Language and Literacy
Langue et littératie

Investigating Writing Instruction Practices for Students With Deafness and Hearing Loss

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Article abstract

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Investigating Writing Instruction Practices for Students With Deafness and Hearing Loss

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Abstract

This case study investigated the writing instruction practices of two teachers (grades 6 and 7) for six students with deafness and hearing loss. The researchers focused on what classroom practices and strategies teachers employed with students, what teachers' perspectives were about best-practices for writing instruction, and students' perspectives about writing. The authors completed qualitative interviews and classroom observations with teachers (N=2) and students (N=6; three per class observed) about writing instruction for students with deafness and hearing loss. The data resulted in four themes: the need for teacher modeling, guided practice, and developing students' independence; students' challenges with writing (e.g., from ASL to English prose); the need for more resources (e.g., professional development about writing); and how assessment helps define students' strengths and weaknesses.

Mark (pseudonym) is a university/research faculty member with an interest in studying how to help people who struggle with writing. He developed a set of professional contacts at a public school which provided services for students with hearing loss and deafness. This provided the opportunity for Mark to observe and discuss with teachers and students what they found as effective for writing instruction. Mark observed the teachers and students during a six-week writing unit in two classrooms (1 sixth- and 1 seventh-grade; three student participants in each class); through interviews, Mark explored the teachers' and students' perspectives about writing and the classroom practices that were offered.

Many students find writing to be a challenge; students with disabilities such as those with deafness or hearing loss can be amongst the children with the lowest scores (NAEP, 2017). There is little discussion in the general-education professional literature that offers teachers ideas to help students with deafness and hearing loss improve their writing skills, although many students with this disability type tend to be served in general education classrooms. This case study had three research aims for adding to the existing literature about writing and deafness/hearing loss. First, this study offered classroom illustrations of

what writing instruction could entail for students with deafness and hearing loss. The study included observations of classroom activities and discussions with students and teachers about writing instruction and what barriers they encountered. Second, this study provided an opportunity to compare teachers' instruction to what writing researchers advocate as best practices—what might be added to make instructional practices even better? Third, the processes of this study (e.g., observe, discuss students' writing, reflect, next-steps ideas) provided an opportunity for teachers to reflect on their own writing instruction and what workshops or resources they could seek to help make their teaching more effective for students. The results of this study stem from Mark's observations of the teachers and their discussions.

Writing and Students with Deafness/Hearing Loss

Students with deafness and hearing loss represent about 1.1% of students receiving special education services (U.S. Department of Education, 2019), but research also indicates that prevalence varies (0.005-14.9%) depending on the type of data being analyzed (e.g., surveys of parents, medical records; Center for Disease Control and Prevention, 2020). The assessment process for identifying hearing problems in Canada and the United States, as two examples, typically follows this sequence: screen for hearing loss by one month of age, diagnose the degree and type by three months of age, and have the child fitted with hearing devices and receive early intervention services before the child is six months old (Grenier & Bailon-Poujol, 2018; National Center for Hearing Assessment and Management, 2020). Only about 5% of these children are born to parents who are deaf or have hearing loss (Turnbull et al., 2020). About 88% of students with deafness or hard of hearing are served in inclusive settings—80% or more of the school day in a typical classroom. A small portion of these students are served in congregated classrooms (e.g., residential schools) (U.S. Department of Education, 2019).

Students with deafness and hearing loss can experience reading difficulties, which in turn, limits their exposure to good writing models (Antia et al., 2005). The reading level for an individual who is 18 years old with deafness/hearing loss can be significantly below average (e.g., fourth grade) (Williams & Mayer, 2015). These students need alternative ways to learn to read (e.g., cochlear implants, learning morphological skills so as to rely less on letter-sound decoding). This is important as reading text offers an opportunity to see high-quality prose, which can be adapted into one's own writing (Alves et al., 2020). Similarly, a student's lack of access to spoken language has an impact on writing too (Marschark et al., 2006). Hence, the connection between spoken and written language in those with hearing problems is restricted, leading to challenges with writing (Everhart & Marschark, 1988; Fabbretti et al., 1996; Volterra, & Pontecorvo, 1998).

Like other struggling writers, students with deafness and hearing loss do not process with automaticity lower-order writing skills (Wolbers, 2007). They can encounter difficulties with vocabulary, the determination of pronouns and conditional verbs as well as problems related to determiners, conjunctions, and passive constructions. Their writing styles tend to integrate fewer noun-phrase modifiers compared to hearing writers (Antia et al., 2005; Van Beijsterveldt & Van Hell, 2010). Spelling too is often a challenge as learning phonological awareness skills have a hearing-the-sounds component (Bowers et al., 2016).

