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Home language variation in the narratives of urban First Nations Australian children in their first year of school

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ABSTRACT

First Nations children may speak a dialect of English that has different grammatical rules from Standard Australian English (school language). Limited studies have investigated Aboriginal English (home language) dialect in First Nations children and its impact on differential diagnosis of language disorder. This study measured the density of home language dialect and grammatical accuracy in oral narratives produced by typically developing First Nations children. Non-standardised assessment narrative protocols were used to elicit language samples from 27 Australian First Nations children aged 4.5–6 years. Local home language dialectal features were coded into the sample and grammatical accuracy was calculated separately for school language and home language. All children displayed some use of home language features. The most common home language features used were alternative use of regular past tense and irregular past tense, zero use of regular and irregular past tense, and alternative use of pronouns. Dialect density varied highly amongst participants. Grammatical accuracy was higher for home language than school language. Speech pathologists and teachers need to be aware of differences between home and school language for First Nations children to avoid misdiagnosis of language disorder. More research is required to gain normative data that informs culturally appropriate assessment practices for this population.

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Introduction

While Standard Australian English is the dialect valued in education and employment (hereafter referred to as School Language; SL), many Aboriginal and Torres Strait Islander (hereafter referred to as First Nations) communities in Australia may speak dialectal variations, often termed Aboriginal English (Butcher, 2008). Many First Nations peoples may refer to this dialect as *Home Language* (HL; Tara Lewis, personal communication, 11 October 2021). HL and SL may differ from each other in grammar, vocabulary, pronunciation and non-verbal communication styles (Malcolm et al., 1999; Siegel, 2010). HL variation from SL exists on a continuum and the features and extent of HL use may depend on the geographical area (Butcher, 2008) and which traditional languages are spoken within communities. For example, First Nations children in urban areas of

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Australia may speak a different version of HL to their rural and remote counterparts (Butcher, 2008). First Nations children may also have limited exposure to SL before reaching school age. Of critical importance, some grammatical features of HL in urban areas may be mistaken as grammatical errors of SL and features of developmental language disorder (DLD) (Pearce et al., 2015; Siegel, 2010). Speech-language pathologists (SLPs) and educators without sufficient knowledge of dialectal variation may thus have difficulty discerning language difference from possible DLD when working with First Nations children (Macqueen et al., 2019; Pearce et al., 2015; Webb & Williams, 2018; Wigglesworth & Billington, 2013). This study therefore seeks to describe the use of HL in a group of Australian First Nations children and its potential impact on the diagnostic practices of non-First Nations SLPs, with a focus on grammatical features.

The cultural and linguistic context

First Nations peoples comprise 3.2% of the total Australian population (Australian Bureau of Statistics, 2022). Further breakdown of the 812,000 people who identified as First Nations in the 2021 census showed that most were Aboriginal (91.4%), with the remainder identifying as Torres Strait Islander (4.2%) and both Aboriginal and Torres Strait Islander (4.4%). The census revealed that most First Nations people spoke only English at home (84.1%). Yet, more than 120 Indigenous languages are still spoken in Australia, with 90% considered to be endangered (Australian Institute of Aboriginal and Torres Strait Islander Studies, 2023). The level of language diversity and proportion of people speaking traditional languages at home varies across geographical regions (particularly across urban-rural-remote divides) of Australia (Lowell, 2013). Traditional Indigenous languages are more likely to be spoken in rural-remote areas than in urban centres where larger populations of First Nation peoples speak only English.

Assessment and therapy for communication concerns among Australia's First Nations children is typically provided by non-First Nations SLPs, due to the low number of First Nation SLPs (Lowell, 2013; McDermott, 2019). Culturally appropriate practice is thus a challenge and a focus for professional development among Australian SLPs (Indigenous Allied Health Australia [IAHA], 2019a, 2019b; McDermott, 2019). Professional standards describe the need for SLPs to

> '. . .collaborate with Aboriginal and Torres Strait Islander individuals and communities to advocate for and work towards equitable outcomes and development and delivery of speech pathology services that respond to contemporary needs, recognising community and cultural strengths and the ongoing impacts of colonisation and intergenerational trauma that may affect health and well-being'. (Speech Pathology Australia, 2020; Standard 1.7.e)

Furthermore, IAHA explains that 'Culturally responsive care is about the "centrality" of culture to people's identity and working with them to determine what is culturally safe care for them as individuals. It goes far beyond notions of cultural awareness and cultural respect' (IAHA, 2019a, p. 5).

