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Teacher Reports of Secondary Writing Instruction with Deaf Students

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Abstract

Since students' writing skills are largely shaped by the quality of instruction they receive, we can learn from what teachers report about their beliefs and approaches to the teaching and learning of writing. This study explores the state of writing instruction at secondary levels with deaf and hard of hearing (DHH) students through a mixed-methods approach using a sequential explanatory design. Two hundred and twenty-two teachers responded to a survey about writing instruction, and 10 teachers participated in follow-up focus groups. The findings indicate that the primary difference between the hearing middle and high school student population and the DHH population is experiences of language deprivation, which impact the preparedness of teachers of DHH students, as well as the time and focus of their writing instruction. Teachers reported that American Sign Language/English bilingual instruction was the greatest area of need in research.

Keywords

writing, deaf and hard of hearing, adolescent literacy, bilingual education/literacy

Writing development is complex (Bazerman et al., 2017), with students' writing skills being shaped by quality instruction (Newell et al., 2011). Teacher reports of approaches to and beliefs about writing instruction provide insight into practices used in the classroom. Survey results suggest that teacher practices across grades and settings largely do not align with the standards set forth by writing research (Graham, 2019). For example, results from two surveys—one of upper elementary teachers and one of high school writing teachers—found that teachers reported infrequently using evidence-based approaches (see Gilbert & Graham, 2010; Kiuhara et al., 2009). Rather than composing to entertain, inform, or persuade an intended audience,

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there has been an overemphasis on basic skills (e.g., spelling, handwriting, grammar) in elementary classes and writing to learn (e.g., answering content questions) in secondary classes (Graham, 2019). These practices may be explained by the majority of teachers feeling inadequately prepared to teach writing (Gilbert & Graham, 2010; Kiuhara et al., 2009). In this study, we extend what is known about secondary writing instruction by inquiring into the specific context of teaching deaf and hard of hearing (DHH) students, as they often have language needs that add to the complexity of writing instruction. The purpose of the current study is to describe secondary writing instruction occurring with DHH students in the United States based on data from a survey and focus groups conducted with deaf education teachers.

DHH Students' Exposure to and use of Language

The language trajectories of DHH students are heterogeneous with respect to signed and spoken language access and development (Hall, 2020). Some DHH children have success with spoken language development through hearing technology and speech training, while others experience struggles and delays to varying degrees (Yoshinaga-Itano et al., 2018). Users of American Sign Language (ASL) and English writing share characteristics of bilingual writers who are developing and using two or more languages with varying degrees of proficiency (Dostal & Wolbers, 2014). While signed language is visually accessible and can be readily acquired by DHH children, most are not exposed to it, or they receive signed language input that is lacking in quantity and quality (Caselli et al., 2020). This results in the majority of DHH students exhibiting compromised language development typically not experienced by hearing students (Lederberg et al., 2013). In cases where there is chronic inadequate access to both spoken and signed language, language deprivation can manifest, leading to disfluencies in language and deficits in funds of knowledge (Hall et al., 2017), which have an impact on literacy learning. Thus, secondary DHH writers can range widely from emerging writers to bilingual writers to typically developing writers, displaying various levels of comfort with writing (Wolbers, 2008a). Diverse experiences with access to and exposure to language are unique characteristic of the DHH population, guiding the current study on writing instruction.

The Educational Contexts of DHH Writers

There are different educational settings in which DHH students receive writing instruction, including deaf schools, deaf classes in general education schools, and general education classrooms. Deaf schools are designed for the sole education of DHH students; classes are typically small sizes and are taught by specially trained deaf education teachers. Deaf classes in general education schools, called self-contained classes, are also small in size and are taught by deaf education teachers. Students receiving writing instruction in self-contained classes may attend general education classes, with or without classroom accommodations, for other parts of the day. Last, DHH students may receive writing instruction from general education teachers, with or without supplemental services from an itinerant deaf education teacher. This type of deaf

education teacher periodically attends the students' general education class or pulls them out for individualized instruction.

Educational programs for DHH students also differ by language philosophies: (a) ASL/English bilingual, where both ASL and English languages are used; (b) simultaneous communication, where signs are sometimes used as visual support to spoken English; (c) listening and spoken language, where spoken English is exclusively used without sign support. This study includes the experiences and beliefs of deaf education teachers across settings and communication philosophies.

Writing Performance in DHH Students

Research findings demonstrate broad diversity in the writing outcomes of DHH students. One study found that 110 third- through 12th-grade DHH students attending general education schools demonstrated a wide range of writing outcomes and an overall mean in the below-average range (Antia et al., 2005). Another study documenting the writing achievement of 197 hard-of-hearing students using spoken English in second- through eighth-grade general education classrooms showed the students performing half a standard deviation below the hearing norms (Antia et al., 2009). Antia et al. (2009) suggested that any level of hearing loss without proper support puts students at risk for low academic achievement. In a study by Hrastinski and Wilbur (2016) of 85 students in sixth through 11th grade at an ASL/English bilingual school, 61% of students' language/writing scores were below average. When data were disaggregated by ASL proficiency, 64% of students considered proficient in ASL ($N = 39$) were performing at or above grade level. The authors stated that "high proficiency in ASL does not guarantee successful performance but does significantly increase the likelihood" (Hrastinski & Wilbur, 2016, p. 166). Similarly, a meta-analysis of DHH students developing varying levels of English competence through the use of hearing technologies (called cochlear implants) indicated that writing outcomes also varied between below- and above-average (Mayer & Trezek, 2018). These data do not necessarily mean DHH students are poor writers; rather, access to language is directly related to students' literacy performance, and delays in developing ASL and/or English lead to underperformance in writing. Effects of inadequate language access impacting writing must be mitigated through appropriate instruction.

