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Transfer of writing skills across genres among deaf and hard of hearing elementary writers

Hannah Dostal [a,*], Kimberly Wolbers [b], Joan Weir [c]

[a] University of Connecticut, 249 Glenbrook Road, Storrs, CT 06269-3033, USA
[b] University of Tennessee, A228 Jane and David Bailey Education Complex, Knoxville, TN 37996, USA
[c] Southern Connecticut State University, 501 Crescent Street, New Haven, CT 06515, USA

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ABSTRACT

Thirty-seven deaf and hard of hearing (DHH) students in grades four through six participated in a year of Strategic and Interactive Writing Instruction, an approach to writing instruction designed to be responsive to DHH students' unique language experiences and profiles. The current study investigated the transfer of writing skills between genres by analyzing participants' recount, information report, and persuasive writing samples at four time points: at the beginning of the academic year, immediately before genre-focused instruction, at the end of 9 weeks of instruction in a genre, and 9 weeks after the conclusion of instruction in a genre. Results from the study demonstrate that DHH students transfer genre-specific writing skills between genres.

1. Introduction

Writing transfer has been theorized and investigated among hearing students, but research exploring the transfer of writing skills between genres among deaf and hard of hearing (DHH) students is limited (Wolbers, 2008; Dostal & Wolbers, 2016). To address this gap in the literature, this study – which was embedded in a larger four-year project focused on writing development and instruction – investigated the transfer of writing skills between genres among upper elementary DHH students whose teachers were implementing Strategic and Interactive Writing Instruction (SIWI). SIWI is an approach developed for use with DHH students that attends to students' unique language profiles and includes instruction related to genre features embedded in purposeful writing opportunities. The transfer of writing skills was explored by analyzing students' writing for genre-specific traits at the beginning of the academic year and before and after the use of SIWI in each genre to determine if and to what extent instruction in narrative, information report, and persuasive writing lead to improved writing quality in the instructed genre and in untaught genres.

Researchers have suggested that writers will often require explicit instruction to be sensitive and responsive to the unique features and conventions of each genre encountered (e.g., Reiff & Bawarshi, 2011; Yancey et al., 2014). However, just as metalinguistic awareness facilitates the learning of new languages, we hypothesized that instruction related to genre features in a single genre might contribute to the development of genre awareness that underlies some initial level of competence to compose texts in new genres before explicit instruction is provided.

In the section that follows, we highlight existing literature on transfer of learning to provide an overview of the nature and purpose of research on transfer. We then consider research focused on transfer in writing in particular, and consider studies related to transfer

* Corresponding author.
E-mail addresses: hannah.dostal@uconn.edu (H. Dostal), kwolbers@utk.edu (K. Wolbers), weirj3@southernct.edu (J. Weir).

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among second language (L2) learners in general, and DHH students, specifically. Then we provide an overview of the current study.

1.1. Transfer of learning

Transfer of learning, or extension of one's knowledge, is a core concept of education. Bransdford and Schwartz (1999) write:

> A belief in transfer lies at the heart of our educational system. Most educators want learning activities to have positive effects that extend beyond the exact conditions of initial learning. They are hopeful that students will show evidence of transfer in a variety of situations: from one problem to another within a course, from one course to another, from one school year to the next, and from their years in school to their years in the workplace. (p. 61)

Transfer theory hypothesizes that the learning of Task A will impact the learning of Task B, and the learning of Task B will constitute more practice of Task A (Jakobovits, 1969). According to Ellis (1965), transfer will impact learning one of three ways: (1) Positive transfer in which learning of Task A helps learning of Task B. (2) Negative transfer in which learning of Task A makes it more difficult or disrupts the learning of Task B. (3) Zero transfer in which there are either equal parts of Positive and Negative Transfer, or there appears to be no transfer of learning.

1.2. Transfer in writing

Transfer in writing instruction is often characterized as challenging and there is debate amongst researchers about if and when transfer is possible. Smith (2004) contends that surface level skills, such as use of correct spelling and punctuation, can be transferred from genre to genre; but with more abstract concepts, such as the writing process and composition, transfer does not occur. Wardle (2009) explains that since genres have naturally occurring rhetorical structures that do not work outside of their forms, and because they are complex and content-specific, students cannot transfer knowledge from one genre to the next. Additionally, Yancey et al. (2014) write that because each genre of writing serves a different purpose with its own conventions, there is not a clear trajectory from novice writer to expert writer. All writers have the potential to revert to novice status when tasked with a new genre or purpose for writing. Writers need guidance in the construction of text in new genres through mentor text and/or explicit instruction. For example, a novice researcher does not easily intuit how to write a scholarly article without deconstructing and analyzing existing works. Conversely, a skilled research writer might feel like a novice if asked to write an unfamiliar genre such as a historical romance novel.

Perkins and Salomon (1992) suggest that "high road" transfer–the ability to leverage strategies learned in another context and apply it to a novel situation–can occur when the student actively makes connections between prior knowledge and newly learned concepts. For example, transfer can occur through metacognitive skills, such as writing to appeal to a specific audience with a specific purpose, whereby the writer applies learned skills or strategies to new forms of writing (Clark & Hernandez, 2011; Rounsaville, 2012).

A few studies have demonstrated that narrative writing features are transferred to other genres of writing including expository and persuasive text (Dostal & Wolbers, 2016; Kamberelis, 1998). This could be considered negative transfer or "using but confusing" (Bear, Invernizzi, Templeton & Johnston, 2008, p. 9), as students overextend a learned concept to a new genre. Kamberelis (1998) states that familiarity with the writing structure: the knowledge of and understanding of the forms, functions, rhetorical possibilities, and under what circumstances the different genres are used, is critical to student growth in writing instruction.

Researchers (e.g., Bradley & Donovan, 2010; Kamberelis, 1998) suggest that genre-level knowledge is formed through reading in the genre during the school years, and during the elementary years the text is often a narrative structure (Duke, 2000; Oddsdóttir et al., 2017). It is thought, due to the repeated exposure to narrative structures during the early years and in elementary school, that children have developed a greater sense of these attributes in the narrative structure than they have in other genres. This makes explicit instruction in other genres even more imperative (Oddsdóttir et al., 2021). Students need to gain familiarity with the purpose and structure of other writing forms to allow them to more readily shift their writing to suit the audience and purpose of their text (Bawarshi, 2016).

1.3. Instructional strategies in support of transfer

According to Yancey et al. (2014), experts organize information around big concepts or ideas that guide their thinking. Expert writers are able to notice patterns that the novice writer cannot. By teaching large concepts to students that can transfer from task to task, they argue, students will gain a depth of knowledge about writing that will improve their outcomes. The inclusion of metacognition in writing instruction will allow students to develop a sense of the whole and the relationship between different genres. They use the analogy of a road map versus a GPS. With a roadmap, one is able to see various routes, connections, and locations and is able to determine the various possibilities among the routes. GPS can guide the driver to different possibilities based on specified criteria such as quickest route, most scenic, etc. It does not, however, give the driver the sense of the relationship between the various routes. Students who are taught genres as separate entities that do not connect to the overall skills and thought processes necessary for effective writing are at a disadvantage because the metacognitive understanding necessary may not develop without explicit instruction. Tending to the metacognitive features of writing (such as the differences between signed or spoken language and written language or understanding that writing needs to convey information to a particular audience) when writing as well as the genre level features allow students to develop a better understanding of the purpose and importance of writing. The explicit instruction in the metacognitive process of writing allows them to develop a roadmap of elements necessary for effective writing.

Hill (2016) found that writing transfer needs to be "prompted and practiced" in order to be successful. Students need to develop

their skills through the use of teacher cueing and guided practice. Additionally, Perkins and Salomon (1989) contend that it is possible to "teach for transfer." It has been established that explicit instruction about genre-level features also shape student writing (Maloch & Bomer, 2013). While general writing strategies facilitate transfer between genres, explicit instruction in genre-related strategies can also support transfer by making aspects of writing deliberate and thoughtful. For instance, when a student learns that recall or narrative writing often uses past tense action verbs, and that expository writing includes many linking verbs, they are transferring the knowledge that different types of writing call for the use of certain verb tenses. This allows them to be aware of the word choices they make as they attend to the language in their writing.

