both NIP-it lessons for this group targeted sentence combining. Pre and posttest differences regarding their production of compound and complex sentences can be viewed in Table 3. On a four-point rubric scale that rated the number of correct productions, student made mean gains of 0.5 on compound sentences and 1.5 on complex

sentences. The other two classes mainly consisted of students having minimal language skills and/or low literacy levels. The lower of the groups, class 2, received two NIP-it lessons targeting sentence construction (i.e., recognizing and reducing fragments and run-on sentences). The higher of the groups, class 3, received the first NIP-it lesson on sentence construction but a second lesson on the use of determiners. Pre and posttest differences can also be viewed for these classes in Table 3. Both classes reduced their fragment sentences and run-on sentences, thereby showing mean gains of 0.8 to 1.8 points on the 4-point rubric scale. In addition, class 3, showed a positive mean gain on correct use of determiners (i.e., 0.4 on pretest to 1.2 on posttest).

Discussion

Strategic and Interactive Writing Instruction proved to be successful with L2 deaf writers, increasing competence and production of both higher-level and lower-level skills. First, students gained in their ability to write informative text after receiving instruction in this area, but they also evidenced an ability to generalize writing skills and strategies to an untaught text structure, that of personal narrative writing. Students entering the middle grades typically have a less developed repertoire for writing expository texts (Applebee, 2000), yet there are increased expectations for students to exhibit content knowledge through writing and to write research papers or argument-based essays. The results of this study indicate that expository writing can be the center of instruction and not simultaneously stall student growth on standardized assessments. In fact, students in the treatment group made similar amounts of gain with each of the text structures; scores tripled on both measures while the scores of control group students stayed the same or slightly declined on both. The effect sizes for both informative and generalized writing

were very large (i.e., > 2.0). As can be seen in Appendices A and B, students—although at various pretest levels—showed gains over time with production of text structure, organization of information and coherence of written ideas. Higher-level writing skills such as these were modeled and supported through the POSTER strategies and the use of writing models. Conversation supporting and guiding these skills also occurred frequently in the day to day co-construction of authentic text.

Also noteworthy, these higher-level gains were paired with large gains in contextual language and conventions. SIWI, with its balanced approach, accomplishes what explicit and structured grammar instruction is meant to do for the L2 writer without compromising other high-level writing skills. Even more, the extent of gain with lower-order skills was a somewhat surprising outcome of the research. The current study allowed for only 15 days of co-constructing text. Many class lessons during the intervention time involved non-writing or prewriting activities such as planning, organizing, and evaluating text models, which allowed for little apprenticeship in the areas of contextual language or conventions. However, students still made significant gains in these areas from pre to posttests. Effect sizes were, in fact, quite large (i.e. 1.38 for contextual language and 1.27 for conventions). At the same time, students in the control group did not show gains, yet their classroom instruction consistently incorporated the explicit teaching of grammar. This further supports the assertion that grammar instruction alone may provide no real benefit (Hillocks, 1984), but contextualized learning of language, on the other hand, has potential to produce meaningful results. In this case, deaf L2 writers made considerable gains in a very short amount of time.

The NIP-it lessons proved to be a beneficial way of identifying constructions not readily used by students and then targeting these writing practices or skills through tailored instruction. Students in the first class, consisting of those at near-average or average language and literacy levels, had mastered many basic writing skills but were nonetheless producing simple sentences. This class received NIP-it lessons that targeted sentence combining skills. On posttest, students nearly doubled the amount of compound sentences they were using in their writing and quadrupled the amount of complex sentences. The other classes received different NIP-it lessons (e.g., forming complete sentences, recognizing fragments and run-ons, and distinguishing when to use "a" or "the") and, in response, also showed the ability to double, triple and quadruple the correct production of these constructions.

The key to effective NIP-it lessons, I believe, lies in the "P". With NIP-it lessons, the use of various constructions is practiced in the context of real writing events after the direct instruction occurs. That is, teacher reflection to "Notice" the area in need and the direct "Instruction" of the skill takes place outside the realm of co-constructing text but is later contextualized through "Practice" with authentic writing. Only 2 of the 32 lessons were allocated for direct instruction of contextual language through NIP-it lessons. After a lesson, however, the construction became an infused part of the classroom writing. Posters were hung in the collaborative writing area that represented and supported the NIP-it lessons, and the teacher and students made an increased effort to incorporate discussion and practice of the constructions when writing together.