Writing Instruction with DHH Students

A recent survey examined the extent to which K–12 deaf education teachers incorporated writing instruction in content areas (Dostal et al., 2018). Results suggested that content-area teachers assumed responsibility for their DHH students' writing successes and integrated writing instruction in their content-area classes. Teachers across content areas reported the majority of their DHH students were not successful in their writing tasks. Further, they attributed the writing challenges to DHH students' lack of motivation and low language proficiency. Even though teachers felt confident about their ability to support students' writing development, they did not provide guided or

shared writing activities, which are known to increase motivation and writing outcomes.

The most recent meta-analysis of DHH writing research identified a total of 16 studies on the process approach, characteristics of quality writing, writing for content learning, and applying feedback (Strassman & Schirmer, 2013). Studies that included collaborative writing approaches whereby the teacher and students co-construct and revise writing together (e.g., Wolbers, 2008b) generated promising results for elementary and middle school DHH learners. Wolbers et al. have expanded a writing framework called Strategic and Interactive Writing Instruction (SIWI) with specialized approaches to increase elementary DHH students' linguistic competence and metalinguistic awareness. Rooted in cognitive, sociocultural, and language theories, this framework involves dialogue during collaborative writing, contextualized strategy instruction, and responsive language instruction (Dostal et al., 2019) to support students' transition from guided to independent writing. While research is building momentum in identifying effective writing instruction for DHH students through experimental, quasi-experimental, and qualitative research (Dostal et al., 2015; Dostal & Wolbers, 2014, 2016; Wolbers et al., 2012; Wolbers et al., 2015; Wolbers et al., 2018; Wolbers et al., 2020; Wolbers et al., 2022), information about secondary writing instruction is scarce.

Secondary Writing Instruction with DHH Students

For DHH students transitioning to adulthood, writing is necessary for living independently, working, and successfully participating in college. After collecting data from 550 DHH adults, the National Deaf Center found that English literacy predicted independent living, positive self-beliefs, and postsecondary enrollment (Garberoglio et al., 2014). Results from a survey focusing on DHH individuals' workplaces indicated that, regardless of employees' academic degrees or jobs, there was a significant amount of writing involved, and DHH employees often sought help in producing error-free writing (Biser et al., 2007). Developing writing skills through secondary education is essential to DHH students realizing their life goals.

The few existing studies on DHH adolescents yield some information about components of writing instruction that have produced favorable results. First, using visual scaffolds with DHH students during shared and guided writing activities has led to improvements in students' use of adjectives (Easterbrooks & Stoner, 2006). Second, rubrics have empowered DHH students to recognize specific writing traits to incorporate, particularly when metacognitively reflecting with one another in follow-up conversations (Appanah & Hoffman, 2014). Third, Kluwin and Kelly (1992) found that when teachers frequently engaged DHH students in the writing process, their writing and grammar improved. Finally, DHH students writing to pen pals in authentic contexts independently increased their sentence complexity over time with minimal support from teachers (Kluwin & Kelly, 1991). However, those without adequate writing skills did not benefit from this type of writing experience. While these studies create a starting point, the paucity of research means that little is known about contemporary teaching practices with DHH secondary students. To

examine this topic, we ask: From the perspectives of deaf education teachers, what is the current state of writing instruction in secondary schools with DHH students?

Method

The purpose of this research is to provide a broad picture of secondary writing instruction among DHH students based on data from a survey and focus groups. This study has been approved by the institutional review board.

Design

Secondary writing instruction with DHH students was investigated through mixed-methods research using a sequential explanatory design (Ivankova et al., 2006). The first phase involved collecting quantitative data through a national survey of secondary deaf education teachers. This was followed by the second phase of collecting descriptive data through focus groups to further explore the survey data. In focus groups, teachers viewed and discussed survey results, extending our understanding of the quantitative data. In this way, the study is a follow-up explanations model that is quantitatively oriented (Creswell & Clark, 2017).

First Phase (Quantitative)

Questions from a survey of writing instruction in upper elementary general education settings by Gilbert and Graham (2010) were adapted to fit the DHH secondary education context. We piloted and received feedback on the survey items from a seven-member research team studying the impact of SIWI on DHH writers. The survey consisted of 95 questions about writing instruction organized by the following topics: (a) factors influencing time and focus, (b) teacher preparation and skills, (c) attention to genres, (d) time spent teaching writing, (e) opinion on important writing skills, (f) teacher collaboration, (g) use of digital tools, (h) student writing skills, and (i) writing research needs. Most of the questions had Likert-type scales from 1 to 5, indicating *poor*, *fair*, *average*, *very good*, and *excellent*. Some questions asked teachers to quantify their response by percentages (e.g., percentage of instructional time spent on each genre) and minutes (e.g., how many minutes teaching writing weekly). Additionally, there were 21 demographic questions to collect personal identification information, years of experience, instructional setting, grade level, philosophy, and the language and writing proficiencies of the teachers' most recent class of secondary students.

For over 5 months, we compiled a database of email addresses of educators. We used a published listing of U.S. programs inclusive of special schools and local programs where DHH students are educated (Schools and Programs in the United States, 2019), then searched online for educator emails by program. The survey was sent to 2,137 educators of the deaf working in all grade levels, and it remained open for a month. If schools did not publish their teachers' email addresses online, the administrators were asked to forward the survey to their teachers. Of the total number of emails sent to teachers, 609 were returned due to inactive email addresses

or school protection systems. Additionally, the survey was distributed through professional listservs and social media outlets.

