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Northern Rural and Indigenous Canadian Children's Responses to an Open-ended Writing Task: Comparisons of Children in First and Second Year of Kindergarten

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In this study, we offer a unique perspective of time spent in kindergarten and young children's writing by presenting a multi-dimensional analysis of the writing of 72 children (5-years-old) living in northern communities in two Canadian provinces. We administered the Drawing, Writing, Talking Task (DWTT), a research-based classroom tool, in the fall and spring to children attending kindergarten in seven (six rural and one First Nations) schools. We assessed their writing in terms of their use of letters to write words, their spelling stage, and their intended content. Although the fall writing samples of children in their first year of kindergarten were significantly less developed than those of similar-aged children beginning their second year of kindergarten, by spring, the children's writing was comparable. Our research adds to the literature on children's learning and time spent in kindergarten by focusing on characteristics of young children's writing, rather than test scores.

Dans cette étude, nous offrons une perspective unique du temps passé à la maternelle et de l'écriture des jeunes enfants en présentant une analyse multidimensionnelle de l'écriture de 72 enfants âgés de 5 ans vivant dans des communautés nordiques de deux provinces canadiennes. Nous avons administré le Drawing, Writing, Talking Task (DWTT), un outil de classe basé sur la recherche, à l'automne et au printemps à des enfants fréquentant la maternelle dans sept écoles (six écoles rurales et une école des Premières nations). Nous avons évalué leur écriture en fonction de leur utilisation des lettres pour écrire des mots, de leur stade d'orthographe et du contenu visé. Bien que les échantillons d'écriture de l'automne des enfants en première année de maternelle étaient significativement moins développés que ceux d'enfants d'âge similaire commençant leur deuxième année de maternelle, au printemps, l'écriture des enfants était comparable. Notre recherche s'ajoute à la littérature sur l'apprentissage des enfants et le temps passé en maternelle en se concentrant sur les caractéristiques de l'écriture des jeunes enfants plutôt que sur les résultats des tests.

Kindergarten programs across Canada are not compulsory, although most Canadian children attend kindergarten for one or two years; some for half days and others for full days. Given that research on optimal time spent in kindergarten shows mixed results, in terms of the long-term academic benefits as indicated in scores on standardized tests (e.g., Brownell et. al, 2015; Pelletier & Corter, 2019), it is no surprise that such variation exists across Canadian provinces.

In the province of Alberta, children begin kindergarten in the year that they turn 5-years-old. They attend kindergarten half days, although there is some variation across school districts and school divisions in the province. The province of Ontario offers junior kindergarten (children enter in the year that they turn 4-years-old) and senior kindergarten (children turn 5-years-old in the year they enter senior kindergarten) as well as combined kindergarten classrooms consisting of a mixture of Year 1 (3- and 4-year-olds) and Year 2 (4- and 5-year-olds). Although families in Alberta have the opportunity to enroll their 4-year-old children in day-care, in Aboriginal Head Start and other pre-school programs prior to entering kindergarten, most five-year-old children begin kindergarten in the year that they turn five-years-old. In Ontario, five-year-old children have typically already attended a full year of kindergarten.

The project from which we drew data for this paper is a multi-year partnership between university researchers and kindergarten and grade one teachers in nine northern communities, including one remote Indigenous community and eight remote non-Indigenous communities, in two Canadian provinces. The overall focus of the project is to support, through play, the oral and written language development of young children living in these communities. Participating northern school divisions/school boards were chosen randomly within each province. Following an initial information meeting with superintendents and directors, research agreements were made with the school boards. The project director then held an after-school session to provide information to and recruit interested teachers and early childhood educators. The First Nations teachers were recruited through the Kwayaciiwin Education Resource Centre (KERC) of Sioux Lookout, Ontario, which provides educational services to many of the Indigenous communities within the Nishnawbe Aski Nation (NAN). KERC staff and the project director held a meeting with First Nations community educational leaders and teachers in communities identified by KERC staff. At the time of this study, we were engaged in collaborative action research with primary teachers and early childhood educators within these communities to incorporate writing into the children's dramatic play in the classroom. Our relationship and ongoing research with the participating teachers and children in these kindergarten contexts provided us with an opportunity to contribute a unique perspective on time spent in kindergarten and young children's writing.

We focus on early writing because of the importance of early writing as a foundation for later literacy. Research across decades shows how early writing abilities, such as writing one's own name and writing letters, are associated with later reading achievement (e.g., Clay, 1998; Hall et al., 2015; National Early Literacy Panel, 2008). Researchers also explain that children who do not develop strong writing abilities at an early age are at a disadvantage throughout their schooling because of the extensive writing demands in everyday classroom activity from the age of eight years through high school (Cutler & Graham, 2008).

In consultation with participating teachers, we designed a study with the goal of identifying frequently-occurring characteristics in the writing performance of young Indigenous and non-Indigenous children living in remote northern communities at the beginning and end of one school year. From this, we created an informal assessment tool (see Friedrich & Peterson, in press) and an online annotated resource showing exemplars of modal characteristics of the writing (Peterson et al, 2019), in order to provide a basis of comparison for the teachers when assessing their students' writing.