Explicit instruction in different genres and their purposes allows students greater access to understanding of text. They are able to understand more fully what is expected of both an author and an audience. Students need to develop their skills through the use of teacher cueing and guided practice. While a number of researchers (e.g., Cree & McCauley, 2000; Ellis, 1965; Jakobovits, 1969; Perkins & Salomon, 1992; Smith, 2004; Wardle, 2009), have demonstrated that transfer is a complicated process, Hill (2016) lists five pedagogical practices that facilitate the process of transfer of writing skills more readily than others. The first practice is having a high level of initial learning. The second pedagogical practice is having students make connections about the similarities and differences in learning situations. The third practice that Hill contends is beneficial to transfer is teaching key concepts of writing that are important to all writing regardless of genre. The next practice is teaching students how to reflect metacognitively. The final practice is active learning and motivation.

Harris et al. (2008) state that writing strategy instruction provides students with the skills they need to organize and reflect on their writing. In doing so, students are, in effect, able to transfer their skills in one genre to another. For example, there are strategies that can be broadly applied to all genres that help to strengthen writing. Learning to write a topic sentence with supporting details and a concluding statement is one strategy that transfers from genre to genre. Another strategy that is transferable from genre to genre is planning and organizing a paper (Harris et al., 2008). Some of the key components of strategic writing instruction include focusing instruction on a strategy versus introducing several strategies, sequencing strategies so they build on each other, and providing students with significant practice with a strategy for constructing text.

With the assumption that genre-level instruction makes clear that each type of writing has the purpose of communicating various messages, and is structured to make the message clear to a specific audience, students may be able to internalize – and transfer – the idea that their message needs to convey a purpose. According to Dostal and Wolbers (2016), the transfer between genres may occur when the focus is on the purpose of the genre and social situation in which it is used. Dostal and Wolbers (2016) describe genre-specific writing instruction as the understanding that written communication can be structured for a particular purpose and audience. They argue that by teaching students to be mindful of purpose and audience, students may be able to transfer knowledge from one genre to another, and manipulate previously learned genre conventions to a new genre without explicit instruction. For example, one implication of transfer is a study (Wolbers, 2008) that found that deaf and hard of hearing (DHH) students who received explicit genre-level instruction in informational text, scored higher in a post-test assessment in narrative writing than they had prior to the informational text instruction. Dostal and Wolbers (2014) found that instruction in narrative writing resulted in higher post test scores among DHH middle school students when compared to pre on both a taught genre (i.e., narrative) and an untaught genre (i.e., expository).

Explicit instruction in a genre's purpose- that every genre is designed to convey a different message/intention aligns with the understanding that there are many aspects involved in the development of writing competence. Wardle (2009) argues that when students are expected to write inauthentic texts in different genres in a writing classroom, it is relegating the process to an exercise that is no longer meaningful and, therefore, can no longer be considered writing in the genre. Tinberg (2017) writes that audience is an important consideration in writing instruction. Students are prompted to think about what kinds of questions they, as the writer, might have for their readers and how their knowledge of the audience impacted their writing. Students are also encouraged to think back to previously explored genres and reflect on the similarities and differences between genres. Authenticity and purpose are therefore important aspects of writing instruction. Purpose, audience, as well as word choice, sentence complexity, voice, grammar, and structure are just some of the areas of which a writer needs knowledge to write effectively. The vast amount of knowledge that needs to be accumulated to be a competent writer is even more problematic for students who are navigating between languages that use a different grammar system, sentence structure, and rhetoric.

1.4. Transfer in writing with L2 learners

Research in writing transfer with second language learners (L2) has focused on carryover of learned skills from one language to another, but DePalma and Ringer (2011) argue that there needs to be further inquiry into how students navigating two languages adapt previously learned information to novel writing situations. They claim students learning an L2 engage in the unconscious or intuitive process of reshaping learned writing skills to negotiate the application of the unfamiliar writing tasks in a less familiar language. They describe this phenomenon as "adaptive transfer". It involves the reusing and reshaping of skills to more precisely fit the new task. Related, language switching, the act of using a person's L1 to plan and formulate L2 constructions, results in longer and more cohesive writing (Woodall, 2002). This indicates that use of L1 during the planning and organizing of writing can support transfer of learning.

There has been a significant amount of research on negative transfer of students' writing skills from L1 to L2 (see Kang, 2005; Simpson, 2000) based on the assumption there is interference from L1 because of the differing rhetorical patterns in the languages. Work from Simpson (2005) concludes that writing instruction with students learning English as a second or other language needs to explicitly point out similarities between the languages which will allow for positive transfer, and by explaining the differences, students will be able to avoid inserting language constructs found in their L1. A study by Bhela (1999) suggested that the greater the syntactical difference between a student's L1 and L2, the greater the negative transfer of the L1 in the writing samples produced in the

L2.

1.5. Transfer in writing with deaf and hard-of hearing learners

Given the possibility of both positive and negative transfer among L2 learners, it is important to consider the implications of transfer in writing for learners who may be working across languages and modalities when writing. There is evidence that exposure to accessible language during writing instruction with DHH students results in higher literacy achievement even if the language does not have a written form (Dostal & Wolbers, 2016). For instance, one study with DHH students, found the amount of American Sign Language (ASL) usage translated into statistically higher achievements in reading outcomes with higher ASL usage resulting in higher reading achievement (DeLana et al., 2007). Cummins's, 1979 theory of language interdependence can be used to argue that the development of linguistic competence in ASL supported the students' skill development in reading and writing in English. Despite the linguistic incongruities that exist between ASL and English, Ausbrooks et al. (2014) work extended the theory of language interdependence to provide empirical evidence that the theory is generalizable to ASL and English.

There is also evidence suggesting that students with a fully developed L1 are able to draw on their linguistic competence in the L1 until they are able to be fully proficient in an L2. Further, L2 learners draw on their knowledge of both languages while they are composing text. For example, students writing has been found to contain the linguistic patterns of their L1, such as the use of a rhetorical question in ASL to conjoin clauses or add adverbial/adjectival phrases to a sentence (e.g., *I bought shoes why, old shoes not fit anymore. When I have flu? Last tuesday*; Wolbers et al., 2014). The application of ASL grammar in writing reduced with explicit instruction, indicating metalinguistic awareness, developed through intentional code-switching and translanguaging practices, aid in literacy development. It is therefore important to investigate whether and how DHH learners' developing linguistic competence supports transfer in writing across the various academic genres required in school settings.

1.6. Current study

This study was embedded into a larger four-year (2017-2021) Goal 3 project funded by the Institute of Education Sciences (IES), *An Efficacy Study of Strategic and Interactive Writing Instruction (SIWI): Teacher Development and Student Outcomes*. The Goal 3 project began after the conclusion of an IES-funded Goal 2 project focused on the development of SIWI.

SIWI is an approach to writing instruction designed to be responsive to DHH students' unique language experiences and profiles and attentive to genre-specific features. The intention of the larger study is to investigate the efficacy of the SIWI professional development (PD) program in improving the knowledge and instructional practices of teachers and the writing and language outcomes for DHH students in grades three through six. The current study focuses on the first year of the four year project in which six teachers participated by implementing SIWI before the recruitment and randomization of new teachers for an efficacy study. The purpose of this study is to explore the transfer of writing skills between genres (i.e., recount, information report, persuasive) among elementary DHH

Table 1
Student Baseline Demographic Data.

Baseline Demographics		Student Participants	
Race	Black/ African American (no's)	12	
	Latinx	8	
	Asian/ Pacific Islander	1	
	Native American	1	
	White	11	
	Multiracial	3	
	Other	1	
Hearing Levels	Slight (0-25dB)	0	
	Mild (26-40dB)	1	
	Moderate (41-55dB)	6	
	Mod-Severe (56-70dB)	5	
	Severe (71-90dB)	6	
	Profound (91dB+)	19	
Amplification	None	8	
	Hearing Aid(s)	15	
	Cochlear Implant(s)	14	
Hearing Level with Amplification Technology	Slight (0-25dB)		9
	Mild (26-40dB)		10
	Moderate (41-55dB)		2
	Mod-Severe (56-70dB)		2
	Severe (71-90dB)		0
	Profound (91dB+)		1
	No amplification used		8
	Information not reported	5	
Additional Disability	Yes	6*	
	No	30	

* i.e., Hurler's Syndrome, Usher's Syndrome, Autism Spectrum Disorder, Language Disorder, Intellectual Disability.

students.