While technology use has grown in recent decades for reading and writing tasks, not all students willingly adopt it for school tasks. Many educators debate if handwriting should be abandoned entirely as cursive writing is considered to be a natural human skill. Berninger (2013) commented that there could be place for both types. In early elementary grades, both keyboarding and cursive writing could be offered to students. By later elementary grades, students keyboarding practice should provide for them to outpace their handwriting performance, which would make the use of mobile devices more efficient and preferred. The use of mobile devices can be required for students' text production. The Common Core State Standards (2021), for example, require that students use keyboarding for text production in second grade and in the school years that follow.

Strategies to Improve the Writing Skills of Students with Deafness and Hearing Loss
Written language consists of the ability to generate ideas, organize them into a plan, spell words, compose sentences, manage text production (e.g., handwriting, typing) and structure (e.g., beginning, middle, and ending), being cognizant of phrasing of one's prose per the task's genre (e.g., story versus informational types of texts), and utilize technology to enhance writing (Graham et al., 2012). Yet, the role of teaching writing has traditionally been neglected (Kiuhara et al., 2009; Graham, & Harris, 2013) as many instructors comment that they feel unprepared to teach writing (Gilbert & Graham, 2010).

Mnemonic strategies. There are several mnemonic strategies to help improve students' writing ability (e.g., Dunn & Finley, 2010; Dunn, 2011; Mastropieri & Scruggs, 2018). Welch and Jensen (1991) developed PLEASE to address issues in paragraph writing that are associated with pre-writing planning, composition, and paragraph revision: Picking the topic, audience, and type of the paragraph; List ideas; Evaluate procedures; Activate the paragraph with a topic sentence; Supply supporting details and sentences; and End with a concluding sentence. The step-by-step aspect PLEASE and many other mnemonic strategies offer students a means to manage writing in a feasible way for self-regulation. Datchuk and Kubina (2017) offered sentence instruction (SI) and *frequency building to a performance criterion* (FBPC) to three 8th-10th grade females (two with a learning disability; one with a mild intellectual disability) and one male student (struggling writer) to improve simple sentence writing and word sequences (paragraph writing). The intervention teachers used pictures and a few associated keywords to demonstrate the sentence-writing process (e.g., a picture of a child playing soccer; and the keywords *boy* and *soccer*). All participants improved in constructing complete, simple sentences; three participants improved in their correct word sequences writing. As students engaged in the activity, the teachers offered positive and corrective feedback and then assessed for independent student performance. Paragraph activities include reading paragraphs, correcting errors in paragraphs, and creating a series of related sentences to describe a picture. Students practiced until they reached a time criterion of 18 lessons or a performance criterion of 30 correct word sequences (CWS) with 0-3 incorrect word sequences (IWS). The intervention produced lasting, meaningful changes in the writing behavior for most participants. Paragraph writing (e.g., inaccurate subject-verb agreement,

and grammatically incorrect words) proved to be a lingering challenge for some participants.

Self-Regulated Strategy Development. Self-Regulated Strategy Development (SRSD; Graham & Harris, 2019) emphasizes six instructional steps for teachers to promote students' improvement in a skill such as writing: 1) reviewing the students' background knowledge to choose a new strategy that could help, 2) explaining the strategy's steps, 3) discussing it with the students for them to understand how it could help them and that they commit to learning and using it, 4) the teacher's modeling the strategy, 5) having students repeat the strategy's steps with fading teacher involvement in each successive text, and 6) encouraging students to consider where they could use the strategy more generally in their classes, which may help students maintain the strategy in memory over time (Graham & Perin, 2007). Vostal and Ward (2015) used an adapted version of SRSD with grades 9-12 students with deafness and hearing loss. They employed two strategies in their SRSD instruction. The mnemonic POW included three main steps: (a) Pick ideas, (b) Organize notes, and (c) Write and describe more (Harris, Graham, & Mason, 2006). The TREE mnemonic was also used and consisted of four steps: Tell what you believe, include or provide Reasons, End it, and Examine (Harris, Graham, & Mason, 2002). The teacher's instruction incorporated total communication (e.g., ASL, spoken English, written English, and any other form of communication to meet individual students' communication needs), extensive visual cues (e.g., cue cards), and modifications to activities and materials (e.g., scaffolding, graphic organizers). The participating students showed improvement from six sentences per paragraph at pretest to 15 to 20 in organized essays at the posttest; yet, their essays continued to lack extensive explanation of their thinking (e.g., evidence).