The results of the analyses are fairly straightforward for the treatment group—SIWI had a significant and positive impact on students' writing outcomes. What is less

understandable is the lack of literacy progress in the comparison group—or in some cases—the decline of literacy skills. During the 8 week intervention period, students in the control group showed little variation between pre and posttest in respect primary traits of writing. While discouraging, a plateau in literacy achievement is characteristic of middle school students in general (Bereiter, 1980). Students, however, showed a decline with contextual language and conventions which is concerning.

In the comparison group, contextual language was one area given considerable time and focus. Such a result could potentially signify student regression instead of progression when the approach to teaching language is largely "part to whole". The language instruction initially focused on parts of speech (i.e., nouns, verbs, adjectives, adverbs) and increasingly added greater complexity (i.e., construction of sentences and paragraphs). In contrast, SIWI engaged students in writing essays, whereby learning about language was embedded. Students learned about subjects and predicates but within a context of revising fragments in the collaborative text. Students discussed adverbs but in the context of how an adverb expressed in ASL translates to written English. Indeed, structured skill building was an instructional element that was present in both groups; however, there were differences in the practice of these skills. SIWI allowed for skills to be embedded in actual writing whereas students taught in the comparison group using a "part to whole" approach studied language and grammar under simplified and decontextualized conditions.

Furthermore, in the treatment group, the teacher dynamically assessed and acknowledged the level of students' current understandings through group dialogue about writing skills, strategies and processes. This became the point of departure, whereby

instruction is offered at or above this level. In contrast, the comparison group started with very basic language instruction at the beginning of the year, discounting students' previous knowledge. Thus, instruction in the comparison group may have led students to regress back to use of simple and less varied constructions in their posttest writing even though they were capable of more. During SIWI, the co-constructed text, in addition, was written at a level beyond what students could accomplish independently but could achieve through scaffolding and support provisions. Therefore, there was constant exposure to complex and varied usages of grammar, and there was also opportunity to practice language not normally attempted, all within the context of a meaningful activity.

Lastly, during the 8 weeks, it was found that students became more skilled at distinguishing ASL and English expressions, quicker at translating aspects of ASL and more capable with creating grammatical English constructions. There was less use of the ASL easel and fewer instances of guided dialogue related to translation as time progressed. Further, students produced longer texts at posttest by writing an average of 80 words compared to 35 words at pretest. Although further qualitative analysis needs to be conducted to corroborate these claims, it seems the metalinguistic knowledge building component of SIWI aided students in production of more fluent expressions of English.

Educational Implications

One important implication for instruction is that teachers' knowledge of language is central to the instructional objectives. When working with deaf students similar to those in this study, teachers need a deep understanding of the linguistic principles of both ASL and English in order to model language, build students' metalinguistic knowledge or use explicit contrastive procedures. In particular, this knowledge can aid teachers in

direct instruction of language or use of think-alouds during the co-construction of text, for they can emphasize certain principles or distinguish language rules (Enns, 2006).

As fluent and natural users of either English or ASL as a first language, teachers may not have a linguistic-based or rule-governed understanding of their own language. Take for instance a hearing teacher who uses English as his first language. He is a fluent user of the language but may not be able to explain the rules underlying particular constructions; rather, this teacher, like many, operates on sound-based principles (i.e., what sounds correct in English or seems right). This teacher is not likely to have the necessary instructional tools when, for instance, faced with a deaf student who does not understand the difference between writing "interesting" versus "interested" or when another student expresses that the construction "had had" is wrong or mistyped. A teacher committed to the SIWI approach, rather, will continually build his or her own L1 metalinguistic knowledge. And, this is most likely an ongoing endeavor involving the collection of multiple resources—printed-based or person-based experts—one can refer to when in need of furthering language understanding.

Additionally, there are many teachers of the deaf who have yet to reach proficiency in their second language, whether ASL or English. Instruction of language or communication of instruction in general may then be constrained by teachers having limitations in their own language abilities (Stewart, 2006). In order for teachers of the deaf to be responsive to students' specific language and literacy needs, s/he must have a thorough understanding of the students' expressive language as well as English principles.

Limitations and Future Directions

The present study has certain limitations that should be taken into consideration with future research. First, there were no measures given to students at pre and posttest that assessed expressive language ability in ASL. In the midst of the intervention, it became apparent that students—especially those starting with minimal language skills— were displaying growth with expression using ASL. Because of the interactive and collaborative nature of SIWI, students were frequently participating through the air using ASL or sign-based expressions. Future research might investigate the extent to which involving students as active participants in learning or involving students in dialogic learning supports the language growth of deaf students.