While previous studies have investigated writing transfer among hearing students, research demonstrating writing transfer in DHH students is limited (Wolbers, 2008; Dostal & Wolbers, 2016). To address this gap in the research related to the transfer of writing skills between genres among DHH students, the current study investigated the following questions:

1a. To what extent do elementary DHH students make gains in recount, information report, and persuasive writing after one trimester of genre instruction?
1b. To what extent do elementary DHH students maintain writing skills after the conclusion of instruction in a genre?
2. To what extent does instruction in recount, information report, or persuasive writing lead to improved outcomes in other genres?

Writing gains and the maintenance of those gains (research questions 1a and 1b) are important prerequisites to research question 2. Only with documentation of writing growth in the taught genre is it then possible to examine the transfer of writing skills to untaught genres.

2. Method

2.1. Student participants

Thirty-seven DHH students in grades four through six from six multi-grade classes across five states in the United States participated in the current study (16 females, 21 males; mean age: 10 years, 5 months, range: 9,1 – 13,1). The class sizes ranged from four to nine students with 12 students enrolled in grade four, 13 in grade 5, and the remaining 12 in grade six. Baseline demographic data on race, hearing levels, and amplification are provided in Table 1.

Teachers rated their students' fluency in their primary expressive language (i.e., ASL or spoken English) from 1 to 5 (1=can fluently express most anything, 5=difficulty expressing most things fluently). Teachers indicated that approximately forty-percent of the students expressed many or most things fluently in their primary expressive language.

English was the primary language used at home for communication between family members and students (n=17). Seven students' families used ASL for communication at home, four used Spanish, and seven used more than one language (i.e., ASL and English (n=4), Spanish and English (n=3), Thai and English (n=1). Two students were identified as experiencing limited to no communication with family members at home.

2.2. Teacher participants

Six educators (5 teachers, 1 speech-language pathologist) from 5 states in the United States participated in this study. Their experience teaching DHH students ranged from 5 to 17 years with a mean of 15 years of experience. One educator identified as hard-of-hearing and reported using a cochlear implant, and the remaining educators identified as hearing. Of the 5 participants teaching in a signing environment, they reported having an ASL proficiency level of intermediate or above and between 7 to 26 years of experience using ASL (mean years: 16) with all participants reporting being non-native users of ASL.

Three educators taught at schools for the deaf and three in self-contained classrooms in public schools. Three of the programs implemented an ASL/English bilingual approach to instruction (17 students), one program used spoken English (10 students), and two adhered to a total communication approach in which sign language, spoken language, sign-supported speech, and ASL were used (10 students). Five of the teachers reported that their personal teaching philosophy aligns with an ASL/English bilingual approach and one reported alignment with a total communication approach. All of the participants reported that they liked to teach writing with five reporting that they consider themselves to be effective writers. Four reported writing for enjoyment and frequently writing outside of school for purposes other than teaching.

Prior to the current study, three of the participants were involved as experimental teachers in an IES Goal 2 RCT study during the 2014-2015 academic year (for more information see Wolbers et al., in press) and the remaining three were involved in professional development (PD) through Improving Teacher Quality grant projects. These SIWI teachers were the first group to participate in the current grant. They were involved in the first year of the project, before the recruitment and randomization of new teachers for an efficacy study.

2.2.1. SIWI professional development

The SIWI PD program is typically sustained over a 3-year period and is designed to deepen teachers' content and pedagogical knowledge. The approach is aligned with research on effective PD (Darling-Hammond & Richardson, 2009) and has three components: a summer institute, site visits, and online coaching. Teachers in their first year of implementing SIWI additionally attend a 2-day fall institute to receive support with initial implementation.

The 5-day summer institute for teachers new to SIWI introduces them to the foundational principles of the instructional approach and is designed to provide teachers with ample time to engage in small group instructional simulations focused on using language and writing techniques central to SIWI. The advanced summer institute for SIWI teachers joining for a second year is a three day workshop focused on guided reflection and self-evaluation of their use of SIWI. Teachers joining the summer institute for the third year prepare them to become SIWI mentors. Additionally, participating teachers receive onsite coaching from a member of the SIWI research team. Teachers in their first year of SIWI are visited twice, and teachers in the second and third year of the PD program are visited at their

school once. Lastly, teachers receive online coaching and support approximately twice a month to encourage instructional reflection and professional goal setting.

While teachers typically engage in the three components of the SIWI PD and immediately apply SIWI in their classrooms, teachers in this study experienced between a one to two year break as the project moved from a federally-funded development grant to a funded efficacy study. After the break in implementation, teachers in the study participated in two days of professional development before beginning instruction and receiving online coaching sessions.

2.3. Procedures

2.3.1. Instructional context

2.3.1.1. Strategic and interactive writing instruction. SIWI (Wolbers, 2008) is an approach to writing instruction merging both cognitive and sociocultural theoretical tenets (Graham, 2018). There is explicit instruction of writing strategies (Graham & Perin, 2007; Graham et al., 2012) with visual scaffolds or procedural facilitators (Scardamalia & Bereiter, 1986), which is supported on a social plane within a broader writing community where individuals are apprenticed into acts of writing (Englert et al., 2006;). SIWI is designed to meet the unique language needs of DHH students by focusing on developing linguistic competence and metalinguistic knowledge (Wolbers, 2010; Ellis et al., 2009; Krashen, 1994; Paradis, 2009). As a set of guiding principles, SIWI can be implemented across grade levels, and for the purpose of teaching various writing and language objectives. Previous research has shown that SIWI supports the writing and language development of elementary and middle grades DHH students (Wolbers, 2008, 2010, Wolbers et al., 2013, 2014). For more information about the implementation of SIWI, see *Enactment of SIWI Principles* at siwi.utk.edu.

2.3.1.2. Instructional time. For participation in the current study, teachers were required to provide at least 18 hours or 9 weeks of instruction in each genre was required for participation in the project. While all teachers exceeded this requirement for recount and information report instruction, not all teachers were able to complete the hours required for persuasive writing by the end of the year. Teachers spent 10 to 16 hours on persuasive writing. Additionally, the order of genre instruction differed among teachers. While all started with recount, due to school pacing guides and state mandated assessments, two teachers taught persuasive writing next (9 students total) while the other four teachers taught informational writing (27 students total).

2.3.2. Instructional fidelity

Teachers were required to video record a unit of instruction for each of the three genres. A unit of instruction consisted of the writing lessons surrounding one topic starting with determining audience and purpose and ending with final publication. Videos were analyzed using the SIWI fidelity instrument (see Wolbers et al., 2015 or siwi.utk.edu for the full fidelity instrument).

Fidelity was determined by scoring instruction for 38 indicators that fall within one of three driving principles of SIWI: strategic instruction, interactive instruction, and metalinguistic knowledge. Areas looked at include teacher behaviors, such as engaging students in discussions about text level features in the genre, comparing and contrasting grammar features in ASL and English, and providing students with positive feedback for involvement and thinking. Teachers were rated for the implementation of each of the principles: 1 = implemented consistently; 0.5 = implemented some of the time; 0 = not implemented. When a teacher earns a 0.5 across all indicators, their implementation percentage would be approximately 60%.

The collective average for instructional fidelity for teachers in this study was 58%. When broken down by the three driving principles, teachers averaged 63% fidelity for strategy instruction, 56% for interactive instruction, and 53% for metalinguistic instruction. This indicates that teachers were implementing most of the SIWI principles at some point during their writing instruction. In previous studies of SIWI, teachers using SIWI for the first-year average 75% fidelity and increase their fidelity after three years of use paired with PD (Wolbers et al., 2017). Implementation at these levels have significantly impacted student outcomes (Wolbers et al., 2017). The extended break in PD and implementation of SIWI that the participating teachers experienced likely impacted their fidelity.