Our research adds to the body of literature on children's learning and time spent in kindergarten by focusing on characteristics of young children's writing, rather than test scores. It also counteracts a tendency for researchers and assessment designers to view learning, teaching,

and assessment through an urban lens (Burton et al, 2013; Corbett, 2014). Examination of the written language of children in participating northern rural and Indigenous classrooms offers a broader understanding of children's written language that contests a "longstanding rush to generalization" (Dyson, 2013, p. 402). The extant research-based exemplars and assessment criteria for assessing young children's written language have all been based on texts created by children in southern urban contexts (e.g., Rowe & Wilson, 2015; Spandel, 2012). Our research also responds to the Truth and Reconciliation Commission's ([TRC],[1] 2015) call for the improvement of Indigenous children's educational achievement and success, as we focus on what Indigenous children show that they know and can do as emergent writers, rather than on results of culturally-biased standardized tests (e.g., Manitoba Education and Training, 2017; National Center for Education Statistics, 2012; Ontario Ministry of Education, 2018). Participating teachers can use the specific assessment information about children's writing to guide their teaching; something that is not possible when research results are limited to test scores (Black & Wiliam, 1998; Dubiel, 2016).

This report focuses on the written responses of the 5-year-old children participating in our study, allowing for comparisons across the two provincial kindergarten contexts. Our research was guided by the following research questions:

1. What characteristics do 5-year-old children living in remote northern Canadian communities demonstrate in their written response to an open-ended prompt in the fall and spring of one school year?
2. What patterns occur in the writing performance of kindergarten children with one and two years of experience in formal schooling in remote northern communities?

We begin by detailing the tenets of the mutually enhancing-interactive view of writing, which underpins our study, and by synthesizing related research on early writing and the impact of extended time in kindergarten. A description of the northern rural Canadian research contexts, development of the prompt, and analysis of children's written responses is followed by a report of characteristics of the responses. We discuss our findings in terms of the literature on early writing and the two kindergarten contexts, proposing implications for practice and future research.

Theoretical Perspective: Mutually Enhancing-Interactive View of Writing

Our research is underpinned by what Tolchinsky (2014) identified as a *mutually enhancing-interactive* view of writing as both a "discourse mode, and [...] a system for encoding meaning and representing—rather than transcribing—language" (p. 147). Young children who make marks, scribbles, and letter-like shapes on paper or other surfaces are demonstrating a foundational understanding for later literacy—that graphic symbols communicate meaning and are used to carry out social purposes (Clay, 1998; Vygotsky, 1978). Young children's writing can be seen as "written language" as it involves the exploration of mark-making and other ways to create texts for social purposes. The mark-making is a social practice that begins before children have knowledge of graphic and linguistic features of print.

Because consideration of both the socio-cultural characteristics (e.g., discourse modes and registers), and the linguistic features of written language play a role in writing, young children's writing of texts has been shown to contribute "to the building of almost every kind of inner control of literacy learning that is needed by the successful reader" (Clay, 1998, p. 130). Inventing spellings for words, for example, requires that children have some phoneme awareness to

recognize onsets and rimes in words, as well as some alphabet knowledge (e.g., letter-name knowledge and/or letter-sound knowledge) (Sénéchal, 2017). The process of writing requires that children attend to features of letters and words, and to the differences between letters and between letters and words.

Alongside these linguistic characteristics, young children test out hypotheses about social expectations regarding ways of communicating through written language in particular contexts with particular audiences. Their hypotheses are formed through encounters with environmental print and interactions with texts and the children and adults in their lives (Clay, 1998; Friedrich et al., 2019). Learning to write, thus, involves social knowledge and the need to communicate or make meaning using the permanence of written text, as well as a growing body of linguistic knowledge and the development of cognitive abilities to meet the demands of creating written texts to carry out social purposes (Dyson, 2008). Assessing and conducting research on children's written language starts with an interest in what children can do with graphic symbols and involves making inferences about children's knowledge through analysis of children's written language (Tolchinsky, 2014).

Literature Review

Characteristics of Young Children's Writing

Research examining characteristics of young children's writing has attempted to capture the complex cognitive processing (e.g., Campbell et al., 2019; Ferreiro & Teberosky, 1982; Mackenzie et al., 2013; Puranik & Lonigan, 2011) and the social and cultural knowledge construction (e.g., Kress, 1994, 1997; Wohlwend, 2011) involved in writing. Regardless of the language spoken by children whose writing has been examined (e.g., English, Spanish, Dutch, and Hebrew), a developmental progression from scribble marks to writing-like lines and shapes has been observed before children use conventional print symbols, drawing on phonemic knowledge to write salient sounds that they hear in words (Clay, 1975; Levin et al., 2005; Ouellette et al., 2013). It can be expected that when children carry out less-demanding tasks, such as writing their name, they are likely to use more advanced print features, such as conventional letters. Writing a message, a more cognitively demanding task, may be carried out using marks, scribbles, and letter-like forms, as children's attention is expanded to include the communicative and meaning-making functions (Puranik & Lonigan, 2011).

Wide variation in children's writing development at any age has been observed, whether researchers focused on the universal features of writing (e.g., linearity or discreteness of symbols), language-specific traits, such as directionality, letter forms, letter-sound relationships (e.g., Clay, 1998; Ferreiro & Teberosky, 1982; Puranik & Lonigan, 2011), or genre, and use of text to carry out social intentions (Donovan, 2001; Dyson, 1987, 2008; Kress, 1994, 1997; Rowe, 2008). Children aged 4- and 5-years old demonstrated the full range of performance on tasks that included name writing, letter writing, and letter formation in a longitudinal study of relationships between task demands and 4- and 5-year-old children's alphabetic knowledge (Molfese et al., 2011), for example. Factors influencing what children notice and then incorporate into their written language include: children's personal interests, their willingness to take risks, and approaches to writing and writing purposes (Dyson, 1985). Although no fixed sequence of writing abilities has been observed, age-related growth in written language has been established in cross-sectional research (e.g., Levin & Bus, 2003) and longitudinal studies (e.g., Bloodgood, 1999; Molfese et al.,

2011).