Strategic and Interactive Writing Instruction. Strategic and Interactive Writing Instruction (SIWI) is an evidence-based instructional approach to improve writing and language outcomes for students with deafness and hearing loss (Wolbers et al., 2015). SIWI consists of linguistic and metalinguistic components that address various language needs of these students (Wolbers et al., 2018). According to Dostal et al. (2015), SIWI involves seven principles including strategy instruction, interactive instruction, metalinguistic knowledge and linguistic competence, balanced writing, guided to independent writing, visual scaffolds, and authentic audience. Wolbers (2008) examined the effectiveness of the SIWI approach with 33 middle school students with deafness. The author concluded that SIWI was a successful approach that helped the participants increase their competence and production of both higher-level and lower-level writing skills. Wolbers et al. (2011) extended their SIWI research with a year-long intervention to investigate the growth of students with deafness, low versus high achieving. The findings of the study concluded that participants demonstrated significant gains in the level of complexity and grammatical accuracy of their writing.

Summary
Students with deafness and hearing loss can face many challenges with writing. Their experiences with early literacy (reading) experiences and social interactions with

others are often impaired. Typically-hearing people, even their parents in some cases, do not have American Sign Language skills for conversing and discussing texts. These students are often placed in general education classrooms where teachers often have little knowledge of the learning-to-write needs of students with deafness and hearing loss. Mark wanted to offer general education teachers more information to help address the needs of these students.

The promising answer to the challenges that these students face is that there are strategies and practices that teachers can use to help students with deafness and hearing loss improve. Mnemonic strategies can help students learn a sequential-step (e.g., self-regulated strategy development) approach to writing a given type of text. Strategic and Interactive Writing Instruction (SIWI) adds to these practices by comparing a visual component of ASL-signing images (e.g., a picture sequence of the ASL signs for, "He went to the store)" to the English phrasing, which helps students see the differences and improve in writing in English over time.

Methods

This study focused on a sixth- and a seventh-grade teacher (three student participants per class) to collectively form a case about how to manage writing instruction for students with deafness and hearing loss. To enrich the description of this case study, the first author asked each student to complete a writing interest questionnaire (e.g., Are you a good writer? What do you do when you are not sure what to write next?), observed class sessions (February-March), and interviewed the teachers and students near the end of the eight weeks. Mark invited two doctoral students in special education to participate in the analysis of the data. The authors' university institutional review board approved the procedures for this study.

In previous semesters, Mark and his pre-certification students had visited the participating school site to observe and learn about how to implement writing instruction. Mark initiated the idea of this study with the school's superintendent, who welcomed the idea. The public school enrolled 110 students, preschool to 12th grade, in the Western United States. Students were in self-contained classes for those with deafness and hearing loss all day.

Participants

Tables 1 and 2 list the descriptive information about the teachers and students.

Table 1		
Teachers' Demographic Information		
Teacher's Grade	Years of Experience (Degree)	Race/Ethnicity

Kate, Grades 5 and 6, language arts (reading, writing, ASL)	13 (Master's in Education of the Deaf)		Female Caucasian
Stephen, Secondary English Language Arts Grades 7 - 12	5 (Master's in Education of the Deaf)		Male Caucasian

Table 2 lists the descriptive information about the students.

Table 2

Students' Demographic Information

Students	Teacher's Name	Grade	Age	Race/Ethnicity	Writing Level*	Reading Level*
Barb	Kate	6	11	Black	Mid 3rd grade	Mid 3rd grade
Kathy	Kate	6	11	Caucasian	Early 4th grade	Mid 3rd grade
Valarie	Kate	6	10	Caucasian	Mid 5th grade	Mid 8th grade
Heather	Stephen	7	12.10	Caucasian	Beginning of fifth grade	End of sixth grade
Mary	Stephen	7	12.8	Caucasian	Mid-fifth grade	End of third grade
Sally	Stephen	7	12.7	Caucasian	Mid-fourth grade	End of fifth grade

*=The teacher's assessment of the student's ability level.

The research design followed Briggs (1986) and the Council for Exceptional Children (Brantlinger et al., 2005) quality indicators for research: that knowledge be derived from sense experience and/or careful observation; that the authors offer insights about perspectives, settings, and techniques; that the authors provide a systematic use of qualitative methods; that the authors offer valid information about the physical, material, and social worlds; and that the authors state the purpose and usefulness of the findings as well as implications for the field (p. 196). The authors employed sound methods to ensure

confidentiality and represent participants fairly and sensitively in reporting these results. Data were collected on an iPad (observation notes, interview recordings) and housed in Microsoft's (2020) OneDrive cloud service for sharing amongst the authors.