Table 2
Data Collection and Genre Instruction Timeline by Order of Genre Instruction.

	RIP	RPI
1st Sample Collection	Baseline Samples, all genres	Baseline samples, all genres
Instruction	*Recount*	*Recount*
2nd Sample Collection	Recount Post, IR Pre	Recount post, Persuasive pre
Instruction	*Information Report (IR)*	*Persuasive*
3rd Sample Collection	Recount Maintenance; IR Post; Persuasive Pre	Recount Maintenance; Persuasive Post; IR Pre
Instruction	*Persuasive*	*Information Report (IR)*
4th Sample Collection	Info Maintenance; Persuasive Post	Persuasive Maintenance; IR Post

Note. RIP=Recount, Info Report, Persuasive (order of genre instruction); RPI=Recount, Persuasive, Info Report (order of genre instruction).

2.4. Measures

Writing samples for recount, information report, and persuasive writing were collected four times throughout the school year: (1) *baseline samples* were collected at the beginning of the school year; (2) *pre-samples* were collected prior to instruction in each genre; (3) *post-samples* were collected immediately after instruction in each genre; and (4) *maintenance samples* were collected at least 9 weeks after instruction in a genre ended. A maintenance sample was not collected for the last genre taught due to time constraints. See Table 2 for the sample collection and instructional timelines.

All students responded to the same recount prompt that asked them to share a personal experience. There were three informational prompts that were counterbalanced in which students were asked to describe an animal or insect, a game or activity, or a familiar teacher. Similarly, persuasive prompts were counterbalanced and asked students to argue for or against a pool or trampoline, an iPad or laptop, or owning a pet. Teachers did not assist with either writing or revising of the samples and there were no time limitations placed on students.

2.5. Scoring procedures

All student samples were typed and de-identified, then scored by two research team members using a genre-specific (i.e., recount, information report, persuasive) primary traits rubric. Scores on the rubric ranged from 0-6 for each trait. A score of 0 represented little demonstration of skill and 6 represented an effective demonstration of skill for three traits: opening, content, and organization of ideas. A total of 18 points are possible.

The rubric was developed based on the National Assessment of Educational Progress (NAEP) rubric (US Department of Education, 2010) measuring genre-related features. The evaluation of the opening and content are specific to each genre. For example, features specifically associated with recount writing included orientation (i.e., opening) and events (i.e., content); information report writing included topic (i.e., opening) and details (i.e., content); and persuasive included opinion (i.e., opening), reasons and examples (i.e., content). The organization section of the rubric overlaps on the three rubrics and evaluates: the level of connection between ideas, the format of the writing (e.g., one paragraph versus multiple paragraphs), and the use of transitions. Table 3 displays the traits by genre scored on the rubric.

There were a total of 721 samples across the three genres (i.e., 257 recount, 256 informational, and 208 persuasive), with twenty percent of the samples double coded to establish interrater reliability. ICC was calculated for each of the three domains of writing described above. For recount and informational pre and post, Rater 1 (R1) and Rater 2 (R2) had an ICC of .964. For persuasive, R1 and R2 had an ICC of .984.

2.6. Data analysis

Paired-samples t-tests were conducted to explore possible relationships between writing instruction in recount, information report, and persuasive genres and improved student outcomes in the genre both immediately after instruction and after a maintenance period. Additionally, paired-samples t-tests were used to explore the impact of instruction in a genre on students' writing outcomes in other genres at the beginning of the academic year and immediately before instruction in a genre.

3. Results

3.1. Research Question 1a: To what extent do elementary DHH students make gains in recount, information report, and persuasive writing after one trimester?

To answer the first research question paired samples t-tests were conducted to compare student writing outcomes in recount, information report, and persuasive genres using (a) baseline samples and post-samples, and (b) pre-samples and post-samples.

3.1.1. Baseline and post samples

Results showed that students demonstrated higher scores on recount writing samples at post (M=7.97, SD=2.80) compared to baseline (M=5.92, SD=2.98). A paired samples t-test found this difference to be significant, $t(34) = -8.38$, $p < 0.05$. The same pattern is true for information report, $t(34) = -6.05$, $p < 0.05$, and persuasive writing, $t(34) = -3.43$, $p < 0.05$. Baseline means for information report (M=4.36, SD=3.19) and persuasive (M=4.93, SD=2.71) showed increases at post (M=6.75, SD=3.86 and M=5.95, SD=2.59). See Table 4.

Table 3
Primary Traits of Rubrics by Genre.

	Recount	Information Report	Persuasive
Opening	Orientation	Topic	Opinion
Content	Events	Facts	Reasons and Examples
Organization	Connection between ideas; format of the text; transitions		

Table 4
Descriptive Statistics and t-test Results for Baseline and Post Samples.

Outcome	M	SD	n	M	SD	n	95% CI for Mean Difference	p	t	df
Recount Baseline/Post	5.92	2.98	34	7.97	2.80	34	-2.54, -1.54	.000*	-8.38	33
Info Report Baseline/Post	4.36	3.19	37	6.75	3.86	37	-3.19, -1.59	.000*	-6.05	36
Persuasive Baseline/Post	4.93	2.71	36	5.95	2.59	36	-1.62, -0.42	.001*	-3.48	35

* $p < .05$.

3.1.2. Pre- and post-samples

As reported above, there was a significant difference in students' recount writing scores at baseline/pre-sample collection and at post-sample collection. For students who received instruction in information report writing following recount instruction, there was a significant difference in information report pre-sample writing scores (M=5.90; SD=3.62; n=22) and post-sample scores (M=7.34; SD=4.24; n=22). However, for students who engaged in information report writing instruction last, after recount and persuasive genres, there was not a significant difference in information report pre-sample scores (M=4.0; SD=1.11; n=9) and post-sample scores (M=4.27; SD=1.39; n=9). This may be due to the small sample size not sufficiently powering the analysis. Pre-sample scores (M=5.25; SD=2.75; n=28) and post-sample scores (M=6.05; SD=2.78; n=27) for the persuasive writing of students who participated in persuasive writing instruction after instruction in both recount and information report were not significantly different. Likewise, there was not a significant difference in persuasive writing pre-sample scores (M=5.94; SD=1.82; n=9) and post-sample scores (M=5.66; SD=2.01; n=9) for students who engaged in persuasive writing instruction immediately after recount instruction. See Table 5 and Figs. 1, 2 and 3.

3.2. Research Question 1b: To what extent do elementary DHH students maintain writing skills after the conclusion of instruction in a genre?

Paired samples t-tests were used to answer research question 1b about whether writing skill improvements maintained after withdrawal of instruction in the genre. Given that there was not a significant difference between pre-sample and post-sample persuasive scores reported in the analyses done for research question 1a, persuasive writing scores were not analyzed for research question 1b.

3.2.1. Recount

There was not a significant difference between students' recount post-sample scores (M=7.86; SD=2.80; n=30) and maintenance sample scores (M=7.45; SD=2.84; n=30). Further, students' recount writing scores were significantly different when compared at pre/baseline (M=5.57, SD=3.22; n=32) and at maintenance (M=6.98; SD=3.30; n=32). Taken together, this indicates that students maintained recount genre skills 9 weeks after instruction in the genre concluded. See Table 6 and Fig. 3.

3.2.2. Information Report

Similar trends to recount are seen in this genre: (a) There is not a significant difference between information report writing scores at post (M=6.61; SD=4.35; n=17) and at maintenance (M=8.47; SD=2.77; n=17), and (b) students' information report writing scores were significantly different when compared at pre (M=3.91; SD=3.60; n=17) and at the maintenance (M=8.47; SD=2.77; n=17). This suggests that students maintained the information report writing skills they acquired, even after instruction had been removed for at least 9 weeks. See Table 7 and Fig. 4.

3.3. Research Question 2: To what extent does instruction in recount, information report, or persuasive writing lead to improved outcomes in other genres?

To answer research question 2, paired samples t-tests were conducted to compare student writing outcomes in the second and third genres taught during the school year (i.e., information report and persuasive) using baseline samples and at pre-samples.

Table 5
Descriptive Statistics and t-test Results for Pre and Post Samples.