To participate, teachers needed to be teaching or to have previously taught writing to DHH students at the secondary level. While 415 teachers initially responded to the Qualtrics survey, 222 of those teachers met the study's inclusion criteria. Based on the 1,528 invitations successfully emailed to teachers at all grade levels, the response rate was 28%.

Survey Participants and Their Students. The survey sample ($n = 222$) reflects the demographics of deaf education teachers in the United States (Simms et al., 2008), with the majority of respondents being white (93%; Black 2%, Latinx 1%, multiracial 2%), hearing (65%; DHH 35%) women (91%; men 6%, gender diverse 1%). Respondents were deaf education teachers at general education schools (15% self-contained and 14% itinerant) and deaf school programs (71%). In deaf school programs, teachers reported their program philosophy as ASL/English bilingual (82%), simultaneous communication (12%), listening and spoken language (1%), or other (5%). In general education schools, teachers reported their program philosophy as ASL/English bilingual (27%), simultaneous communication (51%), listening and spoken language (12%), or other (10%). More respondents in this sample taught in high school (55%) than middle school (45%), and 61% had 6 or more years of experience teaching DHH secondary students.

In teachers' most recent year of teaching writing, 94 reported collectively teaching 1,490 high school students and 79 teachers reported teaching 882 middle school students. According to teachers, 13.8% of the 1,490 high school students were writing at a pre-K level, 45.3% at an elementary level, 24% at a middle school level, and 16.9% were at or above grade level. Additionally, teachers shared that 17% of these students had either no knowledge or emerging knowledge of ASL, 37.7% of students were developing in their ASL knowledge, and 45.3% were proficient for their age. Middle school teachers reported that of the 882 students they taught, 12.7% were writing at a pre-K level, 61.5% at an elementary level, 22.4% at the expected grade level, and 3.4% at a high school level. Additionally, as reported by teachers, 20.7% of these students had either no knowledge or emerging knowledge of ASL, 38.3% of students were developing in their ASL knowledge, and 41% were proficient for their age.

First-Phase Analysis. Data retrieved from Qualtrics survey were transferred to SPSS software for analysis. Descriptive statistics (means and standard deviations) were reported for Likert scale questions (e.g., 1 = *never* to 5 = *always*), and averages were calculated for quantity questions (e.g., how many minutes). In some cases, descriptive statistics led to questions that were investigated using inferential statistics. Data on factors influencing one's time/focus and students' writing skills were disaggregated by middle and high school levels, and then compared through independent samples *t*-tests. Data on teacher preparation and skills were compared between new teachers (5 or less years teaching DHH students) and veteran teachers (more than 5 years). Lastly, a chi-square test of independence was conducted to determine if teacher collaboration varies by deaf education and general education settings.

Second Phase (Descriptive)

Within 2 weeks after the survey closed, we held 3, 2-hour focus group sessions on Zoom. Participants were clustered into groups of three or four by teaching level and context. We (i.e., the authors, consisting of a team of white, deaf, hard of hearing, and hearing researchers) took turns asking questions, facilitating discussions, and taking notes. Focus group questions were semi-structured and hinged on summary data derived from Qualtrics, purporting to elicit interpretations from the teachers. The prompts and questions used were similar to the following: "After looking at the survey data on student skills, share your thoughts and experiences" and "What do you think about the survey results on teacher preparation?"

Focus Group Participants. Of those who indicated their willingness to participate in focus groups, we made selections of teachers with consideration for demographic variables and teaching context, at percentages reflecting the larger survey sample. Ten teachers (Black, $n = 1$; white, $n = 9$; women, $n = 9$; men, $n = 1$; deaf, $n = 4$; hearing, $n = 6$) participated in three focus groups. They represented diverse settings (deaf school, $n = 6$; self-contained classroom, $n = 3$; itinerant, $n = 1$), levels (middle school, $n = 5$; high school, $n = 5$), and language of instruction (spoken English, $n = 3$; ASL and English, $n = 7$). Small focus groups allowed homogeneous clustering by teaching context (i.e., setting, level, language) to increase comfort with sharing perspectives and experiences that may differ by context (Krueger, 2014).

Second-Phase Analysis. After collecting focus group data, teacher comments were transcribed and summarized by survey topic. Care was taken to summarize how teachers' thoughts converged as well as diverged. The summaries included representative quotes from teachers along with information about their instructional contexts. Then, data from both phases were compiled into a technical report; participants were asked to review and provide feedback on its accuracy. Teacher feedback was incorporated into the final reporting of the results provided next.

Results

This study used a sequential explanatory design; it is quantitatively oriented with follow-up explanations. As such, a summary of the quantitative results from each section of the survey is followed by a synthesis of explanations from focus group discussions.