This study sought to explore the following research questions:

1. What are teachers of students with deafness and hearing loss' classroom practices for writing instruction?
2. What are teachers' perspectives about writing instructional practices?
3. What are students' perspectives about writing instructional practices?

Students' Writing Interest Inventory Survey

The first author administered the Writing Interest Inventory (Rhodes, 1993, pp. 61-62) at the beginning of the study; the questions explored how students viewed themselves as writers, who they thought were good writers, and what was an area(s) about writing they found challenging. The end-of-project/debrief questions focused on how the students managed writing during this project:

1. How have you found the writing tasks during these past 4-6 weeks? Were they easy? Difficult? Why?
2. When you found a phase of writing to be difficult, what did you do?
3. Have you found reading a published text helpful to use as a model for your own writing?
4. Are there technology tools that you find helpful?
5. What else do you find difficult about writing that you feel you could have help?

Interview Questions

The design of the study included semi-structured interview questions for teachers, which helped initiate each conversation and allow for follow-up discussion:

1. How do students see themselves as writers? Do they like writing? What do they find difficult? What helps them improve? Do they use technology tools to help with writing?
2. How do teachers of writing see their instruction and assessment practices? What pedagogy and framework helps them teach students? What types of assessments do they use?
3. How does writing instructions unfold in the classroom? What tasks are expected? What do students produce in terms of content and quality of writing? What do they think of mobile apps and websites that the first author suggests (e.g., Grammarly.com)?
4. Based on these interviews and observations by the end of the study, what do teachers and students see as having worked well? What would they feel could work better/in a different way?

Students' End-of-Study Interview Questions

The semi-structured interview questions for students were:

1. How have you found the writing tasks during these past 4-6 weeks? Were they easy? Difficult? Why?

2. When you found a phase of writing to be difficult, what did you do?
3. Have you found reading a published text helpful to use as a model for your own writing?
4. Are there technology tools that you find helpful?
5. What else do you find difficult about writing that you feel you could have help?

Analysis of the Interview Data

      For data analysis, the authors used a five-step framework analysis approach (Hruschka et al., 2004; Ritchie & Spencer, 1994; Rubin & Rubin, 1995; Silverman, 2000). They divided thematic analysis into five steps; they individually completed steps 1-4 and later met to compare notes and complete step five. First (familiarization with the data), they read all four teacher transcripts in analysis-ready form multiple times to become familiar with the content, made notes, and created initial categories. Second (coding to identify a thematic framework), they coded key themes, concepts, and ideas from each page into categories as well as overarching sub themes. Third (indexing), after they reviewed the transcripts to create the codes, they analyzed their notes while cross-referencing back to the research questions to ensure the codes captured the participants' ideas. Fourth (charting), they summarized the data into a matrix for each theme by having a row for my selected data from each participant, noting key ideas and/or illustrative example quotes, and using participants' verbatim keywords to correspond to the coded themes. Fifth (mapping and interpretation), the authors reviewed their matrices within and across participants to begin their interpretation of the data to develop coherent/agreed themes and possible explanations of interviewees' comments and ideas.

Observational Data

      The first author visited Kate and Stephen's classes two times each week, one hour per class. With four hours per week across eight weeks, there was a total of 16 hours of observations. The school provided Mark with an ASL translator; they sat at a table at the back of the classroom. Mark used an iPad with WORD (Microsoft, 2020) to type notes about the sequential activities in each lesson as well as take pictures of some of the Elmo projector's images and text examples.

      The observation protocol included the following:
1. What are the materials and resources evident in the classroom(s) for writing instruction? Does this include technology?
2. What are students' materials as they arrive at class for writing instruction? Does this include technology?
3. What are the teachers' instructional practices during writing instruction?
4. How do students apply the teacher's instruction? How much of this independent work versus small group?
5. How do teachers assess students' writing? Does this include technology? Are students involved in that assessment? Do they have the opportunity to see their results and develop weaknesses into more of a strength?

The authors reviewed the notes and images from classroom activities to compare and contrast with the interviews and students' writing inventory responses to define common

themes, illustrative examples, and/or contrasting ideas (Beach & Brun Pedersen, 2019; Brantlinger et al., 2005).

Results and Discussion

The results of this study include an analysis of the interviews with the teachers and students; the authors also integrated observational notes to help illustrate the findings. Both Kate and Stephen employed aspects of a writers' workshop model (e.g., Calkins, 2005): explicit instruction and time for practice, write authentic text, students choose their own topics, draft and edit their texts, read high-quality examples, have clear goals, and receive teacher feedback. The teachers offered classroom activities in a global-instruction format (one set of tasks for all students with the same objectives; see Figure 1 for an example of Stephen's).