Second, future directions in research might inquire how teachers appropriate an understanding and an ability to use discourse in the classroom as a pedagogical tool. Whereas it has been shown that exemplary teachers of the deaf are skillful users of dialogic inquiry (Mayer, Akamatsu and Stewart, 2002), it is less certain how these teachers have developed such a skill. Working within an interactive environment, such as that of SIWI which values student participation, can be a complicated instructional venture for teachers. Certainly, there is less teacher control over the lesson, for discussion can take learning in unexpected directions or reveal students misconceptions. As Schoenfeld (2002) articulates, such an approach requires a:

> . . . substantial amount of understanding and flexibility on the part of the teacher—the willingness to explore ideas as they come up, the ability to make judgments about what might be productive directions or not, and the ability to provide the 'right' level of support for students individually and collectively (p. 157).

Research questions might ask how pre-service teachers or teachers not currently

employing much classroom discourse can appropriate the skills of facilitation. SIWI's

interactive component is essential, for it serves to aid students' understanding of concepts

while also providing students with supported and connected language practice. Thus, it

must be investigated how teachers come to appreciate and use dialogic techniques with

L2 writers.

In the current study, the implementer of the intervention was a capable user of the

SIWI instructional components, including dialogic inquiry, prior to the onset of the

research. It can be reasoned that similar outcomes may not have resulted during the 8-

week intervention had the implementer been a teacher who was newly exposed to the

instructional principles of SIWI. Prior research investigating teacher learning of literacy

practices that are based on sociocultural theories (e.g., instruction that is discursive,

scaffolded, purposeful and allows transfer of control to students) has found that full

implementation is an ongoing endeavor (Englert, Raphael & Mariage, 1998).

Implementation is considerably different after a couple years rather than at the time of

learning, for teachers evidence a deeper understanding of the theoretical principles over

time. Expert teachers are more able to construct responsive instruction that suits their

particular students and contexts, whereas novice teachers merely focus on enacting the

activity (Englert, Raphael & Mariage, 1998). Future research may examine the nature of

teachers' learning, change over time and its impact on L2 students' outcomes.

Conclusion

In summary, the current study investigated the effectiveness of writing instruction

used with deaf middle school students that is both strategic and interactive. The positive

results of the study indicate that students in the treatment group made significantly greater gains with writing compared to the control group. Thereby, Strategic and Interactive Writing Instruction (SIWI) may be one productive and comprehensive approach to use with this population of L2 writers--students having severe to profound losses, using ASL as their expressive language and having connections to the Deaf community and culture. For this group, there has been a dearth of research and theorizing supportive of language or literacy learning. Broad application of L2 writing research, however, has proven useful.

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Table 1

Categories and Subcategories of Writing Measure Rubric

Main Categories	Subcategories
1. Primary Traits	Introduction to the topic
	Title
	Topic development (breadth)
	Paragraph development (depth)
	Conclusion
	Coherence
	Tone
2. Contextual Language	# of fragmentary sentences (high score = no fragments)
	# of run-on sentences
	# of compound sentences (two independent clauses joined by a coordinator)
	# of complex sentences (an independent clause joined by one or more dependent clauses
	# of introductory phrases or clauses
	# of unique prepositional phrases
	Use and correctness of negation
	Subject and verb agreement
	Verb consistency
	Use and correctness of infinitives
	Use and correctness of conjunctions, excluding "and"
	Use and correctness of determiners
	Appropriateness of prepositions
	Use of pronominalization
	Use of unique vocabulary words[1]
3. Contextual Conventions	Use and correctness of contractions
	Using capital letters to begin sentences
	Using punctuation at the ends of sentences
	Using capitalization appropriately for proper nouns
	# of unique and correct internal punctuation marks
	Spelling (# of misspelled/total # of words)

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[1] See Singleton, Morgan, DiGello, Wiles & Rivers (2004) for the list of words considered basic or common. All other words were considered unique, counted and then divided by the total number of words in the paper. This number was then evaluated on a 4-point rubric scale.