Factors Influencing Time and Focus

The survey asked teachers to report on whether certain factors influenced the time and focus of their writing instruction, ranging from *never* (1) to *always* (5). Teachers indicated that students' individual writing needs *always* influenced the time and focus of their writing instruction ($M = 4.72$, $SD = 0.57$). After students' individual writing needs, grade-level standards ($M = 3.88$, $SD = 0.90$) and program curricula ($M = 3.60$,

$SD = 1.02$) *often* influenced the time and focus of teachers' writing instruction. Workforce entry ($M = 3.47$, $SD = 1.21$), postsecondary education admission ($M = 2.94$, $SD = 1.20$), and high-stakes writing assessment ($M = 2.82$, $SD = 1.12$) had the least influence, *sometimes* influencing the time and focus of writing instruction. Because postsecondary factors may be a more immediate concern for educators of high school students, data were disaggregated by level, and independent *t*-tests were conducted. We found that high school teachers rated workforce entry and postsecondary education admission as significantly more influential factors than middle school teachers, $t(170) = -3.48$, $p < .001$, and $t(169) = -4.53$, $p = 0.03$. See Table 1 in the online, supplementary archive for all data by level and factor.

During the focus groups, we shared that postsecondary education admission and high-stakes writing assessment are prominent topics in the secondary writing literature (Applebee & Langer, 2011) and that respondents in this study ranked them as less influential. Teachers stated that high-stakes writing assessments did not guide their instruction; rather, they agreed that their instruction was driven by students' individual writing needs, which they ranked as the highest factor. One teacher from a self-contained classroom noted, "When I see the word 'individual,' I immediately think of the IEP [Individualized Education Program]. All of our students have IEPs with writing goals. When I saw this option on the survey, I quickly responded 'yes.'"

The importance of students' individual life goals was reflected throughout focus group discussions. A teacher from an ASL/English bilingual deaf school explained that postsecondary education admission becomes more important in high school because students are graduating, and some aspire to go to college. Other teachers said that they individualized instruction because writing essays for postsecondary education admission or high-stakes assessments was currently out of reach for many of their students. Additionally, they did not prioritize postsecondary education admissions for students who were engaged in a career track or learning life skills.

Teacher Preparation and Skills

Two survey questions asked teachers to rate their preparation to teach writing to DHH secondary students. On a scale from *not prepared at all* (1) to *very prepared* (5), teachers reported feeling *somewhat prepared* to teach writing to secondary DHH students ($M = 3.32$, $SD = 1.05$). Forty-six teachers with 5 or less years of experience teaching DHH students rated themselves as less prepared ($M = 2.89$, $SD = 1.10$) than 131 teachers with more than five years of experience ($M = 3.46$, $SD = 0.99$); however, this difference was not statistically significant, $t(175) = -3.23$, $p = 0.43$.

When asked to rate their preparation to teach 14 writing skills from *poor* (1) to *excellent* (5), teachers reported that they were *very good* at all skills except teaching students to synthesize information from multiple sources, rated as *average* ($M = 3.47$, $SD = 1.05$). The five skills they rated themselves highest on were teaching students to punctuate appropriately ($M = 4.12$, $SD = 0.92$), spell correctly ($M = 4.01$, $SD = 1.00$), use accurate grammar ($M = 3.99$, $SD = 0.98$), type fluently ($M = 3.94$, $SD = 1.09$), and organize and structure ideas ($M = 3.88$, $SD = 0.87$). Other skills, in descending order with means from 3.75 to 3.52, include teaching students to generate ideas,

construct a strong argument, cite or reference sources, revise writing, translate ideas into written text, understand multiple viewpoints, paraphrase source material, and use tone and style appropriate for the intended audience. On most variables, there were no significant differences in teachers' years of experience. However, teachers with more than 5 years of experience did rate their ability significantly higher in teaching spelling, $t(175) = -0.67$, $p = 0.03$, and tone and style, $t(175) = -0.51$, $p = 0.01$. Those with 5 years or less teaching experience rated their ability significantly higher in constructing a strong argument, $t(175) = 0.45$, $p = 0.03$. See Table 2 in the online, supplementary archive for data and *t*-test results by skill.

In focus groups, some veteran teachers explained that they are inadequately prepared to teach writing to DHH students because the training available to them prioritizes reading over writing, and it is not DHH specific. One self-contained classroom teacher with 10 years of experience said that training opportunities are focused on general education, and that she attempts to "modify these approaches for [her] students with varied degrees of success." Some teachers commented about their lack of ASL training and metalinguistic knowledge, making it challenging to assess and teach skills.

Several teachers in the focus groups indicated that it is easier to teach concrete and measurable writing skills (e.g., punctuation, spelling, grammar, typing), and that they were also comfortable with prewriting skills such as generating and organizing ideas. With less concrete writing skills, almost all teachers said they found it helpful to teach skills in ASL first. One teacher explained how she used ASL to teach tone:

> We discussed in ASL the difference between telling mom, "I want to do this now!" and "I would like to do this…." I ground the information through ASL first to make sure they fully understand it before applying their skills to English writing.

However, teachers repeatedly mentioned an urgent need for ASL/English bilingual research and development so they can implement more of these approaches.

Attention to Genres

When surveyed about the percentage of writing instructional time teachers spend teaching various genres, teachers reported that, on average, they taught narrative writing 31% of the time, informative writing 28%, persuasive writing 22%, poetry 11%, and other types of writing 8% of the time. Teachers were asked in the survey to share their opinion on which genre they thought was the most important for their DHH secondary students. Most teachers thought informative writing (54%) was the most important genre for their secondary students, followed by narrative writing (23%), argumentative writing (18%), other writing (3%), and poetry (2%).

Even though the majority of instructional time was not spent on the informative genre, teachers believed that it was most relevant to students. A teacher said of informative writing, "[The] genre will help students in college, in their careers, or even with life skills." Teachers provided three main reasons for not spending more time on informative writing given that more than half of the respondents indicated it was the most important genre. First, some assumed the responsibility fell heavily on content-area

teachers. Second, writing instruction was driven by students' individual needs and interests. Some teachers shared about wanting to make the writing experience positive for their students, and narrative writing was more motivating and familiar to them. Finally, some teachers found narratives easier to teach because they lacked preparation and the bilingual resources for teaching other genres.