Figure 1. Stephen's "state your evidence" Example About Chocolate.

Kate's unit during the timeline of this study was about writing book reports. See Abby's example in Figure 2.

I enjoyed it
You would like the book if you like **Comedy**
Review:
Diary of a Wimpy Kid Long haul is a great book. It is about a boy names Greg. During the summer break Greg's family goes on a road trip. No electronic are allowed. They often stay in awful Motels. They even end up winning a pig! And tons more wacky stuff happens.

I like this book because it is funny. One of my favorite parts in the book is when the pig ate all the stuff in the mini fridge while they were staying at the hotel. I think that the pictures made it even more funny!

I recommend this book for people who like humorous books. So read this book if you like humor and an overall funny book!

Figure 2. Example Book Report by Abby of Diary of a Wimpy Kid by Jeff Kinney

Kate used an Elmo projector for students in the class (N=8) to see images, tables, diagrams, and texts that Kate referenced. She also had chart paper at the front of the class for students to see example texts. Students had access to writing notebooks as well as iPads. Kate's daily lessons began with her presenting the topic and task, having class conversations, individual and paired practice with writing while Kate circulated amongst the students, and then a summary discussion.

Four themes, each with one or more sub themes, emerged from the interview data (Table 4).

Table 4

Managing Instruction for Struggling Writers with Hearing Loss: Themes and Sub Themes

Themes	Subthemes
Instructional practices	▪ Teacher Modeling ▪ Guided Practice ▪ Developing Students' Independence
Persistent challenges with writing	▪ English and ASL have different syntax ▪ Proficiency with ASL ▪ Students' attitudes about writing
Lack of resources	▪ The need for mobile devices with keyboards ▪ The need for professional discussion about writing instruction
Assessment	▪ The benefits of assessment

In the authors' analysis of the data, triangulation of the teacher and student interviews and classroom observations indicated that writing posed challenges for the students in the study (e.g., students' voicing their challenges with grammar in English; teachers' comments of students' challenges posed by ASL/English). Yet, strategy instruction, teacher modeling and observations of students' classroom practice provided for them to have a positive perspective about writing and that they could improve. Students' perspectives about using technology tools were a moderating factor in the study as mobile devices and applications (e.g., Google Docs) provided a means for the teacher to share helpful information (e.g., strategies, examples); yet, at least some students found

composing text with technology tools to be challenging (e.g., virtual keyboards on iPads). Figure 3 illustrates an example keyboarding task: Kate asked students to go to the Elmo's keyboard and contribute a written sentence to the paragraph; this was a laborious exercise for some students.
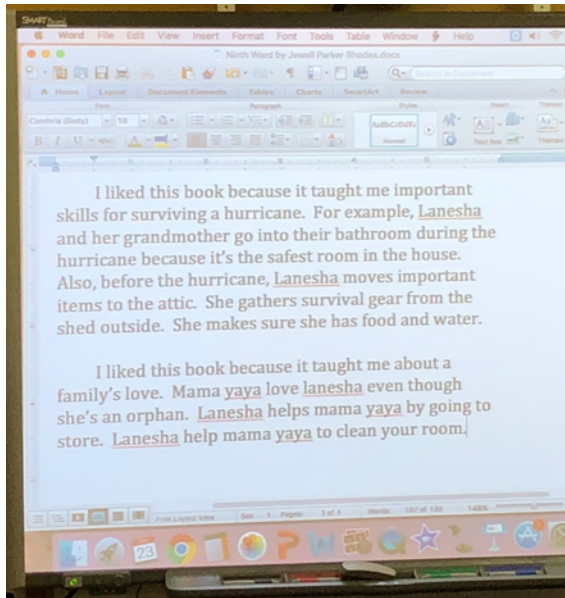

Figure 3. Kate's Students Contribute A Written Sentence to the Paragraph

The tactile nature of physical keyboards could help more students have a positive view about technology tools. Mark's school, in his earlier years of teaching, had students do twice-weekly keyboarding practice for 30-minute sessions which provided a means to help them develop automaticity in the skill.