Outcome	M	SD	n	M	SD	n	95% CI for Mean Difference	p	t	df
Recount Pre/Post	5.92	2.98	34	7.97	2.80	34	-2.54, -1.54	.000*	-8.38	33
Info Report (RIP) Pre/Post	5.90	3.62	22	7.34	4.24	22	-2.42, -0.437	.007*	-2.99	21
Info Report (RPI) Pre/Post	4.00	1.11	9	4.27	1.39	9	-1.46, 0.90	.604	-.540	8
Persuasive (RIP) Pre/Post	5.46	2.65	26	6.17	2.77	26	-1.54, -0.17	0.16*	-2.62	21
Persuasive (RPI) Pre/Post	5.94	1.82	9	5.66	2.01	9	-0.99, 1.55	.629	.502	8

* $p < .05$.
Note. RIP=Recount, Info Report, Persuasive (order of genre instruction); RPI=Recount, Persuasive, Info Report (order of genre instruction)

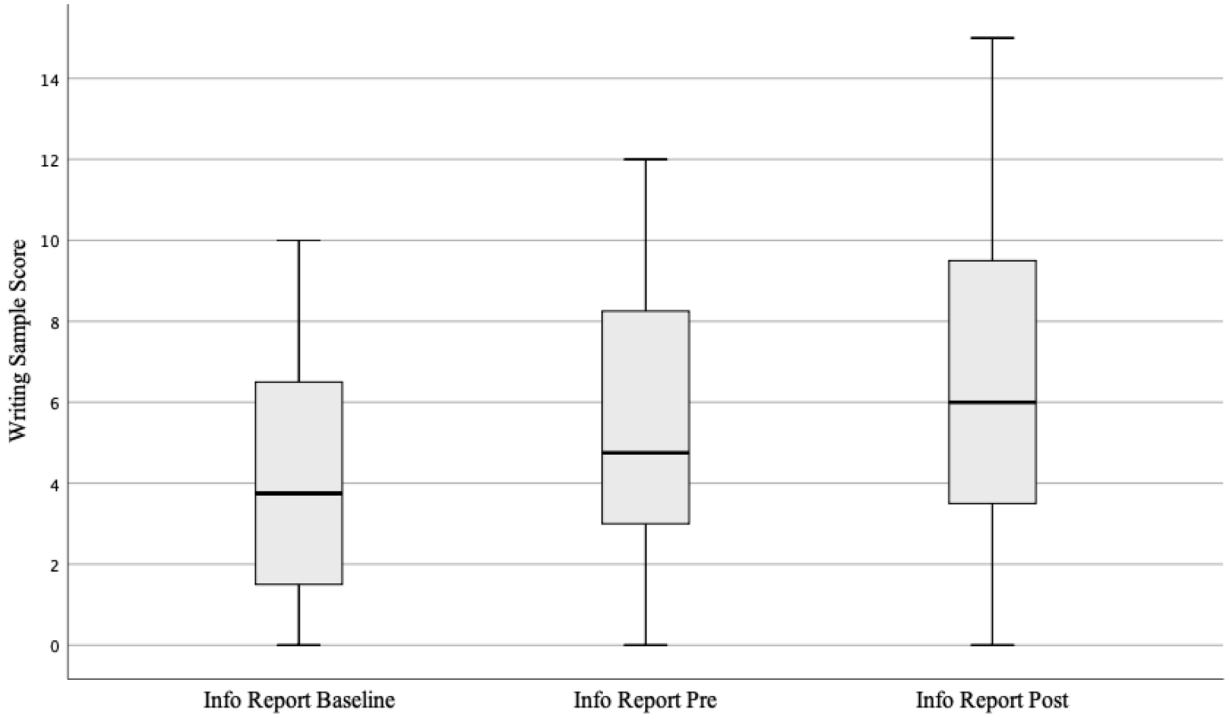

Fig. 1. Information Report Writing Sample Scores Over Time.

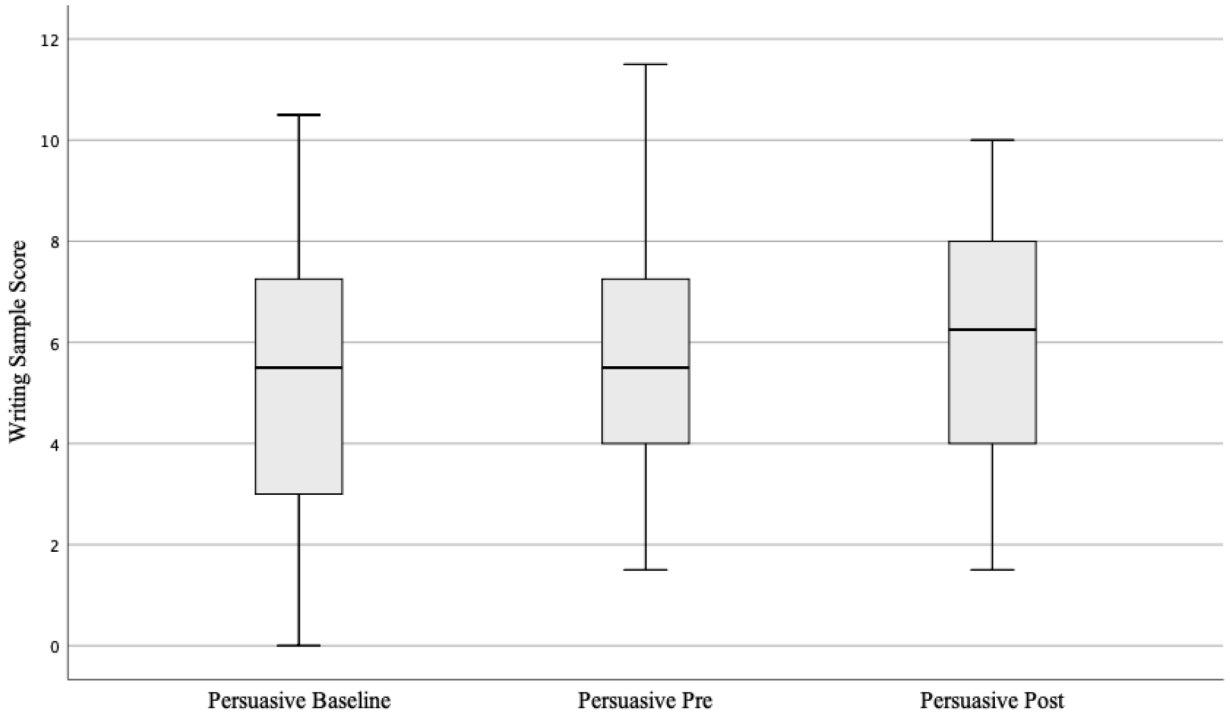

Fig. 2. Persuasive Writing Sample Scores Over Time.

3.3.1. Information report

For students who participated in recount and information report writing instruction, then persuasive instruction, there was a significant difference in their information report writing scores at baseline (M=5.04; SD=3.34; n=22) and pre (M=5.90; SD=3.62;