Time Spent in Teaching Writing

Teachers were asked in the survey to indicate the amount of time they spend teaching writing and whether they taught writing and reading in the same block. Teachers reported providing direct writing instruction for an average of 69 min per week, teaching grammar for an average of 60 min per week, and engaging students in writing for an average of 68 min per week—totaling approximately 3 hours a week of writing instruction and practice.

The majority of survey respondents reported teaching reading and writing during the same class. In focus groups, there were variations to whether reading, writing, and signing are taught in the same time block or as separate classes. Some schools separated them, while others combined all three and called it "bilingual language arts." Some schools allotted 50 min, while others provided an hour and half or more for reading and writing (and sometimes ASL) instruction daily.

Opinion on Important Writing Skills

Teachers were asked to select three out of 14 writing skills that they believed to be the most important for DHH secondary writers. There were 663 responses, with the majority indicating that translating ideas into written text (21%), organizing and structuring ideas (19%), using accurate grammar (10%), and generating ideas (10%) were the most important. The remaining skills, with less than 8% of the responses each, were considered less important by teachers. See Table 3 in the online, supplementary archive for a full list. Coincidentally, the skills with the least responses—spelling correctly (2%), using appropriate punctuation (1%), and typing fluently (0%)—were the same areas teachers felt most capable of teaching.

When asked in focus groups, teachers expressed widely varying perspectives on the priority given to different skills. A teacher reported spending more time teaching concrete skills (e.g., typing, punctuation, and grammar) over abstract skills (e.g., tone and voice) because her knowledge of writing instruction was limited. Three teachers shared that they wanted to invest in skills like idea generation rather than citations, which are time-consuming, or spelling, which can be checked easily using technologies. A couple teachers echoed the following sentiment: "Students need to write about something they truly care about. If the focus is only on grammar, so what? It needs to be about communication. If they do not have something to communicate about, then why bother?" Yet, another teacher said even though she tells her students to not worry about grammar, she actually believes grammar is a very important skill. Teachers' pedagogical knowledge and beliefs around writing instruction seemed to vary widely; however, most teachers agreed that DHH students become effective writers when the four most

important skills are taken together (i.e., generating, translating, organizing ideas, and using accurate grammar).

Teacher Collaboration

Approximately 51% of the respondents said they collaborated with colleagues on writing instruction. Because collaboration is regularly expected of deaf education teachers in general education settings, we performed a chi-square test of independence to assess if there is a relationship between whether or not one collaborates and instructional setting. For instructional setting, data were separated into two groups—deaf education teachers in general education schools (self-contained and itinerant, $n = 50$) and those in deaf schools ($n = 124$). There was not a significant relationship between the two variables, $X^2(1, N = 174) = 0.23$, $p = 0.63$. When asked to describe their collaborations, most teachers across settings reported collaborating with content-area teachers and other English language arts (ELA) teachers. Mentioned less frequently were collaborations with speech language pathologists ($n = 15$) and ASL teachers ($n = 7$). The nature of collaboration varied from helping each other develop writing topics to creating interdisciplinary writing projects. Some teachers noted exchanging objective areas for vocabulary or grammar so they could reinforce similar skills.

In focus group discussions, collaboration varied by teacher depending on multiple factors. Many teachers agreed that insufficient time to meet with other teachers was an impediment, and when they were provided with time to meet, writing instruction was not always the focus. Teachers additionally agreed that personality and preference impacted whether they collaborated. Some teachers collaborated more frequently with ELA teachers, while others collaborated more often with content-area teachers. Some teachers in the general education setting reported working in isolation, while others said collaboration such as providing guidance to general education teachers was required for their job.

Digital Tools

In the survey, teachers were asked how often they use digital tools in their writing instruction. Then they were given a list of 20 writing activities and asked to check all of the ways they use digital tools. Most teachers (60%) reported using digital tools in their writing instruction during every lesson, while fewer teachers used digital tools weekly (28%), monthly (7%), or a few times a semester (5%). The most common way teachers reported using digital tools was for individual planning or writing and for grammar exercises (72%). More than half of teachers use digital tools for grammar support (66%); spelling support (63%); to create pictures, graphs, and videos (59%); and to connect students to resources (54%). Less than a quarter of teachers reported using digital tools to prevent plagiarism (22%), to share writing with a wide or varied audience (21%), to access publishing outlets (19%), or to connect with mentors for writing (6%). See the full list in Table 4 in the online, supplementary archive.

The popularity of using digital tools for grammar exercises and writing activities resonated with teachers in focus groups. They noted the benefits of online platforms that provide independent practice for grammar and also track student progress for reporting at IEP meetings. Multiple teachers shared that ASL and English were used with digital tools during the writing processes. Some examples include embedding ASL (pictures or videos) and English text in graphic organizers, or drafting ASL compositions on video with English subtitles. A teacher from a self-contained classroom used a digital whiteboard often to repair communication breakdowns by drawing, showing images, and labeling objects.