Traditionally, SLPs and teachers focused on deficit-based frameworks to describe how communication skills fall short of expectations from community or developmental normative data (Paris, 2012). Perspectives of language difference, to be differentiated from 'disorder', have evolved, yet still often reflect perspectives of minority languages and dialects held by speakers of majority languages. Strengths- and resilience-based approaches

are now preferred over deficit-based approaches, with consequent changes to frameworks and solutions (Fogarty et al., 2018; McDermott, 2019) as well as valuing and sustaining the diverse ways in which Australians communicate (Angelo & Carter, 2015; Paris, 2012; Speech Pathology Australia, 2023c).

Tensions are apparent among linguistic and educational ideologies, and their implementation, with respect to the positioning of languages and dialects within schools and the impact of language diversity on literacy and how it is measured (Angelo & Carter, 2015; Paris, 2012). The requirement to conform to a particular dialect may be an imposition that denies choice and suppresses other dialects (Cushing, 2021). Yet, an emerging approach in Australia encourages support for linguistic diversity and the ability of individuals to confidently code-switch between languages and dialects to maintain community connections, achieve academically in school and higher education, gain employment and engage with the broader English-speaking world (Angelo & Carter, 2015; Davis, 2022; Queensland Department of Education, 2018).

While use of HL has been associated with lower literacy skills, literacy assessments, such as national tests implemented across Australian schools (Australian Curriculum, Assessment and Reporting Authority, 2023a), may be biased and not accommodate the use of HL, leading to inaccurate measures of academic performance for First Nations children (Dixon, 2013; Macqueen et al., 2019; Wigglesworth et al., 2011). Nonetheless, concerns about lower literacy levels for First Nations children have led to collaborative approaches to improve educational outcomes (Commonwealth of Australia, 2022).

Characteristics of HL vary across Australia (Butcher, 2008), meaning that SLPs need to investigate what is typical for their location. Differences in dialect and cultural practices between home and school may make it challenging for First Nations children to adapt to school life if classroom practices do not accommodate these differences (Angelo & Carter, 2015; Webb & Williams, 2018). Non-First Nations SLPs may require further support to develop culturally responsive practice (IAHA, 2019b; SPA, 2023a, 2023b).

School language and its assessment

English-speaking countries (e.g. Australia, Canada, UK, USA) have standard grammatical structures that may be expected or required within educational and employment contexts (ACARA, 2023b; Cushing, 2021; Paris, 2012; Peters, 2007). However, while written English may have some consistency across countries (e.g. academic journals), spoken language conventions vary across countries (Siegel, 2010). The Australian school curriculum defines Standard Australian English (i.e. SL) as 'The variety of spoken and written English language in Australia used in more formal settings such as for official or public purposes, and recorded in dictionaries, style guides and grammars. While it is always dynamic and evolving, it is recognised as the 'common language' of Australians" (ACARA, 2023b).

Standardised assessments are widely used by SLPs to evaluate children's language ability against normative data, including assessments with First Nations children (Zingelman et al., 2021). However, most scoring norms for standardised language assessments encapsulate SL and have not been developed using a First Nations population sample, so children assessed using these tests may be misdiagnosed with language disorder (Pearce & Williams, 2013). Recent guidelines for one standardised assessment suggest modifications for cultural and linguistic diversity but results from modified administration

and/or scoring cannot be compared to the norms (Wiig et al., 2021). Instead, the norms and scoring guidelines reflect SL. Furthermore, decontextualised assessments with direct questions requiring answers (characteristic of many standardised assessments) may not reflect cultural practices for First Nations peoples in Australia (Cahir, 2011; Lewis et al., 2017).