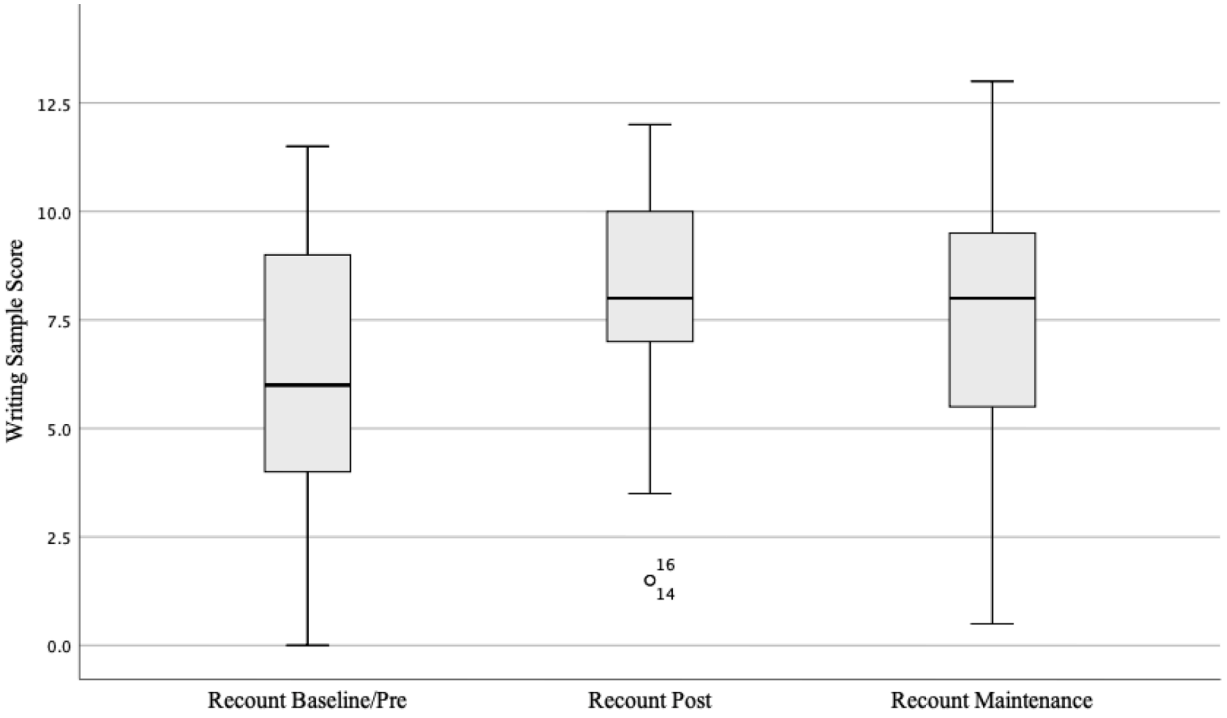

Fig. 3. Recount Writing Sample Scores Over Time.

Table 6
Descriptive Statistics and t-test Results for Recount Pre, Post, and Maintenance Samples.

Outcome	M	SD	n	M	SD	n	95% CI for Mean Difference	p	t	df
Recount Pre/Post	5.92	2.98	34	7.97	2.80	34	-2.54, -1.54	.000*	-8.38	33
Recount Post/Maintenance	7.86	2.80	30	7.45	2.84	30	-0.05, 0.88	.079	1.82	29
Recount Pre/Maintenance	5.57	3.22	32	6.98	3.30	32	-2.17, -0.63	.001*	-3.75	31

* $p < .05$.

Table 7
Descriptive Statistics and t-test Results for Info Report Pre, Post, and Maintenance Samples (RIP).

Outcome	M	SD	n	M	SD	n	95% CI for Mean Difference	p	t	df
Info Report Pre/Post	5.90	3.62	22	7.34	4.24	22	-2.42, -0.437	.007*	-2.99	21
Info Report Post/Maintenance	6.61	4.35	17	8.47	2.77	17	-4.18, 0.48	.112	-1.68	16
Info Report Pre/Maintenance	3.91	3.60	17	8.47	2.77	17	-6.55, -2.56	.000*	-4.84	16

* $p < .05$.
Note. RIP=Recount, Info Report, Persuasive (order of genre instruction).

n=22). See Table 8 and Fig. 4. Similarly, for students who engaged in information report writing last (after recount and persuasive), there was a significant difference in baseline (M=2.44; SD; 1.21; n=9) and pre (M=4.0; SD=1.11; n=9) scores for information report writing. See Table 8 and Fig. 5. Given gains in recount writing from pre/baseline to post sample collection (RQ1a) and that explicit instruction in information report writing had not been provided between the two time points reported here, this finding indicates that students may have transferred writing skills across genres.

3.3.2. Persuasive

There was not a significant difference in students' persuasive writing scores at baseline (M=4.75; SD=3.10; n=27) and pre (M=5.25; SD=2.80; n=27) for students who received persuasive instruction last, preceded by instruction in recount and information report writing. See Table 8 and Fig. 6. Likewise, there was not a significant difference in persuasive writing scores at baseline (M=4.8; SD=1.9) and pre (M=5.9; SD=1.8) for students (n=9) who participated in persuasive writing immediately after recount writing. See Table 8 and Fig. 7. These results suggest that there was no transfer of writing skills from other genres to persuasive writing.

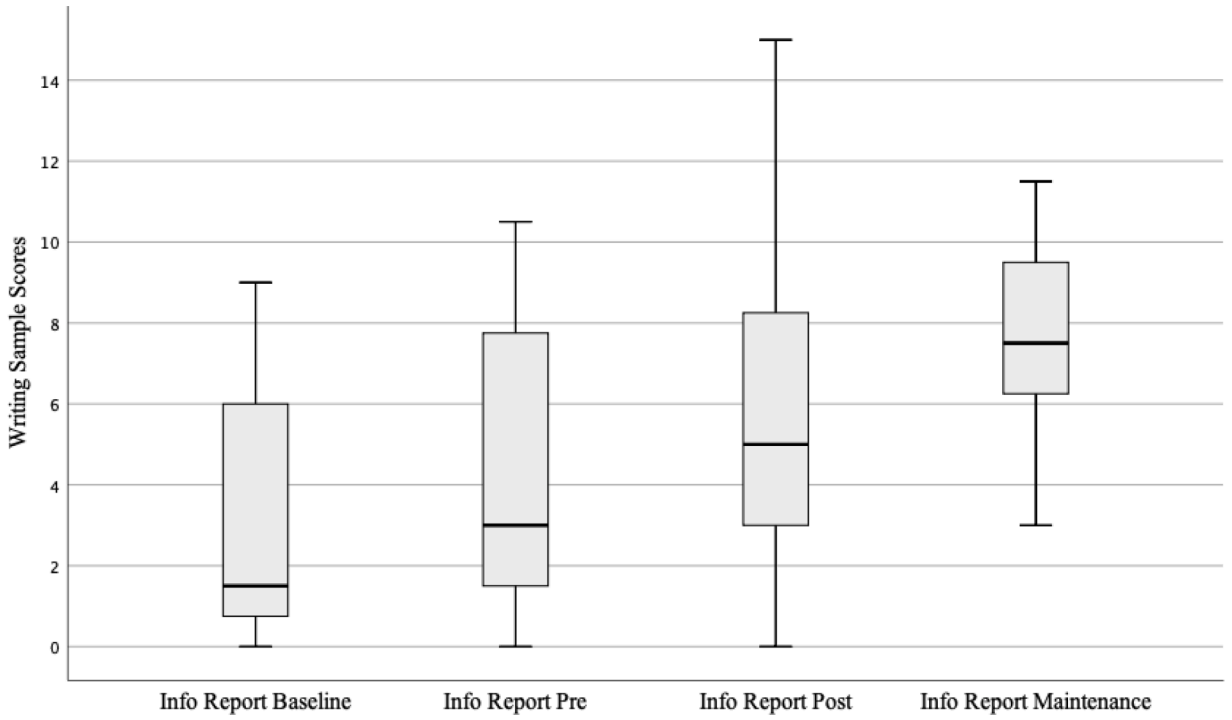

Fig. 4. Information Report Writing Sample Scores Over Time by Order of Genre Instruction (RIP)
Note. RIP=Recount, Info Report, Persuasive (order of genre instruction).

Table 8
Descriptive Statistics and t-test Results for Info Report and Persuasive Baseline and Pre-Samples.

Outcome	M	SD	n	M	SD	n	95% CI for Mean Difference	p	t	df
Info Report (RIP) Baseline/Pre	5.04	3.34	22	5.90	3.62	22	-1.54, -0.17	.016*	-2.62	21
Info Report (RPI) Baseline/Pre	2.44	1.21	9	4.00	1.11	9	-2.74, -0.36	.017*	-3.01	8
Persuasive (RIP) Baseline/Pre	4.75	3.10	27	5.25	2.80	27	-1.44, 0.44	.285	-1.09	26
Persuasive (RPI) Baseline/Pre	4.77	1.92	9	5.94	1.82	9	-2.52, 0.19	.083	-1.98	8

* $p < .05$.
Note. RIP=Recount, Info Report, Persuasive (order of genre instruction); RPI=Recount, Persuasive, Info Report (order of genre instruction).