Spelling and name writing have most frequently been the focus of research that takes what Tolchinsky (2014) identified as an *additive-cumulative* perspective to examining young children's writing. With a view of writing development that contrasts with the mutually enhancing-interactive view, researchers define writing development as the gradual mastery of units of written language, progressing from word to sentence to text. These researchers have assessed young children's writing of dictated letters, spelling of dictated consonant-vowel-consonant words, such as *mat*, *bed*, *cat*, and identified writing features, in terms of letters and phonemic awareness, of children's written descriptions of a picture and writing of a dictated sentence (e.g., Puranik & Lonigan, 2011).

Developmental spelling continua have been derived from research examining types of errors that children make when writing dictated words and when communicating messages about topics of interest to them (Bear et al., 2016; Beers & Henderson, 1977; Gentry, 1978; Read, 1971). Descriptors of children's spelling at each stage (e.g., emergent spelling, letter name-alphabetic, within word pattern spelling, syllables and affixes spelling, and derivational relations spelling) reflect children's orthographic knowledge (Bear et al., 2016). Descriptors of what children can do independently, together with what children use correctly at times and incorrectly at other times, are included at each stage. These descriptors reflect the back-and-forth movement between more and less advanced orthographic knowledge observed in research (Rowe & Wilson, 2015).

Research underpinned by the additive-cumulative perspective has made important contributions to our knowledge of young children's writing development. Also significant is research from the mutually enhancing perspective that underpins our study. Because children's discursive knowledge is important to researchers taking this perspective, writing samples in these studies are initiated by invitations to young children to create texts with the intention of communicating a message to others (Campbell et al., 2019; Mackenzie et al., 2013; Rowe & Wilson, 2015). These expressive writing tasks are viewed as being more difficult for children to create, as compared to name-writing and close-ended tasks, because of the added demands of creating new content for the writing. In the next section, we discuss the analysis categories and findings of these studies. We use these categories and findings as a basis for later discussion of our study's findings.

More Time in Kindergarten

Benefits attributed to providing extended time in kindergarten include higher achievement, which leads to easier transitions to grade one and greater enhancement of children's self-esteem, self-regulation, and overall socialization abilities. The extended time provides teachers and early childhood educators with greater opportunity to facilitate children's overall learning and development (Pascal, 2009; Cooper et al, 2010). As many of the full-day kindergarten programs that researchers examined were for children from disadvantaged backgrounds, the overall conclusion is that increasing time spent in kindergarten leads to greater academic equity. Researchers caution that the benefits have to be weighed against potential drawbacks, however. These include curriculum push-down that could lead to less time for the playful, informal learning that research has shown to be critically important to young children's development (Moyles, 2015) and higher levels of stress and fatigue on the part of children. Additionally, the sizeable additional resources devoted to full-day kindergarten and to the provision of two years of kindergarten could potentially draw resources away from the development of other interventions supporting the

learning and development of children from disadvantaged homes (Cooper et al., 2010).

Studies examining children's achievement, in terms of test scores, in the full-day and half-day kindergarten contexts show mixed results. Within Ontario, Canada kindergarten classrooms, Pelletier and Corter (2019) found that children's scores on reading, writing, and number knowledge were higher in the full-day context, with the differences enduring to the end of grade two. The writing samples in this study were children's writing of a dictated sentence: *Teacher has five little red crayons*. Following 4-year-old kindergarten children, some who had attended full-day and others who had attended half-days in Montreal, to the end of their grade five year, Maltais et al. (2011) found that children attending the full-day preschool program scored higher on standardized tests of reading and mathematics across their elementary years. However, there were no differences in children's writing competence, nor in their social-emotional and psychomotor development.

Two large-scale studies, each measuring the standardized test scores in reading and mathematics of almost 8000 children in full- and half-day kindergarten showed that full-day kindergarten children's performance was higher by the spring of the kindergarten year, yet the small effects were greatly reduced by the end of grade one (deCicca, 2007) and disappear by the end of grade three (Cannon et al., 2006). Votruba-Drzal et al. (2008) showed that these effects can be attributed to the differential demographics of children attending the full-day and half-day kindergarten programs. In their American research context, full-day kindergarten was attended by children from disadvantaged backgrounds. Similar results were found in a study following 15 kindergarten cohorts through to grade nine in Manitoba, Canada. Researchers (Brownell et. al, 2015) found that academic achievement, as measured by provincial literacy and mathematics achievement test results in grades three, seven, and eight, and course marks earned in grade nine, was comparable between children who had attended full-day and half-day kindergarten. Significant effects favouring children who had longer kindergarten days were limited to specific sub-groups of students whose mathematics test scores were higher (e.g., grade seven math for girls and low-income students).

Our research adds to this body of literature on time spent in kindergarten by examining the writing of 5-year-old northern rural and Indigenous children who were in either their first or second year of kindergarten, attending either half- or full-days. Our research methods are detailed in the following section.

Methods

Participants and Context

Our partnership project involved nine remote northern communities in the Canadian provinces of Alberta and Ontario. All of the participating research sites were located 200–700 kilometers from large towns or cities: five sites were close to or within resource- and service-based towns (pop. 400–7000); four sites were in drive-in or fly-in First Nations communities (pop. 200 and 500). For the purpose of this comparison, across the subset of our larger sample that includes only the 5-year-old children, we provide only the details of this subset in the following description of participants.