Non-standardised assessments such as dynamic assessment and language sample analysis may be more culturally appropriate than standardised testing batteries (Cahir, 2011; Gould, 2008; Pearce & Flanagan, 2019). Oral narrative and conversational language samples elicited in naturalistic communication contexts may increase a First Nations child's willingness to participate in assessment and produce a language sample that is more representative of their ability than decontextualised and structured tasks (Gould, 2008).

Home language

Features of English dialects spoken by Australia's First Nations people have been documented through observational linguistic studies (e.g. Butcher, 2008; Eades, 2013; Malcolm et al., 1999). Overlap between some grammatical features of HL and DLD has been identified in the literature (Pearce et al., 2015) which is summarised in Supplementary File A. The most frequently used grammatical features of HL that differ from SL include zero marking and/or alternative use of grammatical forms to indicate grammatical meaning (Butcher, 2008; Malcolm et al., 1999; Pearce et al., 2015; Webb & Williams, 2020). The linguistic term 'zero marking' is used to signify a grammatical form where a morpheme or 'marker' that is expected in one dialect is optional in another dialect (Oetting et al., 2013). Some grammatical features may be described as 'zero marking' when referring to a dialect but as an 'omission' when referring to a grammatical error for an SL speaker.

Common HL grammatical features observed in First Nations children across several areas of the east coast of Australia include optional zero marking of the copula verb *to be* (e.g. 'he sad' instead of 'he *is* sad') and auxiliary verb *to be* (e.g. 'he going' instead of 'he *is* going'), alternative use of pronouns (e.g. '*he*' instead of '*she*') and past tense (e.g. 'he run' or 'run- *ed*' instead of 'he ran'; Miller et al., 2014; Pearce et al., 2015; Webb & Williams, 2020). Less common HL features documented in the literature include zero subject-verb agreement for auxiliaries (e.g. 'they *was* walking' instead of 'they *were* walking'), and zero determiners (e.g. 'there is cat' instead of 'there is *a* cat').

MLU

Grammatical features of HL may impact results of certain language sample measures that require careful investigation. For example, mean length of utterance (MLU) may be impacted by HL dialectal variation due to the zero use of some grammatical morphemes, which shortens overall utterances. MLU results within a naturalistic language sample could lead to misdiagnosis as children with DLD can also have lower MLU than their typically developing peers (Rice et al., 2010). Yet, on its own, MLU is not a reliable measure of grammatical development (Eisenberg et al., 2001). This highlights the need for clinicians to be acutely aware of dialectal variations and the appropriateness of language sample measures for First Nations children while using culturally appropriate assessment tasks.

Grammatical accuracy

A high level of grammatical accuracy (GA) is achieved by most typically developing children by early school age, ranging from 77% to 100% (Eisenberg & Guo, 2016; Guo & Spencer, 2017; Westerveld & Gillon, 2010). GA, measured as the proportion of utterances judged grammatically correct in a language sample, is calculated by dividing the number of grammatically correct utterances by the total number of utterances in the sample, before multiplying by 100 to generate a percentage (Eisenberg & Guo, 2016; Westerveld & Gillon, 2010). The number of correct grammatical instances in the language sample will vary depending on whether grammaticality is being compared against SL (GA-SL) or HL (GA-HL).

Comparison to SL may lead to a GA measurement that does not fully reflect a child's grammatical development because grammatical differences between HL and SL may be erroneously counted as errors. Instead, using HL as the reference dialect may better reflect grammatical development for a First Nations child (GA-HL). Two studies found higher levels for GA-HL than GA-SL in language samples produced by First Nations children who were attending a school with 100% First Nations enrolment in Townsville, a regional city in north-east Australia (Pearce & Stockings, 2011; Pearce et al., 2015). However, another study of 51 children aged 4.5 to 6 years, attending schools with 13% to 56% Indigenous enrolment in Townsville, found no difference in GA-SL First Nations children and their non-First Nations peers (Pearce & Flanagan, 2019). Variability in GA may be accounted for by differences in use of HL, which can be measured in terms of dialect density (DD).