4. Discussion

This study set out to explore if elementary DHH children transferred writing knowledge of one genre to another by first investigating if students made and maintained gains within three genres of writing and if those skills were demonstrated in the writing of another genre. Results from this study demonstrate DHH students' genre specific writing skills in recount and informational writing increased and maintained over time. Additionally, results indicate that students transfer knowledge learned about recount and persuasive writing to information report writing.

There are a few reasons that could explain the variance in performance across genres, including age effects and teachers' focus of instruction. Students in this study spanned a range of two grade levels and four years of age. Given the difference in ages among students, it is possible that their exposure to and instruction in different genres in reading and writing varied in time and intensity. Another reason could be that teachers in this study demonstrated a preference for remaining in recount writing, the first genre taught, which aligns with Kamberelis's (1998) and Oddsdóttir et al. (2017) findings that students are exposed to narrative structures significantly more than other genres during the elementary years. Teachers in this study reported that more time was spent in the recount genre because they perceived it as more engaging and accessible to the students; the students liked writing about themselves and about a topic with which they are familiar. By positioning recount as the first genre of the instructional sequence, teachers are able to engage students in an unfamiliar process (writing) while using known information (the students' experiences).Accessibility of ideas is especially important in this study given that many of the participating students experienced language delays often due to limited exposure to an accessible language (c.f, Glickman & Hall, 2018; Hall et al., 2019; Hall et al., 2017; Humphries et al., 2016).

Persuasive writing requires a higher level of language skills that may not yet be accessible to these students, or teachers feel more prepared to develop language around personal experiences and facts. In order to persuade, one needs to formulate an opinion, gather

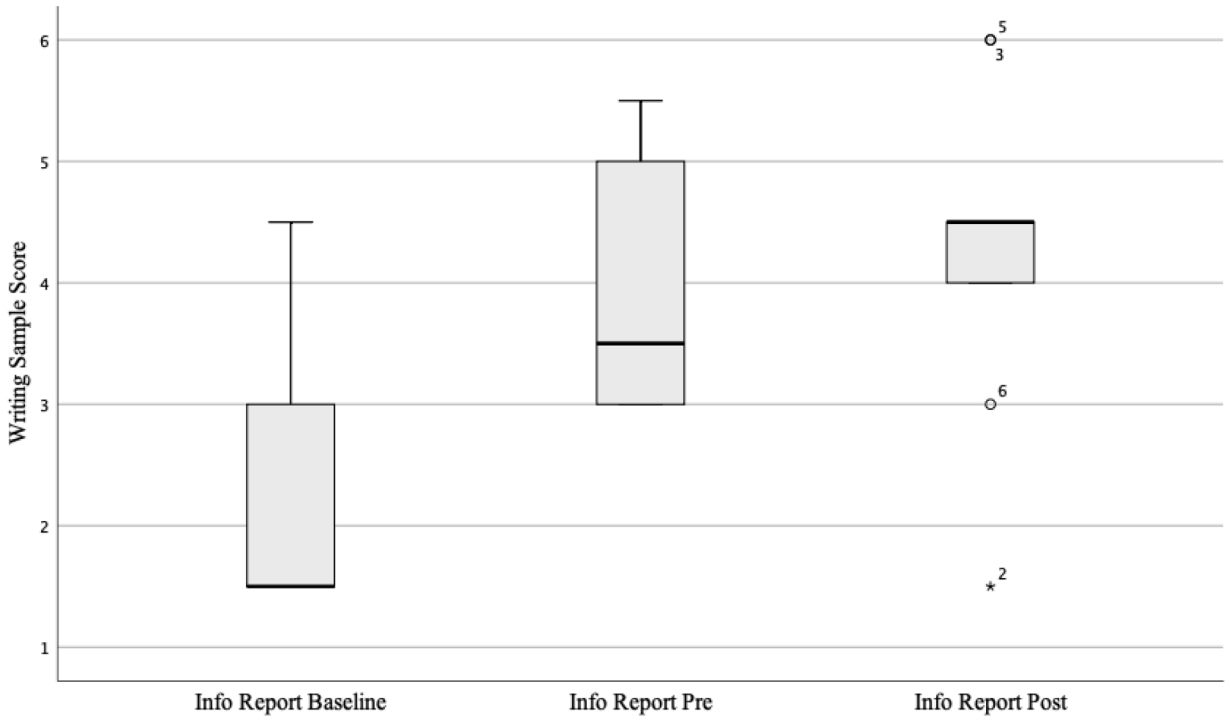

Fig. 5. Information Report Writing Sample Scores Over Time by Order of Genre Instruction (RPI)
Note. RIP=Recount, Info Report, Persuasive (order of genre instruction).

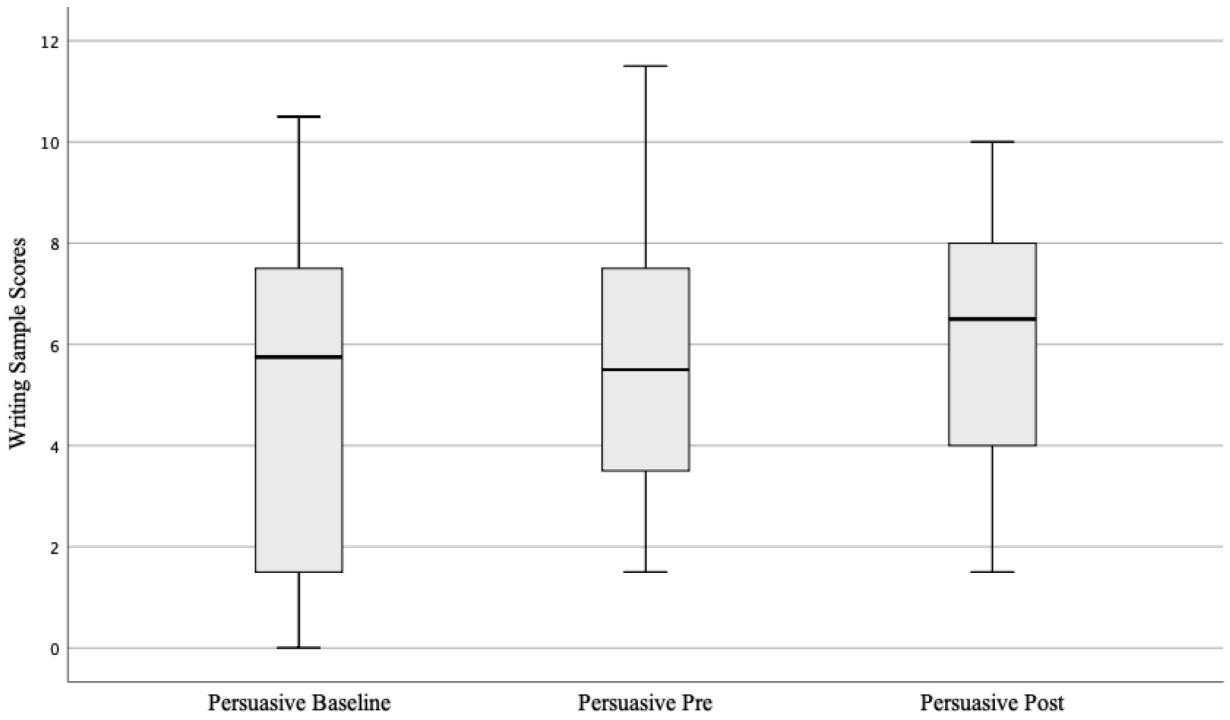

Fig. 6. Persuasive Writing Sample Scores Over Time by Order of Genre Instruction (RIP)
Note. RPI=Recount, Persuasive, Info Report (order of genre instruction).