Participation of teachers and students was voluntary. Thus, for this branch of the larger project, we worked with eight teachers and their children in five kindergarten classrooms in northern Ontario and three kindergarten classrooms in northern Alberta. Four of the classrooms

in Ontario were located in small towns and had a blend of Year 1 (ages 3-4) and Year 2 (ages 4-5) children, while the fifth classroom, located in a First Nations community accessible by road, had only Year 2 (ages 4-5) children. The three classrooms in Alberta were located in or near small towns. In Ontario, the kindergarten program is a full day, five day a week, program. Children in the three Alberta classrooms turned 5 years old during the year they entered kindergarten. In participating Alberta schools, children attended kindergarten half-time (for the equivalent of 2.5 days/week).

The three Alberta teachers are all non-Indigenous and were teaching in public schools at the time of the study. All are female, and all had been teaching for 10 years or more. One teacher from each province had participated in the partnership project for the full four years. All other teachers had participated for 1–3 years. Four of the five Ontario teachers teach kindergarten in public or Catholic schools and are non-Indigenous. The other Ontario teacher is Indigenous and teaches in a First Nations school. All teachers describe their classroom teaching as play-based. The mandated kindergarten program in Ontario is explicitly play-based (Ontario Ministry of Education, 2016), with the expectation that academic and social learning will be supported through play, exploration, and inquiry. In Alberta, a kindergarten program statement (Alberta Education, 2008) describes 10 guiding principles for kindergarten programming that include play-based learning and brings together the general and specific learner expectations for kindergarten from all K-6 curricula across the subject areas.

We received parental consent for all children from whom we gathered writing samples. In both provinces, parents are given the option of identifying whether their child is Indigenous or non-Indigenous when registering their children for kindergarten. Because one of our participating sites was located in an Ontario First Nations school, our sample includes many more Indigenous children in Ontario than in Alberta, as indicated in Table 1. Most of the children spoke English or an Indigenous English Dialect as their first language. Our sample includes 38 girls and 34 boys.

The collection of writing samples took place in the fifth year of the larger project. We collected samples in the fall and spring of one school year, for a total of 144 samples, from 72 children.

Drawing, Writing, Talking Task (DWTT)

Although we have detailed elsewhere the development of the Drawing, Writing, Talking Task (DWTT) (Peterson et al., 2018), results of a pilot study (Friedrich et al, 2019), and our analysis of linguistic and graphic features within the children's drawing and writing performances (Friedrich et al., 2021), we include the DWTT here (please see Figure 1). As in Rowe and Wilson's (2015) standard writing task, our DWTT allowed for a multi-dimensional analysis of their response, including the form of the marks, their spelling stage, as well as what Rowe and Wilson (2015) call

Table 1
Indigeneity and Gender of Participating Children (n values)

	Ontario		Alberta		Totals
	Indigenous	Non-Indigenous	Indigenous	Non-Indigenous	
Girls	10	5	2	21	38
Boys	5	10	0	19	34
Totals	15	15	2	40	72

Figure 1
Drawing, Writing, Talking Task Protocol

Name Writing
Administrator: *Please write your name on the paper*.
Drawing a Picture
Administrator: *Please draw a picture about what you like to do with your family or friends*.
After the child draws:
Administrator: *Please tell me about your picture*.
The administrator writes while the student speaks.
Writing in Response to a Question
Administrator: *Please write that down for me*. (If the child said many sentences, then the administrator chooses one of the sentences and asks the child to write that sentence.)
After the child writes:
Administrator: *Please read your writing to me*.
The administrator notes how closely what the child says matches what is written.

intentionality (assigning meaning to marks and the message content). It also allowed us to analyze the knowledge of text structure/form, as we video recorded the children while they were drawing and writing. The Drawing, Writing, Talking Task Protocol is found in Figure 1.

Three researchers and one research assistant administered the protocol to participating children individually in settings that teachers were able to find for us in the school (e.g., in a storage room, a corner of the library, the special education teacher's office, an empty classroom, or in a quiet hallway). On a desk or table, we set up an iPod on a tripod to record the child's language and drawing/writing processes while we sat beside the child. We uploaded the video recordings and the writing and drawing artefacts produced by children, together with administrators' notes taken as children completed tasks, to a secure storage site for coding.

Coding

Although we coded and analyzed all components of the DWTT data (e.g., children's name writing, drawing, writing, and talk), our focus for this paper is the children's written texts (name and response) and their verbal reading of what they wrote.

Name Writing

The extant research on young children's name writing has demonstrated that young children's ability to write their name improves with age (Hildreth, 1936). Since skills underlying their ability to write their name differ from those required to spell words (Milburn et al., 2017), name writing ability exceeds word writing ability (Levin et al., 2005; Puranik & Lonigan, 2011). Our inclusion of the name writing task in the DWTT reflected the participating teachers' goal for all children to be writing their name by the end of the school year. Drawing from this past research, we assigned the following codes to describe the forms of children's name writing: no writing, scribbles, simple or complex shapes, and letters.