Table 2

Example of Rubrics for Scoring

Primary Traits: Introduction	
3	Fluency of trait Accomplishes all of the following: (a) attracts the attention of the reader; (b) includes a thesis statement that clearly states the direction the paper will take; (c) declares the purpose or intent.
2	Near fluency of trait Could accomplish a, b & c with minor revisions. Thesis statement may be too vague or general. May not have one well-defined statement of the thesis. May not make any attempt to engage the reader in the topic.
1	Limited fluency of trait In need of substantial revisions to accomplish a, b & c. No explicitly stated thesis, but there is an attempt to open the topic. May have a descript title with no other introduction.
0	No emergence of trait A topic or purpose of the text cannot be inferred. Writing may be a string of associative details.
Contextual Language: Subject-Verb Agreement	
Consider entire verb. Misspelled verbs are not counted as subject-verb agreements. e.g., My group *is went* in the woods. [No agreement because of second verb.] e.g., I cont (count) 25 trucks. [No agreement because of a misspelled verb.]	
3	Nearly all (> 95% of subject-verbs agree)
2	Mostly subject-verb agreement, and no fragments (>80%)
1	Some subject-verb agreement, and may have a fragment (>50%)
0	Mostly no subject-verb agreement, and may have fragments
Conventions: Capitalization of Proper Nouns	
3	All proper nouns are capitalized, including "I"
2	One mistake (Author either doesn't capitalize a noun that should be or s/he mistakenly capitalizes a common noun in the middle of the sentence.)
1	Two mistakes
0	Three mistakes or more

Table 3

NIP-it lesson outcomes

Class	Contextual Language Item	Mean Pretest Score	Mean Posttest Score
1	Compound Sentences	0.75	1.25
1	Complex Sentences	0.5	2
2	Fragment Sentences	0.8	2
2	Run-on Sentences	0.6	1.4
3	Fragment Sentences	1	2
3	Run-on Sentences	0.6	2.4
3	Determiners	0.4	1.2

Figure 1. Student Cue Card

(see landscape page)

APPENDIX A

STUDENT EXAMPLES OF INFORMATIVE WRITING

Treatment group, Student 8 (age 12, reading, 0.6)
Pretest

1. Bear is where live in usa. And have baby too. have a bear 1,000.

Wolver have too Love food what! Meat. And Love moon. Shak have 42 teeth. wolf have

1,000.?

Treatment group, Student 8 (age 12, reading 1.6)
Posttest

Information about Gray Wolves.

you know where live wolves?? I know where wolves live in tree and live U.S.A.

too. wolves lives 6 to 8 year. 6 to 8 wolves in a wolf pack and tend under in tree. food

metaeta deer too. wolves love food meta. now wolve have thick fur warm. Wolves only

Holw to moon, and if people look wolves will away run!!! and fun fast How mph? mph

30 wolves can get Deer eta or quiet can get Deer ok. I see wolve pack 10 look Food Deer.

many wolves about 2,500. you see bfore wolves? No or yes. you like stoy about wolves.

Treatment group, Student 13 (age 11, reading 3.7)
Pretest

Gray Wolves

All wolves loves to prey large, hoofed mammals (white-tailed deer, moose, elk, caribou, bison, Dall sheep, oxen, and mountain goat). Wolves live in areas of the United State (Michigan's Upper Peninsula, northern Minnesota, Wisconsin and Alaska). Gray wolves weights about 50 to 130 pounds (fully grown). Wolves have 42 teeth in their's mouth. Wolve's born wolf pups size about 4 to 6. Wolf looks like a German shepherd or a husky. Wolves may travel 10-30 miles a day prey for food. Wolf can live 6 to 8 years. Wolf is gray, black or all white.

Treatment group, Student 13 (age 11, reading 4.3)
Posttest

"Information about Grizzly Bears"

The Grizzly bears are very interesting animal ever! They are lovely bears. They live in beautiful places. In addition, sometime they are mean to people its depend if they are hungry.

The Grizzly bear is dark brown. They have hairs on their back and front too. Also, they have long, curved claws. The cubs size is as one litter of bottle. The Grizzly bear weight 270 to 770 pounds (fully grown), and length of up to 7 feet tall. The Grizzly bear are furry.

The Grizzly bear prey on large, hoofed mammals like moose, elk, mountain goats, mountain sheep also their calves. They feed to their calves berries, roots, bulb of plants, and whitebark pine nuts. In addition, they also eat insects such as ants and moth. The

Grizzly bears is omnivorous mean they only eat meat and plants. The Grizzly bears eat human too, and its depend if they are very so hungry.