Dialect density

The degree to which one dialect varies from another can be measured by calculating dialect density (DD). Typically, DD has been measured in dialects spoken by the smaller population being focused on such as African American English (Caesar & Kerins, 2020; Gatlin & Wanzek, 2015; Washington et al., 2018) and Australian Aboriginal HL (Pearce et al., 2015). The DD measure indicates how much dialect is present within a person's language (e.g. the proportion of words or utterances with HL features present) and can be used to classify dialects or quantify dialect variation (Oetting & McDonald, 2002). DD may be calculated by counting the number of times a target grammatical feature is present. Individual grammatical features are counted and then divided by the total number of utterances the participant produced to create a proportional measure from which a percentage can be calculated.

Aim and research questions

There is limited research documenting the grammatical features of HL used by Australian First Nations children or how language measures such as DD and GA may inform culturally responsive assessment and diagnostic practices for speech-language pathologists. It is important that SLPs understand how to identify dialectal features that may be mistaken as indicators of language disorder, leading to misdiagnosis. This study therefore aims to address these knowledge gaps investigating the following questions:

(1) What features of Home Language are observed in the narratives of First Nations children in the first year of school?
(2) How frequently are features of Home Language present (dialect density) in the narratives of First Nations children in their first year of school and what is their distribution across grammatical contexts?
(3) Does frequency of Home Language features affect measures of grammatical accuracy?

Method

This study used an exploratory cross-sectional research design to investigate the grammatical features in the language of urban First Nations children in their first year of school. All authors are non-First Nations SLPs seeking to improve language assessment practices for First Nations children. Ethical clearance was given by the James Cook University (JCU) ethics committee (Ref. H4471), Queensland Department of Education and Training (Ref. 550/27/1220), and Australian Catholic University Human Research Ethics Committee (Ref. 2015-32T). First Nations ethics subcommittees from each institution reviewed and approved the research prior to final ethical clearance. A reference group of community members was consulted early in the research process to optimise culturally appropriate processes. Reference group members included one school principal, two special needs teachers, one First Nations teacher, one JCU academic from the school of Indigenous Australian Studies, and one senior speech pathologist from Education Queensland. In addition, a group of 10 to 15 First Nations parents from one school was consulted about the model stories and elicitation process. A First Nations speech pathologist also reviewed a draft manuscript to optimise culturally appropriate, strengths-based interpretation and reporting.

Participants

This research study used data previously collected by the second author. Children enrolled in their first year of school (i.e. Prep; 5-years-old by 30 June in the calendar year in which they start school in January) were recruited from five public (Department of Education) schools in an urban regional city (Townsville; Bindal and Wulgurukaba Country) in Queensland, Australia. First Nations enrolments in each school ranged from 13% to 56% of total school enrolments.

In total, 27 participants were recruited. Families of participants provided written consent and children showed assent throughout the assessment process by actively interacting with examiners and research assistants. Participants were excluded if they were identified as having a communication disorder or disability as per parent and/or teacher reports. There were 15 girls and 12 boys, 18 of which identified as Aboriginal, five as Torres Strait Islander, and four as both Aboriginal and Torres Strait Islander. Ages of participants ranged from 59 to 77 months, with an average of 66.6 months. Parent reports of language spoken at home via a written form indicated that ten children spoke Australian English at home, eight spoke Aboriginal English, five spoke Torres Strait Islander Creole, and four were unknown due to incomplete data from the written form.

Procedures

Three non-standardised narrative protocols were used to investigate language production and dialect use. 'William's Baby Brother' (McCandlish & Schaefer, 2013) was administered first, followed by either 'The Football Story' (Williams, 1998) or 'Ana Gets Lost' (Swan, 1992; adapted by; Westerveld & Gillon, 2010), depending on the participant's choice. For 'William's Baby Brother', children were shown pictures, told a story about the pictures, asked to respond to questions about the pictures, and then asked to retell the story while viewing the pictures. For 'Ana Gets Lost', the children listened to a story while viewing pictures on a computer screen, responded to questions asked by the examiner, listened to the story again and were then asked to retell the story without seeing the pictures. For 'The Football Story', children responded to questions after being shown pictures by the examiner and then told the story in their own words.