Written Response

We assigned codes to the children's written responses to capture the forms they used to write, the level of their spelling, and the intended content of their written response. Previous research

supports our assessment of the children's writing forms (e.g., Campbell et al., 2019; Levin et al., 2005; Molfese et al., 2011; Puranik & Lonigan, 2011; Rowe & Wilson, 2015) and their spelling of individual words (e.g., Bear et al., 2016; Puranik & Lonigan, 2014). The codes we assigned to capture the forms the children used to write and their level of spelling were informed by what we observed in their written responses. Drawing from past research, our codes for written forms are as follows: no writing, scribbles, letter-like forms, and letters. We based our spelling codes on the spelling stages as identified by Bear et al. (2016). They are as follows:

- early emergent: the child scribbles or writes marks or letter-like forms on the page
- emergent: the child is representing some salient sounds with single letters (e.g., child wrote "ABDmtgmgb" and read-back "My dad, he give me gummy bear").
- early letter-name alphabetic: the child is representing beginning and ending sounds and using invented spellings (e.g., child wrote "We h fnu in jjd tll fnu" and read-back "We have fun in jumping. It fun.").
- mid letter-name alphabetic: the child is spelling words phonetically, representing salient sounds (e.g., child wrote "I was playing roBos and I got atin" and read-back "I was playing robots and I got eaten").
- within-word patterns: the child is spelling most single-syllable, short vowel words correctly (e.g., child wrote "I was Playing hide and seek with my family" and read-back each word).

We also included a spelling code for children who put marks on paper, but did not read back any message or give meaning to their marks ("did not write"), and a code for children who would only write a message with our support ("scaffolded writing").

Research on young children's writing does not often focus on the content of the writing (Rowe & Wilson, 2015). By coding the children's intended content in our assessment, we are indicating that we understand young children as capable communicators of meaning. We based our content codes on the messages that the children told us were represented in their print. We drew from Diederich's (1974) descriptive levels of writing ideas, modifying these descriptions for our early writing context. The content of the children's intended responses was coded as follows:

- labels: individual words about something in the picture (e.g., "mom" or "cat").
- key idea: the child intended a single message typically through a simple sentence (e.g., "Me and my dad are having a fire") and/or added additional information, typically through a second clause or additional sentences (e.g., "I played badminton and it was fun!").

We included the code "scaffolded writing" to code content that was scaffolded by the task administrator.

Two researchers independently coded 89 samples from the larger sample that included the writing of year one children in Ontario and of grade one children in both provinces. Thirty-nine of these samples were double-coded as a reliability check. The few discrepancies (0.05%) were discussed until agreement was reached. We later used a random number generator to select just over 10% (n = 15) of the independently-coded samples for a further reliability check.

We calculated frequencies of codes for variables associated with both tasks (see Table 2). To compare the children's writing, we scaled the categories within each variable and then calculated a score for that variable. For example, in the name writing task, the scale for the variable *Letter Forms* includes four levels: (0) no writing, (1) scribbles, (2) simple or complex shapes, and (3) letters. We conducted independent-samples t-tests using the mean and standard deviation for

each score to compare the variable scores of the two groups in the fall and spring. Next, we present the results of our analysis.

Findings

In this section, we present the frequently-occurring characteristics of the children's name writing and of their written response in each province. We then compare the writing forms, spelling stages, and content of the children in their second year of kindergarten (Ontario) with those children in their first year of kindergarten (Alberta).

Table 2
Frequency of Codes for Variables in Name Writing and Written Response Tasks (percentages)

	ON Indigenous (*n* = 15)		ON Non-Indigenous (*n* = 15)		ON Total (*n* = 30)		AB Total (*n* = 42)	
	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring
Name Writing								
Letter Forms								
Did not write	0	0	6.7	0	3.3	0	2.4	2.4
Scribbles	6.7	0	0	0	3.3	0	0	0
Simple or complex shapes	6.7	0	0	0	3.3	0	4.8	0
Letters	86.7	100	93.3	100	90.0	100	93.0	97.6
Written Response								
Letter Forms								
Did not write	33.3	20.0	20.0	20.0	26.7	20.0	54.8	4.8
Scribbles	0	0	0	6.7	0	3.3	7.1	2.4
Letter-like forms	6.7	0	6.7	6.7	6.7	3.3	11.9	4.8
Letters	60.0	80.0	73.3	66.7	66.7	73.3	26.2	88.1
Spelling								
Did not write	33.3	20.0	20.0	20.0	26.7	20.0	54.8	4.8
Scaffolded writing	13.3	6.7	20.0	13.3	16.7	10.0	16.7	23.8
Early emergent	26.7	6.7	13.3	20.0	20.0	13.3	19.0	14.3
Emergent	13.3	33.3	13.3	13.3	13.3	23.3	7.1	35.7
Early letter-name alphabetic	13.3	6.7	20.0	6.7	16.7	6.7	2.4	19.0
Mid letter-name alphabetic	0	20.0	13.3	13.3	6.7	16.7	0	0
Within-word patterns	0	6.7	0	13.3	0	10.0	0	0
Content								
Did not read back	46.7	26.7	26.7	20.0	36.7	23.3	61.9	16.7
Scaffolded writing	13.3	20.0	13.3	13.3	16.7	13.3	16.7	23.8
Labels	20.0	20.0	20.0	40.0	20.0	30.0	19.0	42.9
Key idea	20.0	33.3	40.0	26.7	26.7	33.3	2.4	16.7

Frequently-Occurring Characteristics

In Table 2, we display the frequencies of the assigned codes for each variable within the two tasks. In Table 3, we present the mean and standard deviation of the Name Writing and Written Response scores.

In the following section, we contextualize the numerical comparisons between the Alberta and Ontario writing samples. We highlight Indigenous children's writing characteristics in Ontario because half of the participating children are Indigenous.

Ontario Kindergarten Children's Writing

Name Writing

There were no significant differences in form scores for the Indigenous and non-Indigenous students in either the fall or spring administrations. Although two Indigenous children and one non-Indigenous child were not writing their names using letters in the fall, all the students were doing so in the spring.