Student Writing Skills

The survey broadly gauged DHH students' writing skills by asking teachers to rate how well their students performed on 14 writing tasks from *poor* (1) to *excellent* (5). Teachers' ratings reflected the average skill levels of their most recently taught group of secondary students. Teachers reported that their DHH students had *average* skills in generating ideas, which was ranked the highest of all skills ($M = 2.76$, $SD = 1.01$). For the remainder of items, teachers indicated that their students had *fair* skills, ranging from a mean of 1.66 to 2.46. The lowest ratings were given to students' abilities to use accurate grammar ($M = 1.71$, $SD = 0.74$), paraphrase source material ($M = 1.67$, $SD = 0.76$), and revise their writing ($M = 1.66$, $SD = 0.79$). There were no statistically significant differences when comparing ratings of middle and high school students. See Table 5 in the online, supplementary archive.

Teachers across focus groups commented on their students being effective at generating ideas in ASL or spoken English but having a range of abilities in translating their ideas into written English. Teachers also shared similar experiences with students wanting to stop writing after brainstorming and avoid revising. An itinerant teacher affirmed that having students translate their ideas into writing was challenging enough; if she were to ask them to revise their writing, it would make the experience negative for her students.

Some teachers using spoken English in general education schools and some teachers using ASL and English in deaf schools attributed students' difficulties in developing writing skills to the effects of language deprivation, meaning their students did not develop a strong language foundation due to systemic and environmental circumstances. Conversely, a few teachers mentioned having students who had early language access and possessed age-appropriate signed language and writing skills. They explained not being as worried or invested in those students because they were performing well academically, while other students had greater needs.

Writing Research

Almost all teachers surveyed agreed there was a need for writing research on DHH students at secondary levels. Teachers were provided with nine research areas and selected all areas they felt were needed. Approximately 85% of teachers selected ASL/English bilingual approaches, and 81% of teachers selected determining effective

practices, indicating the two highest needs for research. Slightly lower percentages were given to the following: identifying the specific needs of DHH students (64%), preparing students to use writing in the workforce (61%), motivating student writers (59%), preparing students for postsecondary education (57%), and differentiating instruction (56%). When disaggregated by level, it was observed that motivation was selected less by middle school teachers (51%) compared to high school teachers (64%). Approaches to integrating digital tools effectively (36%) and approaches that prepare students for high-stakes testing (23%) were selected least of all.

Teachers repeatedly shared that bilingual strategies applied to writing instruction benefit their students, and there was strong consensus across teachers that more research on ASL/English bilingual approaches is needed. A teacher using spoken English in a self-contained classroom said, "Research needs to be done on bilingual approaches for students who use ASL and English. In my district, my administrator just started listening to us when we say our DHH learners are also bilingual learners." Several teachers from self-contained classrooms and deaf schools shared that they develop their own bilingual strategies without knowing whether they are effective. A teacher from an ASL/English bilingual school shared that using multimedia writing with bilingual DHH students was a popular practice in education, but there is not enough research to guide practice. Additionally, teachers found it challenging to monitor students' signing and writing progress and establish expectations due to a lack of appropriate assessment materials.

When asked about specific areas of research related to ASL/English bilingual writing instruction, teachers made suggestions for researching (a) the application of ASL and English mentor texts; (b) the benefits of DHH cultural representation in texts; (c) methods of developing students' ASL and English proficiency; (d) the evaluation of students' ASL and English productions; (e) the teaching of different genres using ASL/English processes; (f) the development of ASL/English benchmarks. One teacher shared her desire to have a research-based ASL/English bilingual curriculum with student/teacher-friendly online platforms incorporating writing prompts, assignments, lessons, and assessments.

Teachers felt the survey data provided an accurate portrayal of how middle and high school teachers face different challenges with student motivation. Middle school teachers felt their students were generally easy to work with due to their developmental stage and desire for support from teachers. High school teachers noted a decline in their students' engagement, making it challenging to motivate them to write. One teacher from an ASL/English bilingual school noticed that after years of not achieving in reading and writing, her students ceased making an effort in high school. With graduation approaching, high school teachers experienced elevated pressure to help their students develop essential skills, and motivation was key.

Discussion

The scant literature on secondary instruction with DHH students demonstrates that little is known about contemporary teaching practices. This mixed-methods study included a nationwide survey asking teachers questions about nine essential topics,

followed by focus groups to discuss survey results. We report information provided by teachers regarding their preparation and skills for teaching secondary DHH students, as well as their thoughts on instructional focus, time, and approach. In providing a broad picture of factors surrounding the writing instruction of DHH secondary students, this study illuminates possibilities for future research and development.

General Education

The role of writing instruction is for students to develop skills that they can effectively use in practical situations. Across the levels, students learn to apply their writing knowledge in intellectual discourses with audiences for varied purposes. When students enter secondary schools and higher education, critical thinking and analytical skills, often through writing, are expected for success (Beck & Jeffery, 2007). The importance of developing secondary students' argumentative writing for postsecondary success is reinforced by the Common Core State Standards (Lin et al., 2020). General education teachers revolve much of their instruction around the pressures of high-stakes testing for college admissions (Avalos et al., 2020; Lesley et al., 2021). In their test responses, students primarily incorporate elements of narratives, along with some elements of explanations, arguments, and reports (Beck & Jeffery, 2007).

In the current survey, deaf education teachers stressed neither argumentative writing nor high-stakes tests, setting them apart from the ubiquitous issues affecting general education teachers. Rather, deaf education teachers prioritized individualized writing instruction.