Assessment was carried out in four schools by a non-First Nations speech-language pathologist who had previously received cultural awareness training. In one of the five schools, a First Nations teacher aide administered the assessment with seven children. Each examiner spent time-building rapport with the children in their classrooms before administering the assessment, which was completed in a quiet area of the schools. No significant differences for story structure and comprehension measures were evident between the First Nations children and a group of 24 non-First Nations children who completed the same task (Pearce & Flanagan, 2020; Shoebridge et al., 2021). This indicated that the First Nations children were appropriately engaged in the narrative assessment process.

Transcript coding

At the time of data collection, narrative responses were audio-recorded and then transcribed into a language sample analysis software program (SALT; Miller & Iglesias, 2012). Only the story-telling samples were used for this research; not the responses to comprehension questions. Samples were transcribed by a research assistant and the second author who then listened to the recordings a second time to check accuracy (Pearce & Flanagan, 2019). The transcribed samples were then segmented into communication units as prescribed by SALT conventions (Miller & Iglesias, 2012) for further analysis. Codes for SL grammatical errors were applied to the transcripts by the second and third authors.

The first author then coded HL grammatical features (see Supplementary File A) in each transcript (see Supplementary File B for a list of grammatical feature codes used). HL grammatical features were grouped into three categories for analysis: Verb Phrase (VP); Noun Phrase (NP); and Clause Structure (CS; Butcher, 2008).

To calculate GA, each utterance was coded as grammatically correct for HL, grammatically correct for SL, or grammatically incorrect for both HL and SL, as judged by the first author. GA was determined using the following formula: number of grammatically correct utterances (HL and SL) divided by total number of grammatically correct utterances plus grammatically incorrect utterances, multiplied by 100.

Reliability

The authors discussed the coding system for HL grammatical features prior to the coding phase. All transcripts were coded by the first author in accordance with HL grammatical

features and rules for GA. To determine inter-rater reliability, the third author coded 20% of total participant transcripts using the same designated codes. Transcripts were then compared to calculate agreement for HL grammatical features and GA, which came to 95%.

Analysis

Code frequencies were obtained from SALT coding summaries for the HL grammatical features in each participant transcript. These code frequencies were entered into a spreadsheet which then was imported into a statistics program (IBM SPSS Statistics, Version 27) for statistical analysis. DD measures were calculated in SPSS. Non-parametric testing was conducted due to small samples and skewed data distribution. The influence of examiner cultural background on participant dialect use was analysed. Participant DD results were compared between the First Nations and non-First Nations examiner using the Mann Whitney-U Test, with no significant difference found ($Z = -0.692$, $p = 0.489$).

Results

Home language features and frequency

The number of participants using each feature and their frequency counts is shown in Table 1. Features are listed in the order of most frequently used to least. A total of 15 HL grammatical feature codes were identified within the language samples. The most frequent features that were used by at least half of the participants were alternative use of irregular past tense, zero use of regular and irregular past tense, and alternative use of pronouns. Features used by the least number of participants were zero use of subordinate clause, alternative form of existential 'there' and topicalization. Every participant used at least one HL grammatical feature within their language sample. Most grammatical features were related to the Verb Phrase (VP), followed by Noun Phrase (NP), and Clause Structure (CS). In some instances, particular grammatical features that were used by a few participants were used often by those participants (e.g. zero auxiliary was used more than 10 times by one participant, and once by five participants).

Table 1. Number of participants using each HL feature and frequency.

	Frequency				
HL Features	Nil	Once	2–5	5–10	>10
Verb Phrase					
Alternative irregular past tense	9	9	8	1	0
Zero regular past tense	9	6	12	0	0
Zero irregular past tense	11	6	10	0	0
Zero subject-verb agreement	15	4	7	1	0
Zero auxiliary	21	5	0	0	1
Alternative past tense form	25	0	2	0	0
Double negative	26	1	0	0	0
Noun Phrase					
Alternative pronoun	10	7	8	0	2
Zero determiner	15	7	5	0	0
Alternative preposition	21	6	0	0	0
Zero preposition	25	2	0	0	0
Clause Structure					
Zero copula	21	6	0	0	0
Zero subordinate clause	26	1	0	0	0
Alternative form of existential there	26	1	0	0	0
Topicalization	26	1	0	0	0