Written Response

We found no statistically significant difference between the Indigenous and non-Indigenous children's writing forms, spelling stages, and content in the fall nor the spring. In response to our prompt to write, the number of children who wrote, whether letter-like forms or letters, increased from the fall to the spring administration. The children's writing contained characteristics of three spelling stages in the fall: early emergent, emergent, and early letter-name alphabetic (Bear et al.,

Table 3
Means and Standard Deviations of Name Writing and Written Response Scores

	ON Indigenous (n = 15)		ON Non-Indigenous (n = 15)		ON Total (n = 30)		AB Total (n = 42)	
	Fall *M* (SD)	Spring *M* (SD)	Fall *M* (SD)	Spring *M* (SD)	Fall *M* (SD)	Spring *M* (SD)	Fall *M* (SD)	Spring *M* (SD)
Name Writing								
Letter Forms	2.80 (.56)	-	2.80 (.77)	-	2.80 (.66)	-	2.88 (.50)	-
Written Response								
Letter Forms	1.93 (1.44)	2.40 (1.24)	2.33 (1.23)	2.27 (1.22)	2.13 (1.33)	2.33 (1.21)	1.10 (1.32)	1.76 (0.72)
Spelling	1.60 (1.45)	2.87 (1.96)	2.33 (1.80)	2.67 (2.13)	1.97 (1.65)	2.77 (2.01)	0.86 (1.12)	2.48 (1.25)
Content	1.33 (1.26)	1.73 (1.28)	1.60 (1.24)	1.73 (1.10)	1.37 (1.25)	1.73 (1.17)	0.62 (.88)	1.59 (.96)

2016). By the spring, although some children's spelling extended to the within-word pattern stage, the writing of most children was at the emergent spelling stage. In terms of content, the number of children who wrote independently and read back their writing increased from fall to spring. These children communicated their intended message by labeling their image or by identifying the key idea within their picture.

Alberta Kindergarten Children's Writing

Name Writing

There were very few differences in the name writing ability of the Alberta children in the fall and spring. In both administrations of the DWTT, the majority of the children wrote their names using letters.

Written Response

The number of Alberta kindergarten children who wrote increased from the fall to spring administration, as more than half of the children did not write in the fall. By the spring, most of the children wrote letters. Although in the fall, a few children wrote at the early emergent stage and a handful of children wrote at the emergent and early letter-name stages, by the spring, there was a wider range of spelling stages represented in the samples. Most frequently, across both administrations, children's writing was at the emergent stage. In the spring most of the Alberta kindergarten children read back their writing using a single word to label something in their drawing.

Comparison Across Two Kindergarten Contexts

Name Writing

We found no significant difference between the sites in terms of the forms the children used to write their names in neither the fall nor the spring administrations. Although slightly more children in Alberta than in Ontario were writing their names using letters, in the spring, all of the Ontario and all but one of the Alberta children were doing so.

Written Response

We compared the writing of the two groups of children (those from Ontario with two years of full-day kindergarten with those from Alberta with one year of half-time kindergarten) by their scores for writing form, spelling stage, and content. We found statistically significant differences in the three scores in the fall only. The Ontario students' writing had significantly higher form scores (M = 2.13, SD = 1.33) than did Alberta students' writing (M = 1.10, SD = 1.32), t (70) = 3.23, $p < .01$, (two-tailed), eta^2 = .13. Although most of the children at both sites wrote letters in both the fall and spring, over half of the Alberta children did not write in the fall. However, in the spring the majority of children at both sites wrote using letters.

This same pattern emerged in the spelling scores for writing in the fall administration. The Ontario students' writing had significantly higher spelling scores (M = 1.97, SD = 1.65) than did

Alberta students' writing (M = 0.857, SD = 1.12), t (70) = 3.4045, p < .001, (two-tailed), eta^2 = .14. Over half of Ontario kindergarten children's writing demonstrated features from four spelling stages (early emergent to mid letter-name alphabetic), whereas a very small number of Alberta kindergarten children's non-scaffolded writing demonstrated features of three spelling stages (early emergent to early letter-name alphabetic). By the spring administration, the spelling of most children in both provinces was at the early emergent stage or beyond. However, in the spring, there were larger percentages of Alberta children who were writing at the early letter-name alphabetic stage and larger percentages of Ontario children who were writing beyond this stage.

In the fall administration, Ontario students' writing had significantly higher content scores (M = 1.37, SD = 1.25) than did the Alberta students' writing (M = 0.62, SD = .88), t (70) = 2.9845, p < .01, (two-tailed), eta^2 = .11. Although one-word labels were the most frequent message for both groups in the spring, the Ontario children were more likely to provide a key idea than were Alberta children.

Figures 2 and 3 display writing (and the accompanying drawing) samples illustrating the differences and similarities between the Alberta and Ontario children's writing in the fall and spring administrations of the assessment. (Please note that we first asked the children to draw a picture of something they liked to do with their family. Once they had finished drawing, we asked them to write about their drawing.) Figure 2 demonstrates frequently occurring characteristics in the children's writing in the fall.

In Figure 2(a), in response to our prompt to draw, in the fall, an Indigenous boy from an Ontario kindergarten class, who was starting his second year of kindergarten, drew a single image which, in response to our prompt to write, he labeled as, "MYiBUKBAD" (my bunkbed). He wrote the caption using letters representing the beginning and ending sounds and using invented spelling (early letter-name alphabetic stage). In contrast, in Figure 2(b), a non-Indigenous boy from an Alberta kindergarten class who was starting his first year of kindergarten responded to our prompt to draw by drawing multiple images. He labeled his drawing as, "Te" (TV) in response to our prompt to write. He also wrote his caption using letters, but only represented a single salient sound (emergent stage).