Bilingual Education

In the survey and focus groups, teachers across educational settings, including spoken English environments, chose effective ASL/English bilingual approaches as the most needed area of research for DHH secondary writing instruction. Since many DHH students use signed language in addition to written language (and sometimes spoken language), we draw insights from research on hearing bilinguals to identify commonalities in bilingual development. Similar to DHH bilinguals, the quantity and quality of input in hearing bilinguals' first and second languages and their experiences with English instruction vary greatly (Ferris & Eckstein, 2020). Hearing bilinguals report receiving inadequate English instruction and perceiving themselves as ineffective writers (Ferris & Eckstein, 2020). Similarly, scholars have pointed to cycles of low expectations in literacy instruction generating subpar outcomes in DHH bilinguals (Johnson et al., 1989).

There are calls to make bilingual instruction general yet specialized enough to apply across diverse populations (Ferris & Eckstein, 2020). Recent studies show hearing bilingual students benefit from strategy instruction, modeling, scaffolding, culturally relevant writing instruction, practice opportunities, formative assessments, collaborative writing, activities that foster motivation, and genre-based pedagogy, in both languages (Horverak, 2016; Olson et al., 2015; Olson et al., 2017; Villarreal & Gil-Sarratea, 2019). Along the same lines, research demonstrates DHH bilinguals

successfully developing writing through similar approaches (Wolbers et al., 2018). However, many general education and deaf education teachers are monolinguals, and also do not receive sufficient training and preparation to teach bilinguals in both languages (Henderson & Ingram, 2018; Simms et al., 2008). Teachers' lack of proficiency in the languages of their students places limits on the bilingual instructional strategies they may effectively model.

The challenges teachers face in providing specialized instruction to hearing and DHH bilinguals are remarkably similar. Yet, what distinguishes DHH students from hearing bilinguals is the impact of language deprivation, driving the urgency of maximizing the inclusion of visual access to language. Supporting DHH students who have experienced language deprivation requires intensive knowledge of the intertwinedness of language, cognition, and literacy development. This study suggests that deaf education teachers are not receiving adequate preparation, nor do they have the curriculum or resources to enact bilingual education.

Language Deprivation

In accessible environments, deaf children are fully capable of meeting language milestones and becoming effective users of languages. However, many children are isolated in spoken language environments, which are not fully accessible to them. Language deprivation is an anomaly in hearing children and only emerges in severe cases of neglect in which the child experiences prolonged periods of isolation from other people and languages. Conversely, language isolation is extremely common in the DHH population even though they receive consistent spoken language input from family members at home and peers and teachers at school (Gulati, 2018). Not having sufficient language access during the critical period of development longitudinally impacts language fluency (Mayberry et al., 2011), executive functioning (Hall et al., 2017; Morgan et al., 2021), and literacy acquisition (Geers et al., 2017). The problem of language deprivation is not deaf children, but rather the systemic failures to provide deaf children with linguistically accessible environments (e.g., peers and adults who use signed language).

Teachers in focus groups across educational settings identified language deprivation as the prominent cause of their secondary DHH students' literacy struggles. DHH students who do not experience language deprivation are capable of engaging in grade-level learning tasks, but experiences of language deprivation often lead DHH students to resemble emergent writers. The focus groups' examples of a student not knowing their alphabet and another student having difficulty writing their order at a restaurant provide a clear rationale for not focusing on skills commonly taught in general education, such as crafting arguments or taking high-stakes tests. Functional writing skills for meaningful and effective communication are an especially critical area of need for those who have experienced language deprivation.

Teachers repeatedly conveyed frustrations with systemic factors that generate inaccessible environments and create barriers to literacy learning for DHH students. However, teachers may be among the systemic problems contributing to chronic inaccessible environments and inadequate instruction for deaf learners. A teacher in a focus

group said, "It is easy for us to attribute students' struggles to their experiences of language deprivation, but teachers need to recognize that we also have some kind of impact, potentially a negative one." Deaf education teachers request specialized research and training that would provide guidance for implementing appropriate and effective instruction, such as visually accessible methods intended to mitigate language deprivation.

Teacher Preparation

Both new and veteran teachers in focus groups shared feeling inadequately prepared to work with emerging DHH writers, contributing to the barriers those students face in their learning and education. Their sentiments are also shared by another survey focusing on itinerant teachers' experiences in which the researchers (Pedersen & Anderson, 2019) documented "increasing concerns about the ability to provide adequate levels of support to students in inclusive settings with greater educational delays via the itinerant model" (p. 1). This is further corroborated by another study in which results indicated that deaf education teachers are not receiving sufficient training on writing instruction and processes (Enns et al., 2007). Additionally contributing to teachers' feelings of unpreparedness were the many shortcomings they mentioned in focus groups regarding the incongruence of curricula and materials to guide instruction with DHH students. When research, materials, and training in the deaf education field are largely borrowed from hearing monolinguals' ways of learning, it is understandably challenging for deaf education teachers to provide empirically backed, systematic interventions designed for diverse DHH students using signed, spoken, and written languages, ranging from emerging to proficient in each language (Enns et al., 2007).

Insufficient teacher preparation appears to be a national issue as most general education teacher preparation programs do not require courses in writing instruction (National Commission on Writing, 2003). In a national survey, 71% of general education high school teachers reported receiving minimal or no preparation to teach writing (Kiuhara et al., 2009). Researchers have made recommendations urging teacher preparation programs to give attention to writing instruction (Gilbert & Graham, 2010; Kiuhara et al., 2009). We echo their concerns and recommend a greater focus on language and writing instruction in deaf education teacher preparation programs.