Theme 1: Instructional Practices

Teacher modeling, guided practice, and developing students' independence. Students benefit from multiple examples. "Students find instruction that includes explicit examples to be very helpful. For that first portion of the class, some real structured thinking, conversation and content helps students understand" (Stephen). Kate commented that students benefit from teacher modeling. "I like to write in front of my class while they watch. They have to watch me and listen to my thinking. I also have students take turns writing together." In class, Kate used the Elmo projector to demonstrate to the students the process for starting a book review. Kate then had student volunteers come to the Elmo to offer a sentence idea—guided instruction (observation notes). The teacher interviewees described this practice as if they were to learn a new language. Teacher modeling multiple times with examples helps students affirm their learning—developing students' independence in managing a writing task.

The teachers' classroom practices included teacher modeling, guided practice, and developing students' independence with the writing genre they were learning (Graham & Harris, 2019). The teachers provided multiple examples at the beginning of the unit and explained the text genre's features at length. These presentations were very interactive with students through teacher-student conversation. Like Vostal and Ward (2015), the teachers included the use of ASL, visual cues (e.g., cue cards posted on an ELMO; see Figure 4), as well as scaffolding and graphic organizers.
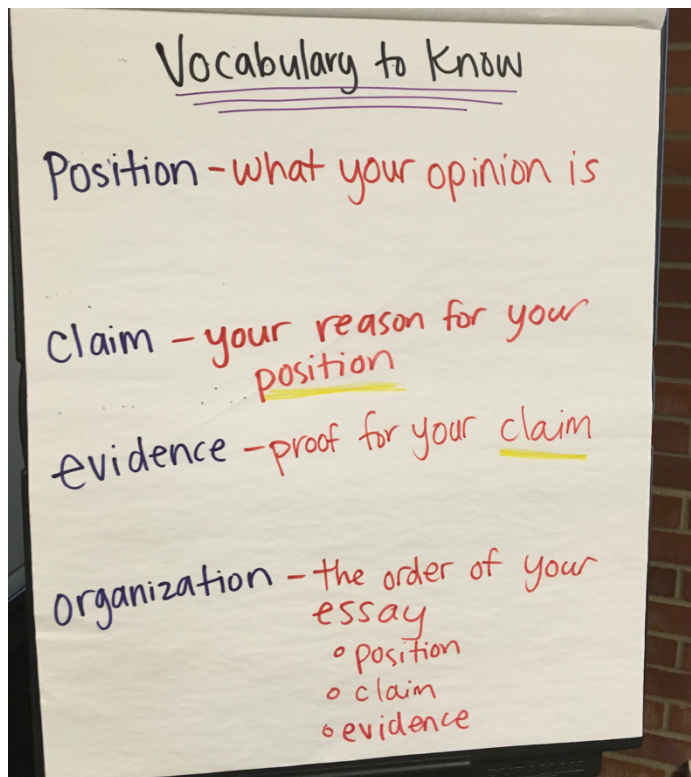

Figure 4. Stephen's Vocabulary to Know

Mark found this beneficial for his students too in his earlier years of teaching. One example was typically not enough for a struggling writer to understand and self-manage a task; multiple examples offered the opportunity for better comprehension and practice to attain a beginning level of mastery.

In the sessions that followed, the teachers began each lesson with an example and explanation. Students were then asked to complete their own plan for a text and type a draft. Having keyboards for the mobile devices that students use would help make writing activities more efficient. They could have a classmate offer peer feedback; the teacher also circulated in the classroom to answer questions and review students' work. The teachers did not use sentence-combining as an explicit activity, but this was part of writing process and feedback that students received for making their prose more elaborate (Saddler & Preschern, 2007). The teachers did not use mnemonic strategies (Mastropieri & Scruggs,

2018), per se, but did use checklists such as a cue card/memory tool for students to use a reference.

Theme 2: Persistent Challenges with Writing

English and ASL have different syntax. ASL is different from English (Stephen). "It is a very single layered language. There is a word and then another; the previous word describes the next word in the sentence." ASL is a more vertical language focusing on keywords:

> ASL uses a lot of connecting words and conjunctions within signs yet not as explicitly as in English. ASL does not use BE verbs (am, is, are, was, were) nor articles (e.g., a, an, the). This is why it is a challenge to teach writing. Because we have many students who already have a very strong first language in American Sign Language, they say, 'well I know ASL, so I can try to put down ASL on paper,' but that does not work. It is not the same language and that is where their challenges in writing begin (Stephen).

Stephen often employed the Elmo projector in class to have students visualize the English phrasing for the persuasive essay unit. Students in the class had iPads to search for reference ideas, plan, and type their texts (observation notes).

Proficiency with ASL. Parents' communicating in ASL helps children too. "A teacher can identify the students with parents who use ASL; these students world knowledge and vocabulary is richer. The more proficient students are with ASL, the better they can manage learning to write" (Kate).