Figure 2
Children's Fall Writing Samples

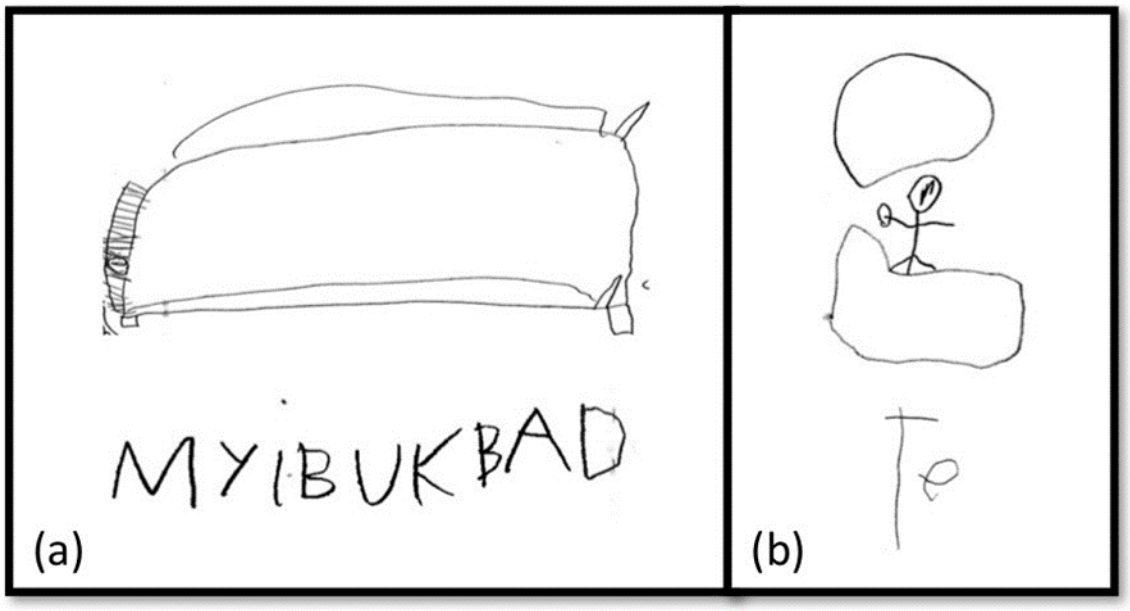

Figure 3
Children's Spring Writing Samples

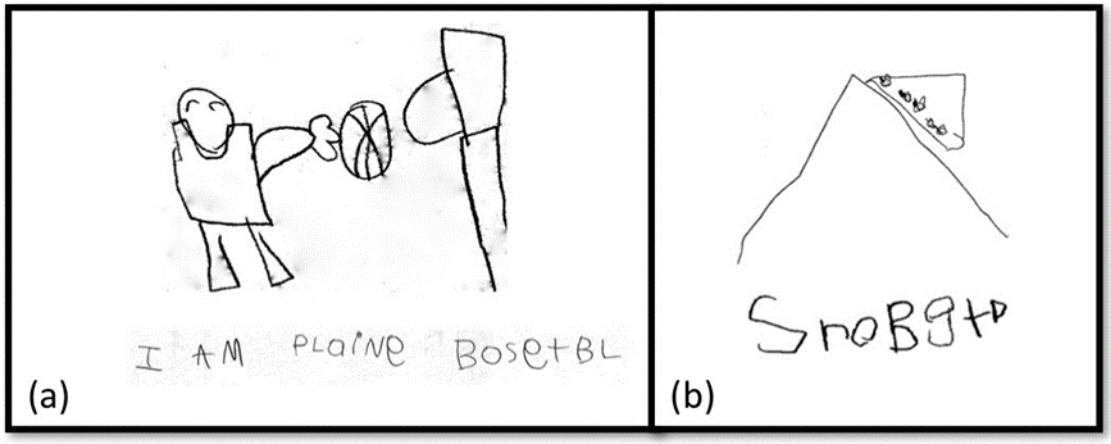

Figure 3 demonstrates frequently occurring characteristics in the children's writing in the spring. In Figure 3(a), a non-Indigenous girl in an Ontario kindergarten who was completing her second year of kindergarten, drew multiple images. Her written response captured the key idea within her picture. She wrote, "I AM PLaiNe BosetBL" ("I am playing basketball"), spelling individual words phonetically and representing salient sounds (mid letter-name alphabetic stage). In Figure 3(b), a non-Indigenous boy in Alberta, who was completing his first year of kindergarten, drew multiple images. He captioned the overall image with the label, "SnoBgto" ("Snowbogganing"). In his written response, he represented beginning sounds and used invented spelling (early letter-name alphabetic stage).

Discussion

Our research takes up a question about the potential impact of extended time in kindergarten on children's literacy that has been addressed in a large body of research over a number of decades (Brownell et al., 2015; Cannon et al., 2006; deCicca, 2007); Maltais et al., 2011; Pelletier & Corter, 2019; Walston & West 2004). We acknowledge the limited generalizability of our findings, given the relatively small sample of children within each province and the variability in the demographic characteristics of the samples in each province (e.g., relative numbers of Indigenous and non-Indigenous children; some who attend federally-funded schools in Indigenous communities and some who attend public schools in rural communities; formal experiences with literacy prior to entering kindergarten).