Measures of dialect density

Descriptive statistics were used to investigate measures of DD with means and standard deviations reported in Table 2. DD ranged from 4.55% to 81.82% and was highest within the VP, followed by NP and lowest in CS. A Friedman test showed that DD was significantly different among the three types of DD categories ($\chi^2 = 39.853$, $p < 0.001$). To determine where the significant difference occurred between the three grammatical categories, a Wilcoxon-signed Ranks test was conducted. This showed that DD-VP was significantly greater than DD-NP ($Z = -3.485$, $p < 0.001$) and DD-CS ($Z = -4.458$, $p < 0.001$); and DD-NP was greater than DD-CS ($Z = -3.726$, $p < 0.001$).

Within the VP, DD ranged from 0.07% to 5.36% for each individual HL feature, listed in Table 2 from highest to lowest. Within the NP, DD ranged from 0.24% to 5.73% for each individual grammatical feature, listed in Table 2 from highest to lowest. Within the CS, DD ranged from 0.09% to 0.82% for each individual grammatical feature, listed in Table 2 from highest to lowest. For all individual DD measures, the standard deviation was greater than the mean, indicating that there was high variability within the sample.

Grammatical accuracy across dialects

The mean GA-SL was 64.90% (SD = 21.28), which then increased to 89.89% (SD = 11.93) for GA-HL. Mean GA-HL was significantly higher than GA-SL ($Z = -4.373$, $p < 0.001$). The GA-HL of one child was much lower than the rest of the children at 41%, however this child still demonstrated an increase in GA from SL which was previously 5.9%.

Discussion

This is the first reported study of HL in First Nations children in their first year of school in Townsville, a regional city in Queensland, Australia. Findings indicated that some children

Table 2. Percentage of dialect density.

Features	%Mean (SD)
Verb Phrase: total	22.20 (14.83)
Zero Irregular Past Tense	5.36 (7.03)
Zero Regular Past Tense	5.16 (5.37)
Alternative Irregular Past tense	5.09 (6.10)
Zero subject-verb agreement	4.03 (6.47)
Zero auxiliary	1.57 (4.28)
Alternative past tense forms	0.92 (3.42)
Double negative	0.07 (0.37)
Noun Phrase: total	9.23 (9.07)
Alternative pronoun	5.73 (7.31)
Zero determiner	2.18 (2.82)
Alternative preposition	0.81 (1.63)
Zero preposition	0.27 (0.96)
Zero plural	0.24 (0.87)
Clause Structure: total	1.12 (1.79)
Zero copula	0.82 (1.72)
Topicalization	0.12 (0.60)
Zero subordinate clause	0.10 (0.49)
Alternative form of existential there	0.09 (0.46)
TOTAL	32.55 (19.12)

Dialect density = proportion of HL features per utterance.

used certain HL features more often than other HL features, DD varied widely among participants, and features varied in frequency of use across types of structures. Grammatical accuracy measures were also impacted when SL was used as the point of comparison. This discussion will explore the findings of this study with comparison to the literature and consider implications for speech pathology practice.

Participant use of home language

All children in this study used at least one HL feature each, which is more frequent than what was reported in a previous study of children of similar age in Sydney, Australia (E. Miller et al., 2014) and older children in the same area (W. M. Pearce et al., 2015). The most frequent HL grammatical features observed in this group of children were zero or alternative forms for past tense (regular and irregular) and alternative pronouns. These features are similar to those found in older children from the same geographical area (W. M. Pearce et al., 2015). Several grammatical features identified in other studies such as zero use of auxiliary and copula verbs and determiners (W. M. Pearce et al., 2015; G. Webb & Williams, 2020) occurred less frequently in the current study.