Kate's and Stephen's perspectives about writing instruction were similar. ASL adds to the complexity of students' literacy experiences and abilities. ASL uses different phrasing as compared to English. Mark experienced this too while taking an ASL class (e.g., English: "No. I do not have any children." ASL: NO. CHILDREN NONE ME). Families can potentially help to bridge the differences. Parents who learn to use ASL can offer more student experiences with texts that provide a foundation for being a better writer. While both Kate and Stephen developed classroom instructional and assessment practices that worked well, they would have liked more professional dialogue and workshops to learn more ideas that they could have infused in what they do. For example, both Kate and Stephen liked the idea of strategic and interactive writing instruction (SIWI; Wolbers et al., 2015) but did not feel well versed in it enough to be using it during this unit.

Students' attitudes about writing. Writing is challenging for many children. Students with deafness and hearing loss experience this as well as the added complexities of ASL. Kate commented: "Do they like to write? Yes and no, it just depends. Do they see themselves as writers? I ask that question at the beginning of the year when I do my beginning of the year interviews. Are you a writer? Fifty percent can say yes or no to the question." Stephen highlighted how a teacher's experience can impact writing instruction for students: "Writing is very difficult for me because [although] I like to write and I'm a competent writer, teaching writing is tougher than it looks." Mark discovered this too in

his years of teaching; he could see how a student's reading challenges transferred to writing. For example, students had difficulty re-reading their own writing especially is reviewing a text not completed within the past few minutes.

Theme 3: Lack of Resources

The need for more mobile devices with keyboards. Although many school districts have offered every student a device, not all schools have a computer or mobile tablet for each child. This perpetuates the traditional demand on scheduling the computer lab. "Our school has limited resources. I am often left with the four computers in my classroom to offer students for writing" (Stephen).

Professional Development. Kate stated that she, "would like to know more tips on how to work with students who have deafness and hearing loss." She liked the materials that Mark provided about Strategic and Interactive Writing Instruction (Wolbers et al., 2015) as well as illustrating ideas before typing a first draft of text (e.g., Dunn & Finley, 2010; Dunn, 2011). Stephen too liked the resources and would have liked more professional dialogue about teaching ideas for writing. "I would like more training and professional development to better support my teaching. To teach writing, that is tougher than it looks." Mark sought out and attended many professional development workshops as a teacher. This helped, but few were offered to help struggling writers.

Theme 4: Assessment

The benefits of assessment. Kate found the 6+1 Traits of Writing rubrics to be helpful. "I find it really helps, especially with deaf kids, to identify strengths and weaknesses really well. Although there are grammar errors, the students can demonstrate ideas and structure." Stephen aimed to integrate assessment into daily lessons: "I try to incorporate assessment in my teaching by showing students the rubric in advance. I have them see, 'Oh, this is how I get a good grade. Oh, this is how I get a bad grade.'" Mark has found 6+1 Traits of Writing to be helpful too given their various components and descriptions; yet, writing is a multi-faceted skill (e.g., text structure, word choice, sentence formation) that offers no single-opinion method for analysis. It is better to view writing assessment, in Mark's opinion, as a process of strengths and/or weaknesses, and suggested next steps for a student to address.

Students' Perspectives about Writing Instructional Practices

Students' perspectives at the beginning of the study. Three of the six students responded to the Writing Interest Inventory (Rhodes, 1993, pp. 61-62) that they liked writing. All six students defined writing as primarily telling a story. Four students named a friend as a good writer; two students named an author. All six students appreciated the story ideas of their favorite author. All six students attributed their learning to write to their teachers. Four of the six students expressed that spelling was their largest challenge.

Students' perspectives at the end of the study. Most students expressed that writing was not so difficult. Only two students stated that it was hard for them. Almost all the students indicated that when they had any writing difficulties, they would try harder then ask for the teacher's help. Most of the students also stated that checking published examples helped them to understand what the process of persuasive writing entailed. In terms of using technology for writing, three of the students did not prefer using technology tools, while the rest of them liked using technology, such as a computer. Finally, students expressed that grammar was the main challenge they faced in writing.

The students had an overall positive perspective about writing. Spelling and grammar were persistent challenges. Three of the six students liked using mobile devices for writing. The students attributed their growth in writing ability to their teachers. Having a positive perspective helps instill intrinsic motivation and so as to learn and practice more writing skills.