However, because of our focus on specific characteristics of children's writing, we believe that our work provides insights into the potential influence of an additional year of formal instruction on young children's writing that previous standardized test-focused research has not provided. Although the modal features of participating 5-year-old children's writing in the spring were similar for both groups, the range of levels demonstrated in Ontario 5-year-old children's spelling for example was wider than that of their Alberta counterparts in the fall and in the spring.

Similarly, the performance of the strongest Ontario children was at a markedly higher level than that of the Alberta children on all variables. This variation across a sample of children is consistent with previous research examining young children's writing development (e.g., Molfese et al., 2011; Puranik & Lonigan, 2011), but has not been a consideration that was highlighted to a great degree in research comparing and contrasting the literacy performance of children in full- and half-day kindergarten (e.g., Maltais et. al, 2011; Pelletier & Corter, 2019).

Our research also shows that children who have less kindergarten experience, as do the Alberta children in our study, catch up, to some degree, to their counterparts with more kindergarten experience over the course of their kindergarten year. Previous longitudinal studies showed this narrowing of the gap between children in the full-day and half-day kindergarten contexts over the course of years, in terms of achievement on standardized tests (e.g., Brownell et al., 2015; Cannon et al., 2006; deCicca, 2007). When using qualitative measures of children's writing, it is possible to identify specific areas, such as spelling levels, in which extended time in kindergarten appears to influence children's writing performance, and areas (e.g., writing of letters and content of writing) that may be attributed to age, rather than time in kindergarten.

We believe that our findings also make important contributions to the body of research on young children's writing by including young northern rural and Indigenous children, who are not often represented in the research literature (Burton et al., 2013; Corbett, 2014). The disparity between Indigenous and non-Indigenous children's writing, found in large-scale assessments (Manitoba Education and Training, 2017; National Center for Education Statistics, 2012; Ontario Ministry of Education, 2018), was not present in participating children's performance on the DWTT. Cultural relevance of the writing task may have been a contributing factor. All students drew on their funds of knowledge to create meaningful verbal, drawn, and print texts that reflected relationships and activities with significant people, animals, and objects in their lives (Hedges et al., 2011). In contrast to standardized writing assessments that privilege mainstream ways of being and communicating through written language (often through providing a picture prompt or asking children to write dictated words and sentences), the DWTT invited children to draw from their own experiences and reflected our valuing of their cultural knowledge as "authorized or official knowledge" (Ladson-Billings, 1995, p. 485).

Directions for Future Research

Our research examined characteristics of kindergarten children's writing that was generated in response to a task similar to that of regular classroom activity, in contrast to previous research on the influence of time in kindergarten whose data sources were standardized test results (e.g., Brownell et al., 2015; Cannon et al., 2006; deCicca, 2007). However, as we continue our collaborative action research with northern rural and Indigenous teachers, we believe it is important to extend this body of research into classroom teaching and assessment. We plan to gather writing samples that are part of regular classroom activity, perhaps while children are engaged in authentic writing tasks within dramatic play, or, as in Rowe and Wilson's (2015) research, as part of classroom routines. Addressing limitations of our study will also involve gathering writing samples over a number of years. Our multi-year collaborative action research in northern rural communities affords us the opportunity to pursue longitudinal research that follows participating rural and Indigenous children beyond kindergarten to provide a sense of the varied paths the children take in developing foundational understandings to communicate with print and illustrations (Puranik & Lonigan, 2011).

Additionally, although our analysis addresses the identified need to include children's talk associated with writing (Quinn & Bingham, 2018), we analyzed only children's verbalizations of intended messages in their writing. We are in the process of analyzing children's talk while drawing and writing, viewing such talk as reflective of their thinking processes. Our analysis will focus on identifying the functions of the children's talk while drawing and writing as well as ascertaining the strategies they employ to carry out these functions while engaged in each task.

We acknowledge that teachers' participation in the collaborative action research project has had an influence on children's performance on the DWTT. The assessments took place in classrooms where, for five years, many of the teachers had been focusing on supporting children's writing by intentionally embedding text creation in play activities. Many of the Year 2 students in the three public classrooms and those enrolled in the First Nations' classroom in Ontario had participated in teacher-designed initiatives to support writing through play during their first year in kindergarten. Future research is needed to understand the influence on children's writing development of teachers' research participation in this long-term professional learning initiative.

Extending our promising findings in terms of Indigenous children's performance on the open-ended writing assessment, we propose that future research should include a larger sample of Indigenous children in their first and second year of kindergarten. Our expanding partnership network will make it possible to include remote Indigenous communities in Alberta in future research studies. Additionally, we acknowledge the limitations of our settler worldviews when designing research studies, and in the data collection and interpretation processes. Indigenous researchers and graduate research assistants have recently joined our research partnership. We look forward to future research that will reflect Indigenous worldviews.

Our purpose in writing this paper was to offer a unique perspective of time spent in kindergarten and young children's writing by presenting a multi-dimensional analysis of the writing of young children living in remote northern communities in two Canadian provinces. It is our hope this small study will offer insights to educators and policy makers charged with designing kindergarten programs and inspire rural and Indigenous educators to consider the value of encouraging students to draw on their funds of knowledge to create meaningful verbal, drawn, and print texts.

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Note

1 A component of the Indian Residential Schools Settlement Agreement, the Truth and Reconciliation Commission was established in 2008 to "contribute to truth, healing, and reconciliation … [through establishing new relationships embedded in mutual recognition and respect that will forge a brighter future" (Truth and Reconciliation Commission of Canada, Found at: http://www.trc.ca/about-us/our-mandate.html).

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