Many HL features also overlapped with common indicators for DLD in SL, namely omission of past tense forms, determiners, copulas and auxiliaries (Leonard, 2014). Several other grammatical features overlapped with SL grammatical errors that usually disappear by school age (Leonard, 2014) and have not been reported as HL features in previous Australian literature (Butcher, 2008; Malcolm et al., 1999; E. Miller et al., 2014; W. M. Pearce et al., 2015; G. Webb & Williams, 2020). Some participants did not use coordinating conjunctions such as 'and' ($n = 8$; e.g. '. . . got the bottle, gave it to mum' instead of '. . . got the bottle *and* gave it to mum'), present progressive '–ing' ($n = 3$; e.g. 'he cry' instead of 'he cry*ing*') and infinitive 'to' ($n = 8$; e.g. 'he wanted play a game' instead of 'he wanted *to* play a game'), in contexts where features would be obligatory for SL.

Use of HL was diverse as not all participants used the same HL features; and some HL features were observed in only a few language samples. For example, grammatical forms unique to HL such as use of 'bin' as an alternative past tense form (e.g. 'he bin go to school') were used by two children, but the children that used these forms used them frequently. HL grammatical features not observed among participants included use of 'wh' questions in statement form without auxiliary fronting (e.g. 'where you go?' instead of 'where *did* you go?') and alternative forms of future tense (e.g. 'he go come back tomorrow' instead of 'he *will* come back tomorrow'). However, use of 'wh' questions and future tense may not be expected in oral narrative retells which may not require use of questions and are usually expressed using past tense.

Dialect density

Dialect density measures for participants were similar to levels found in older children from the same geographical location, but in a school with higher First Nations enrolments (100%), where use of HL may have been more frequently spoken between peers (mean DD of 33.7%; W. M. Pearce et al., 2015). DD in each grammatical category was also similar across the studies, being highest in the VP, followed by the NP and lowest in clause structure (CS). Variable use of HL and SL could occur among First Nations children as their dialectal

and code switching choices may be influenced by their peers, parents and community language background (Ribeiro et al., 2017; Stanford, 2008). As only dialectal features of HL were measured, high DD measures indicated extensive use of HL. Some HL features such as zero tense marking or alternative pronouns contrast with SL features and may be used optionally (e.g. instead of using an HL form such as 'him running there', an HL speaker could use the form 'he is running there'). Thus, variable use of optional contrastive features could influence HL DD measures. This effect would not occur for non-contrastive HL features such as topicalisation (i.e. emphasis of a topic at the beginning of a sentence with both NP and pronoun; e.g. 'That big old tree, it . . . ').

Findings from the present study are consistent with literature reporting that verb phrase morphology may be challenging for children learning SL as an additional dialect (Paradis, 2010). SLPs and teachers need to be aware that acquisition of SL grammatical forms may take time for First Nations children which should be accommodated in the classroom; in keeping with calls to sustain 'linguistic, literate, and cultural pluralism' (Paris, 2012, p. 95) and support connections within First Nations communities as well as broader educational opportunities (Angelo & Carter, 2015; Queensland Department of Education, 2018).

Grammatical accuracy across dialects

The average GA-HL was significantly higher than GA-SL, similar to findings for older First Nations children in Townsville (W. M. Pearce et al., 2015). However, the younger participants in this study had similar GA-SL results to non-First Nations children in a previous study (W. M. Pearce & Flanagan, 2019). This similarity in GA-HL suggests that there may have been dialectal variations from SL among the non-First Nations participants. Notably, a recent study identified socio-economic status as a significant predictor of GA among children aged 4–9 years in Canada (Weiler et al., 2021). Thus, further investigation of dialectal variation among non-First Nations Australian children may be warranted.

When GA-HL was taken into consideration instead of SL, the GA-HL mean (89.89%) and standard deviation (11.93; implying a typical range of 77.96% to 100%), aligned well with expectations of SL grammatical accuracy for 6-year-olds (Eisenberg & Guo, 2016; Guo & Spencer, 2017; Westerveld & Gillon, 2010). If only GA-SL was considered, these children would have been at risk of being misdiagnosed with DLD (ie, difficulties with development of syntax and morphology). It is thus important to use the child's dialect as a reference point when calculating grammatical accuracy to identify language difference or diversity rather than disorder.