The Grizzly bear lives in areas of United State (Alaska, Idaho, Wyoming, Washington). They lives in subalpine mountain areas. The home range is forested or shrub covered. They lives alone, with the exception of a female with her cubs. They lives 20 to 30 years. They lives in a interesting place.

The Grizzly bear is active during the mornings and evenings. They run up to 35 miles per hour when they are chasing prey.

This story is all about: a) what they look like, b) how they live, c) where do they live in position, and d) what they do. The Grizzly bear are interesting, curious mammal. They eat many different animals plus people.

Treatment group, Student 3 (age 13, reading 5.1)
Pretest

Gray Wolves
The gray wolves can live up to 6 to 8 years. They about weight 50 to 130 pounds.

The gray wolves are about 4.5 to 6.5 feet long and about 26 to 32 high. They have about

42 teeth. The gray wolves are gray, black or all white and they look like a German

Shepherd or a husky. Their tracks are about 4.5 inches long and 3.5 inches wide. They

communicates through howling, body language and scent. There are 6 to 8 wolves in a

wolf pack. Their litter size is 4 to 6 wolf pup.

The gray wolves live in Canada, Europe, Middle East, Asia, and United States.

Their home range is in the forested areas. Their territory size can range from 25 to 150

square miles in Minnesota, and 300 to 1,000 square miles in Alaska and Canada. They

marks its territory with urine and feces.

The gray wolves are carnivorous. Their preys are large, hoofed mammals or medium

sized mammals. They can eat up to 22.5 pounds in one sitting. They can run up to 25 to

35 miles per hour chasing a prey or travel 10 to 30 miles a day searching for food.

Treatment group, Student 3 (age 13, reading 6.0)
Posttest

The grizzly bears are mammals that are very cool animals. They are active during the mornings and evenings in Spring. They all looks the same, eats a lot of foods and also they lives in many different places.

The grizzly bears looks the same. They all have dark brown hair on the shoulders and back tipped white. They have long, curved claws. All grizzly bears have a shoulder hump. They mostly weighs 270 to 770 pounds with the height to 7 feet tall. The grizzly bears tend to live 20 to 30 years. They all looks the same but have different sizes.

The grizzly bears lives in variety of places in United States and Canada. Their home ranges are inland, forested or shrub covered, and away from oceans. They mostly live in mountain areas within 10 to 380 square miles. They tend to live alone, depending the exception of a female with her cubs. The grizzly bears mostly live in North America.

The grizzly bears are omnivorous, meat and plant eaters. They always eat berries, roots, bulbs of plants, whitebark pine nuts, carrion, and ground rodents. They also eat a lot of insects such as ants and moths. Their prey are large, hoofed mammals, for example, moose, elk, mountain goats, mountain sheeps. After they see their prey, they run up to 35 miles per hour leaving tracks of 6 to 16 inches long and 7 to 10 ½ inches wide. The grizzly bears eat variety of foods.

You recently learned about what grizzly bears look like, where they live, and also, what they eat. They are really friendly so don't be afraid of them. The grizzly bears are a huge mammal that hibernates.

APPENDIX B

STUDENT EXAMPLES OF GENERALIZED WRITING

Treatment group, Student 9 (age 12, reading 1.0)
Pretest

I Want be need do Know.

Treatment group, Student 9 (age 12, reading 1.2)
Posttest

last I go play in game basketball see many shall boys, MSD is not win is lost! Boss Tell

more run'ed Than go water, I is hard! Work for practice is basketball, I go basketball

again boys is shall, again MSD is lost.

Treatment group, Student 14 (age 12, reading 2.9)
Pretest

<div align="center">"it about to get the goal"</div>

i try the best a A+ 100% a goal.

Treatment group, Student 14 (age 12, reading 3.2)
Posttest

If someone need helped then I talk tell them. to helped, and tell how you feel or need

money to given to poor people, and food, and need house, and chothes. to keep them

warm when during winter. for an support. that for poor people need something. it for

them. some people need home, and money, and food. giving to other that mean charity.

We giving an prestent parent and kids. Kids and parent need US for helping them and

giving to them. They need us giving to to them, and food, an home, clothes, money.

When you be nice to them then they will like you, and we will like them too. I like to

giving them an clothes, and shoe, and toys, and money, and food. thanks you for supports

to helping poor people and kids and adult.