Collaboration

Language specialists (e.g., ASL/English specialists or speech/language pathologists) are becoming increasingly available to support DHH However, less than 15% of deaf education teachers who responded to our survey expressed collaborations with language specialists to support students' writing development. Research shows that deaf education teachers and language specialists often work with the same DHH students but in separate roles, classes, or programs, without much coordination in their efforts (Guthmann et al., 2017; Wainscott, 2016). It may be that new collaborative models are needed to provide coordinated support to DHH students and also increase

knowledge and self-efficacy among a team of professionals (Pedersen & Beste-Guldborg, 2019).

Current State of Deaf Education

In the survey, deaf education teachers reported providing writing instruction a little over 3 hours a week. This is in contrast to a much smaller amount of time spent on writing instruction typically found in general education (Applebee & Langer, 2011). Therefore, it is evident that priority is given to getting DHH students to functionally write for practical purposes. However, it should be noted that deaf education teachers reported spending a third of the writing time on grammar instruction, while studies show grammar to have a negative effect, especially among low-achieving writers (Graham & Perin, 2007). Teachers in this study rated grammar as one of the most important writing skills to teach secondary DHH students, and they rated themselves *very good* at teaching grammar; coincidentally, they rated their students' use of grammar as one of their lowest rated writing skills.

Another key element in the effort to reform writing instruction is to provide differentiated instruction (National Commission on Writing, 2006). Deaf education teachers may experience extreme variability in students' abilities within a single classroom, ranging from extremely limited expression to high fluency in signed language, spoken language, and/or written language. Survey respondents said they prioritize students' individual needs over other demands, but it is unclear whether they are actually meeting the various needs of a highly diverse group of students. In focus groups, teachers underscored the importance of supporting students experiencing language deprivation in developing their functional writing skills. However, less was learned about supporting students who are at grade level or considered gifted (Peters et al., 2020). There was also not much discussion around supporting DHH students with the goals of college admission and postsecondary program success. This is concerning because, in another national survey, 39% of DHH students shared their expectation to complete a bachelor's degree and 16% aspired to obtain a doctoral degree (Garberoglio et al., 2019).

Without disaggregating teacher data by students' writing levels (e.g., advanced, on grade level, below grade level, emergent), we were unable to determine whether college-bound students are receiving writing instruction appropriate to the skills they need to develop. Students must demonstrate skills in paraphrasing source material and synthesizing from multiple sources on college entrance exams, in standardized assessments, and in postsecondary settings. These skills were rated as "less important" by deaf education teachers, who gave more importance to translation of ideas into writing, grammar, and organizing/structuring one's ideas. Not being able to disaggregate data by student writing and language level is a limitation of the current study design. We suggest additional data collection among those teaching secondary DHH students who are performing at or above grade level to better understand the instructional objectives they have for students, and whether they are successfully handling the wide range of needs in their classrooms, from developing functional communication skills in some students to challenging college-prep students.

Limitations

The survey provided teachers an opportunity to self-report their writing instruction and their students' skills. It is possible that teachers' responses leaned toward providing information that they perceive to be desirable by society. It is beyond the scope of this study to implement observations of teachers' writing practices across the nation. While focus groups provided a richer description of the survey data, future research may benefit from observing teachers' practices.

Another limitation of this study is that the survey has not been tested for validity or reliability. Although the survey was derived from other published surveys, questions adapted for the DHH context did not go through a rigorous validation process. The questions may have been interpreted differently by teachers, leading to varied responses. For example, it was brought to our attention in focus groups that teachers were uncertain what counted as digital tools when it came to publishing outlets. To keep our survey as succinct as possible (approximately 20 min) and to appeal to respondents, we did not elaborate on each question or response choice. Another similar issue arose with teachers rating, on average, how well their students performed on writing tasks. We were unable to differentiate skills that low-achieving and high-achieving students possess.

A large number of responses came from teachers at deaf schools, which does not reflect where the majority of DHH students are educated. Due to survey recruitment targeting deaf education teachers, the data reported here represent the experiences and opinions of deaf education teachers in deaf schools and general education settings. Deaf education teachers who work in general education settings are those who teach in self-contained classrooms or as itinerant teachers. A different method is needed to survey all possible general education teachers who teach writing to DHH students.

Future Research

Few teachers reported collaborations with others. We are interested in exploring the inclusion of language specialists (e.g., speech/language pathologists and ASL specialists) in writing instruction as a way of supporting diverse DHH learners and coordinating pedagogical practices (Salter et al., 2017), and not only among itinerant teachers, where collaboration tends to be given more attention. A collaborative model designed for the DHH context with coordinated, systematic efforts to support students' literacy development is needed.

Conclusion

Some DHH students attain English proficiency, but there is little research on the methods that contribute to their development other than their ASL proficiency and/or successful access to spoken English (Hrastinski & Wilbur, 2016; Mayer & Trezek, 2018). Similarly, there is a great gap of knowledge in identifying approaches that are effective in accelerating writing development among secondary DHH students who have experienced a few to several years of language deprivation. The overarching

goal of this study was to provide an overview of contemporary writing instruction with DHH students in middle and high schools. Currently, many deaf education teachers feel inadequate to teach writing, and student outcomes appear to be unsatisfactory. Teachers expressed a great need for training on research-based methods that are responsive to diverse DHH learners. While further investigation is suggested to confirm the findings from this study, we propose that secondary writing instruction with DHH students needs attention and transformation. A cohesive, collaborative, and research-based program to develop and support teachers' and specialists' pedagogical knowledge of writing instruction with secondary DHH students is recommended. This study provides a foundation upon which more research and development can be built.

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Supplemental Material

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