Limitations

This study is limited by its small sample size and limited age range. This leaves little room to explore the possible relationships between context (i.e. home vs. school, examiner background) participant age, and use of HL and/or SL with respect to specific features and dialect density. Further research with a larger sample size across a larger age group may offer insight into these aspects of dialect development and use in First Nations children. In addition, this study only investigated dialects used in one geographical area in North Queensland which cannot be generalised to other areas of Australia where dialect use may differ. While there was no significant difference in the amount of HL spoken when

children were assessed by a First Nations examiner compared to non-First Nation Australian examiners, this finding is not generalisable outside of this study. It is possible that children may increase use of HL dialect with a First Nations examiner or in other assessment situations (e.g. at home). Finally, limited family information about children's home languages and dialects was collected for this study so it is unknown how these factors may have affected participants' HL dialect measures.

Implications

Further research is needed to explore culturally appropriate assessment practices and the use of HL and GA-HL measures for analysing language samples for First Nations children across regions of Australia. For example, determining typical GA-HL ranges for First Nations children may be useful for identifying children who require further evaluation to eliminate or confirm a diagnosis of DLD. Research may also explore how the examiner's background (e.g. First Nations or non-First Nations) and the place of assessment (e.g. home or school) may influence use of HL; as well as how family values and preferences may influence use of HL (or SL).

Delivery of accurate, culturally appropriate assessments by SLPs working with First Nations children may be informed by the findings of this research. In particular, SLPs need to be aware of how to identify HL grammatical features and adapt measures such as GA to accommodate dialectal variation. DD measures may assist with documenting dialectal variation and language profiles for different communities that may reduce the risk of misdiagnosis of DLD. DD measures may also be used to measure code-switching across contexts (e.g. home vs. school) and changes in use of HL or SL across year levels within the school context.

Teachers of First Nations children, as well as SLPs, need to be aware of dialect differences and provide culturally responsive support for students who may need assistance in some areas of language, such as acquiring new and complex SL grammatical forms within the classroom environment (Queensland Department of Education, 2018). Programs such as the Fostering English Language in Kimberley Schools approach (FELIKS; Siegel, 2010) may be useful in explicitly teaching the principles of code switching between school and home contexts for students in order to value both dialects.

In the absence of normative data for First Nations children, the findings of this study support recommendations that clinicians take the following steps when working with First Nations children and children with a different home language to school language. Firstly, work within a framework of culturally responsive practice appropriate for the community of the client (Indigenous Allied Health Australia, 2019a, 2019b). Such an approach may begin with finding a cultural mentor. A cultural mentor may support cultural safety and responsiveness, effective communication styles, proactivity and leadership and reflective practice (Indigenous Allied Health Australia, 2019b). Secondly, as part of the assessment, collect as much information as possible as to the language background of the child. Find out what language or dialects are spoken by the child, their family and community, and how they prefer children to be assessed (Zingelman et al., 2021). Thirdly, if a difference exists between the child's HL and SL, find out what semantic, morphological and syntactic differences could be expected (Butcher, 2008; Eades, 2013; Gould, 2008; Malcolm et al., 1999; Pearce et al., 2015). This step may involve finding a published grammar of the HL but

in the event that such a resource does not exist, consult with the child's community to explore possible features. Fourthly, when appropriate to begin assessment with the child, use conversational language sampling and narrative production as part of the assessment battery; noting that story-telling is a strong cultural practice among First Nation communities (Gould, 2008). Transcribe the sample and note any instances of HL use. Finally, conduct narrative macrostructure and microstructure analysis as required for the clinical situation (W. M. Pearce & Flanagan, 2019, 2020) and ensure that language uses consistent with either HL or SL is not scored as incorrect.

Conclusion

The current study adds to the growing body of evidence and knowledge about the grammatical features of HL used by young children in this area of Australia. It is important for SLPs and teachers to be aware of HL grammatical features to accurately assess and accommodate diverse language use of First Nations children both in the classroom and the clinic room. The most common HL grammatical features to be aware of and identify in the oral narratives of First Nations children in North Queensland were zero or alternative forms of regular and irregular past tense, and alternative use of pronouns. SLPs should also utilise non-standardised assessments such as oral narrative protocols and language sample analysis, using measures such as grammatical accuracy in accordance with HL dialects to ensure accurate and culturally appropriate assessment practices.

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