Summary

The results of the study paralleled the concepts described in the opening literature review. Kate and Stephen applied self-regulated strategy development concepts of teacher modeling and guided practice as classroom routines to help students develop their writing skills with peer and teacher feedback. The teachers provided this pattern across lessons, which helped provide repeated practice and reinforcement of the strategies (e.g., guiding questions, use of outlines), with assessment to progress and monitor students' skills, and to help them improve in their writing.

The use of technology tools prompted a more divergent aspect to the practice of writing. Curriculum standards (e.g., Common Core State Standards, 2021) require the use of technology in second grade and after for the purposes of students' writing. Many students use mobile devices for social media interactions with friends and others. Yet, students were not attracted to the use of technology for writing tasks. Berninger (2013) commented that keyboarding takes practice to develop a comfort level and proficiency in using computer devices to generate text. Once familiarity and a comfort level are attained, students can become more productive writers as compared to handwriting. Berninger suggested that early-elementary students be offered the opportunity to use both, and students' keyboarding ability should outpace handwriting by later elementary grades. This type of text-generation framework for students may have helped provide for better student perspectives in this study. Technology is only growing in use. Students will need to embrace it for educational tasks too.

Final Thoughts and Suggested Next Steps

This study sought to trace the process of what practices and strategies teachers find effective in writing instruction for students with disabilities such as those with hearing loss. The research questions were: what are teachers of students with deafness and hearing loss' classroom practices for writing instruction; what are teachers' perspectives about writing instructional practices; and what are students' perspectives about writing instructional practices?

An Action Plan

During the timeline of this study, the first author had bi-weekly, short debrief discussions with Stephen and Kate about how they felt their instruction was progressing and what ideas the first author could offer. See Table 6 for example ideas that the first author shared with Kate and Stephen.

Table 6						
Example Writing Strategy App/Web Ideas that the First Author Shared with Kate and Stephen						
App/Webtool for Writing Skills	Spelling	Typing Text	Improve Paragraph Writing	Apple iOS	Android	Web
A+ Spelling Test	√			√		
Matcha[1]		√		√		
Story Builder			√	√		
Spelling Bee Genius	√				√	
SimpleNote		√		√	√	√
Improve English Writing Skills			√		√	
Spelling Fun	√					√
Microsoft's OneNote		√		√	√	√
Teknologic			√			√

[1]Matcha is designed with Dropbox, which makes for easy sharing of files with others, between school and home, etc.

From these conversations, a set of ideas resulted for next-steps action. Stephen and Kate both expressed real interest in learning and employing more technology tools for writing with their sixth- and seventh-grade students (e.g., Grammarly.com). While both teachers had iPads to offer students, these devices were mainly employed for basic typing such as in Google Docs. The teachers would welcome and seek opportunities for professional development workshops and collegial discussions about mobile applications for writing.

The first author mentioned Strategic and Interactive Writing Instruction (Wolbers et al., 2015), which a lead teacher at the school had briefly introduced to school personnel. Stephen and Kate were both interested in the idea of paralleling writing with ASL signs and keywords in one column on the page, and English prose in the other column. This would help students to see the differences between the two types of syntax as well as the paired ASL signs' images. The first author also mentioned self-regulated strategy

development (SRSD; Harris & Graham, 2017; Graham et al., 2012) and mnemonic strategy instruction (Mastropieri & Scruggs, 2018). Stephen and Kate were already employing key elements of SRSD with teacher modeling, guided practice of writing tasks with students, which help them develop their independence in the skill. Mnemonic strategies could help empower their instruction and students' learning. Use of mobile devices for creating illustrations (e.g., OneNote; Microsoft, 2020) paired with text would enrich the writing process even more.

Limitations

This study focused on writing instruction in two classes (grades 6 and 7) in one-hour sessions that the teacher identified as instructional lessons. Writing is a task that permeates much of the curriculum across the school day. The results of this study are based on a portion of the time students spent engaged with writing.

There is no known standardized (normed) assessment tool for writing skills for students with deafness and hearing loss. Rubrics that are widely employed in schools have focused on students who are typically achieving. For students with delayed English skills and parents not learning ASL early in school, assessing skill changes over time for students with deafness and hearing loss is challenging. Teachers of this population develop expertise, but each educator has their own perceptions about interpretations of students' strengths and weaknesses.

Future Research

This study focused on one school, six students, and two teachers. The authors are interested in furthering this study on a larger scale in a mixed-methods format (e.g., a survey and follow-up focus group interviews) with teachers of students with deafness and hearing loss in schools across countries and languages of instruction. This larger conversation would help illustrate a more comprehensive description of teachers' challenges as well as resources that they have found helpful, which could then be disseminated to others to help students improve in their skills.

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