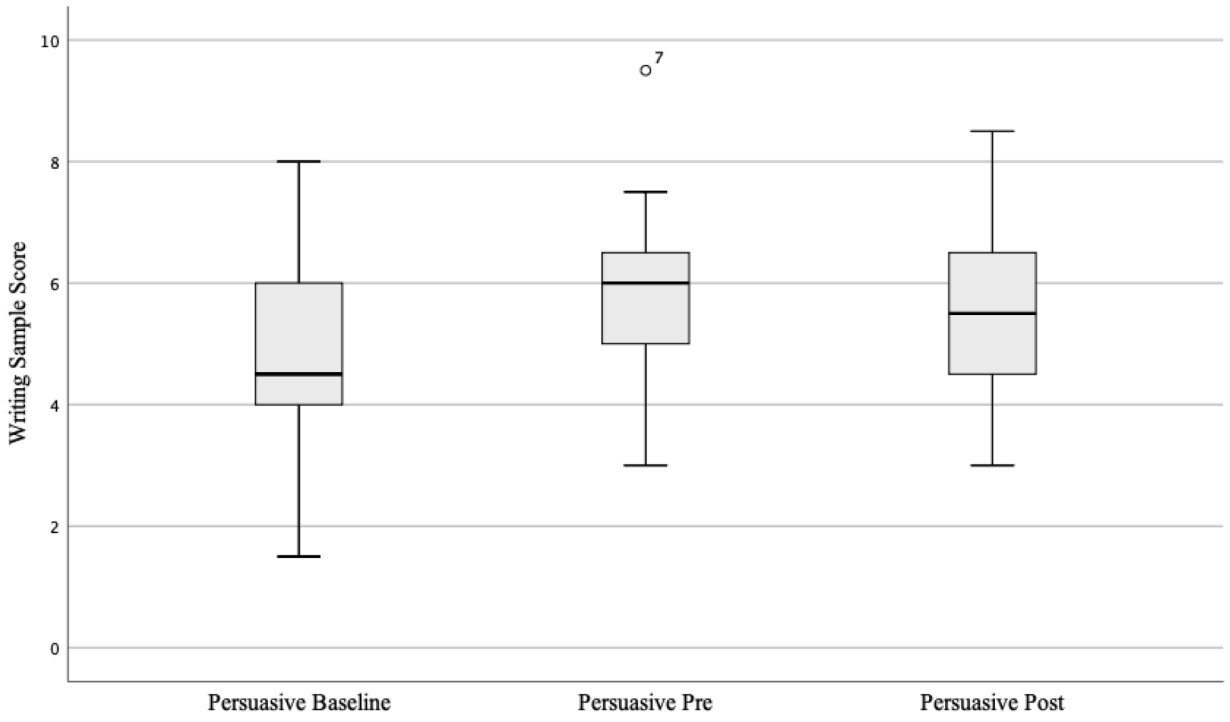

Fig. 7. Persuasive Writing Sample Scores Over Time by Order of Genre Instruction (RPI)
Note. RPI=Recount, Persuasive, Info Report (order of genre instruction).

evidence supporting the opinion, and be able to construct an argument that sways others to the writer's way of thinking. Spending time in a genre, such as recount, that supports language development may allow students to advance more rapidly in the other genres after they have sufficiently developed language skills for writing.

4.1. Developing skills across genres

There are similarities and distinctions across genres (e.g., Culham, 2018). While all include an opening, content, and organization of ideas, each genre uses these features slightly differently. This supports the necessity of teaching genre-specific features. However, the teacher can guide students to notice both similarities and differences between the features of genres, which provides them with an opportunity to formulate patterns. For example, the teacher can use color coding for different sections of a text, with different colors for the introduction, body, and conclusion. This can be applied to three genres in ways that are specific to the text type (e.g., recount writing includes an orientation as the opening, and persuasive provides an opinion). This encourages the teacher to explain and model the ways in which the opening of each genre is similar and different, drawing students' attention to approaches to crafting an opening that are both familiar and unique.

Additionally, by introducing purpose and audience teachers are more readily able to explain explicitly why and how each genre differs. By referring back to previously written text and mentor texts, teachers are able to develop students' metacognitive knowledge about how texts are used: why opinions need to be supported in order to persuade, how facts are essential to informational text, and why the language used in a recount is in the past tense and how details add interest. Establishing a purpose for writing allows students to develop a sense of why they are writing. This likely contributes to maintenance of genre-level skills, for the writing task is driven by the reason for writing (not remembering skills).

4.2. Transfer of learning

Results of this study indicate that writing instruction in which students are explicitly taught writing strategies that facilitate the transfer of skills – including orienting the audience with a topic or opening statement, organizing the text based on features of the genre, and including relevant content – have been found to support writing development across the genres of recount and informational writing. An example of this is supporting student development of writing skills through the use of scaffolds for genre-specific writing traits that, while genre-specific, include universal themes necessary for all writing. Such tools allow for "teaching for transfer" (Perkins & Salomon, 1988).

The ability to transfer global writing skills (e.g., using transitions, adding details, varying sentence types) between genres and build on skills developed in previous genre instruction, ensures the writer is not starting at ground zero. The ability to carry over global

writing skills hinges on a student's ability to use written language effectively and with ease and in order to do this, students must have developed a strong language foundation. They need a sufficient vocabulary to write with precision, develop a voice that is able to manipulate language in interesting and technically correct ways, and organize writing in a cogent manner that leads the reader through the piece logically from beginning to end. For students who do not have a fully developed understanding of the written language and are delayed in expressive language development, this is an especially demanding task. However, like with the maintenance of writing skills, establishing a clear purpose for writing and a relevant audience for the writing likely contributes to students transferring their knowledge of one genre to another.

Many of the students in this study lack fluency with English or ASL or both languages. As reported by teachers, approximately 40% of the students in the study were identified as being able to express themselves fluently in either ASL or English, leaving 60% who were not. Mitigating related challenges by targeting language development as well as writing development is necessary (see Wolbers et al., 2014). Students should be supported in the development of language during writing, such as during interactive writing where a class co-constructs a text through discussion. These skills can also be supported by mentor text, the use of a language zone for the pairing of ideas with language, guided translation between languages, and the expansion of ideas into written English (Dostal et al., 2019). The results of this study echo and expand upon previous findings in which DHH students with a range of language proficiencies make gains in untaught genres when instruction has simultaneously attended to language development and writing (Wolbers 2008, Dostal 2016). An area for future research would include comparing student writing outcomes with student language proficiencies and growth in competence over time.

4.3. Limitations

One limitation of the study is a lack of a reference or control group. While baseline texts were collected at the beginning of the academic year, the growth demonstrated by students across the year could be attributed to typical development, possibly influenced by school and home activities. The progression of time and training, such as repeated writing experiences and the reading of various books and texts, could both have impacted students' knowledge of writing within and across genres.

One of the limitations to the study is related to the low fidelity of implementation. This could be due to teachers experiencing a break between implementation of SIWI and related coaching and professional development (PD) as the project transitioned from a development project to an efficacy study. Had teachers' instructional fidelity been higher, there may have been statistically significant outcomes for persuasive writing that were not observed in this study. Related, there is no definitive measure of teachers' pedagogical knowledge of teaching writing related to genre features and language. Myhill, Jones, & Watson (2014) argue that teachers must have an understanding of content and purpose of their instruction and, through pedagogical understanding, be able to translate that knowledge into a form that is understandable to a variety of learners with different abilities and backgrounds. With a measure that looks at teacher knowledge in this area, we would be able to more fully understand teacher influence on student outcomes.

A further limitation was due to time constraints and pacing. A maintenance sample for the final genre of instruction was not collected for any of the groups, and some teachers were not able to teach the recommended number of hours for the last genre of instruction. Had teachers had time to invest the recommended hours and we were able to collect the final sample, it would have yielded valuable knowledge that would have helped create a fuller picture of the students' ability to maintain skills taught across time. Additionally, nine students received instruction in the final two genres in a different order than the majority of the student participants. The analyses of these student samples may not have been sufficiently powered which possibly impacted the results.

5. Conclusions

Writing involves the integration of many cognitive functions including the summarization and integration of multiple sources of knowledge. This includes the ability to manipulate and hold genre-related information in working memory and using it to create a specific message to a specific audience for a specific purpose. Writing expertise is dependent on both fluent language generation processes (Alamargot & Fayol, 2009) and an extensive knowledge of the writing process – including genre knowledge. Findings from this study suggest that writing instruction that explicitly addresses the uniqueness of each genre and commonalities among them has the potential to impact students' knowledge of writing that lasts beyond immediate instruction and supports writing in untaught genres.

Acknowledgement

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