Treatment group, Student 3 (age 13, reading 5.1)
Pretest

One day, Scott was walking the school. He saw many kids were picking on a boy named Brain. They called Brain in many bad ways. He oftenly went into bathroom and cried. One time, he threated them that he'll bring guns and bombs to kill and blow the school buildings. Scott saw him threating the school. He went up to Brain and talked with him.

Scott took Brain to counseling center. The counselor helped Brain. Brain calmed down. Few weeks later, Brain went to school and had a talk with those who picked on him. They had a long talk and became friends. All thanks to Scott.

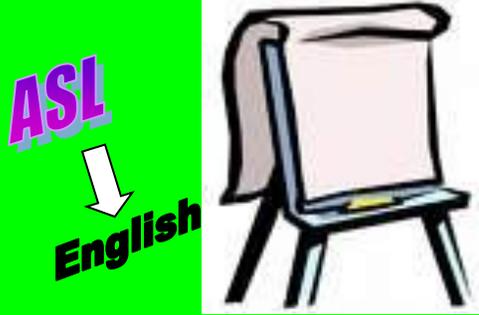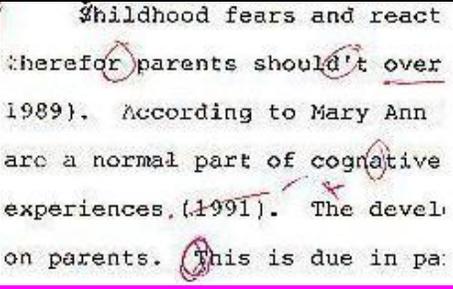Treatment group, Student 3 (age 13, reading 6.0)
Posttest

My parents was divorced in 2003. They told me and my sister while we was having fun in KFC. My sister and I cried a lot when they told us. I'll tell you why my parents were divorced and how I felt about it.

My mom, Nancy, and my dad, Alan, was fighting (not physically) about money. My dad tend to be on the computer right after he arrived from work. But my dad always do chores. My mom tend to cook, take us shopping, etc. My mom thought that my dad pay NOTHING at all. So my parents was fighting, but they still love each other.

My sister and I felt really desperate when they told us. I thought that my life would be over. But in a year, I feel okay, probably better. We had to go to my mom's then to dad's every week, which was tough to do, and have time together. At first, you will feel really desperate when your parents are divorced but you will feel fine in a year or two.

I just told you why my parents are divorced and how I felt about it. When I hear the word, "divorced", I think of my parents. It's just that it's tough. If your parents are divorced, don't feel bad about it, and your life will not be over.

Figure 1. Student cue card

PLAN	ORGANIZE	SCRIBE
  • Choose Topic • Choose Audience [Who am I writing for?] • Define purpose [Why am I writing this?] • List knowledge [What do I know?] • List questions and resources [What do I need to know about the topic? How will I find this?]	 • Text structure [What conceptual map can I use?] • Categorize ideas [How can I group my ideas?] • Order ideas [How can I order my ideas?]	 • Write from map • Extend, elaborate
TRANSLATE	**EDIT**	**REVISE**
  • Recognize ASL [Is it ASL, English or a mix?] • Change ASL [How can I write this idea equivalently (=) in English?]	 • Reread and Monitor [Does everything make sense? Did I achieve my plans? Is it interesting?] • Editing checklist • Make changes	 • Write a clean copy • Publish paper
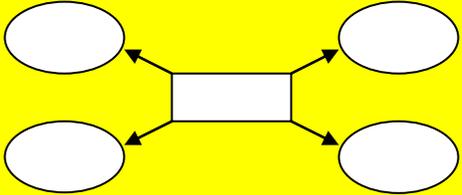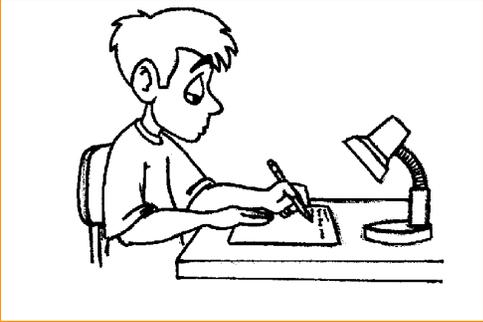
Adapted version. Original source: C.S. Englert, T.E. Raphael & L.M.Anderson (1989). Cognitive Strategy Instruction in Writing Project, East Lansing, MI: Institute for Research on Teaching.