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# REVUE CANADIENNE D'ORTHOPHONIE ET D'AUDIOLOGIE | RCOA

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Communicating care  
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Individualized Professional Development Program Designed by Speech-Language Pathologists to  
Increase Vocabulary Strategies in Low Socioeconomic Status Preschools: A Multiple Case Study

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## Individualized Professional Development Program Designed by Speech-Language Pathologists to Increase Vocabulary Strategies in Low Socioeconomic Status Preschools: A Multiple Case Study



## Programme de perfectionnement professionnel personnalisé conçu par des orthophonistes pour augmenter l'utilisation de stratégies soutenant l'apprentissage du vocabulaire auprès d'enfants d'âge préscolaire issus de milieux défavorisés sur le plan socio-économique : une étude de cas multiples

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### Abstract

The purpose of this study was to evaluate the effectiveness of a professional development program designed by speech-language pathologists to increase teachers' use of vocabulary strategies in low socioeconomic status preschools. Specifically, the teachers received a 12-week intervention, individualized in terms of the number and type of strategies taught and the length of training for each strategy. A book reading activity was used to practise the use of these strategies. Two parameters were evaluated to assess the effectiveness of this program: (a) use of the targeted strategies in a trained activity (book reading) and (b) generalization (teachers' application of the learned strategies to activities not directly trained in the program). To do this, a multiple case study was conducted with five preschool teachers. Following a multiple baseline design, visual analyses and Tau statistics were used. The results showed a statistically significant increase in the use of targeted strategies in book reading, with large effect sizes regardless of the teacher or strategy taught. However, despite their mastery in book reading and theoretical information about how to generalize these practices, none of the teachers generalized the use of the strategies to other activities not targeted by the program. The results of this study underline the importance of providing intensive in situ training programs tailored to teachers' needs, including multiple opportunities for practice in different activities.

**Editor:**  
Chantal Desmarais

### Abrégé

L'objectif de la présente étude était d'évaluer l'efficacité d'un programme de perfectionnement professionnel conçu par des orthophonistes pour augmenter l'utilisation de stratégies soutenant l'apprentissage du vocabulaire chez des enseignants et enseignantes travaillant dans des écoles défavorisées sur le plan socio-économique. Plus précisément, des enseignants et enseignantes ont participé à une formation personnalisée de douze semaines dans laquelle le nombre, le type et le temps de formation accordé à chaque type de stratégies variaient. Les enseignants et enseignantes ont pratiqué les stratégies leur étant enseignées dans une activité de lecture de livres. Deux paramètres ont été utilisés pour évaluer l'efficacité du programme de perfectionnement professionnel : (a) l'utilisation des stratégies enseignées dans l'activité utilisée pour se pratiquer (c.-à-d. la lecture de livres) et (b) la généralisation de l'utilisation de ces stratégies (c.-à-d. l'utilisation des stratégies enseignées dans des activités qui n'ont pas été directement ciblées par le programme). Pour y arriver, une étude de cas multiples a été menée auprès de cinq enseignants et enseignantes travaillant dans des classes de niveau préscolaire. Un devis à niveaux de base multiples et intégrant des analyses visuelles et des statistiques Tau a été utilisé. Les résultats ont révélé une augmentation statistiquement significative de l'utilisation des stratégies enseignées lors de l'activité de lecture de livres, avec de larges tailles de l'effet indépendamment de l'enseignant ou enseignante ou de la stratégie. Cependant, malgré leur maîtrise des stratégies enseignées dans l'activité de lecture de livres et leurs connaissances théoriques sur la manière de les utiliser dans d'autres activités, les enseignants et enseignantes n'ont pas généralisé leur utilisation à des activités qui n'étaient pas ciblées par le programme de perfectionnement professionnel. Les résultats de cette étude soulignent l'importance de proposer des programmes de perfectionnement professionnel intensifs in situ, personnalisés aux besoins des enseignants et enseignantes et qui incluent de nombreuses occasions de pratique dans différentes activités.



Developing lexical skills from an early age is of paramount importance. Indeed, early vocabulary skills predict a child's future reading skills (Dickinson & Porche, 2011; Ramsook et al., 2020; Suggate et al., 2018) and therefore their future academic success (Ramsook et al., 2020; Suggate et al., 2018). Children's vocabulary is linked to the language used by adults, usually parents, interacting with them.

It is now clear that language spoken to children is positively associated with socioeconomic level (Fernald et al., 2013). The language input of parents from disadvantaged backgrounds tends to be more directive with less varied vocabulary and less complex syntactic structures than that of more advantaged parents (Huttenlocher et al., 2010; Schwab & Lew-Williams, 2016). Exposure to this type of limited language input results in notably reduced vocabulary levels in children (Hoff, 2013; Rowe, 2012).

Consequently, vocabulary support is a key component of early language prevention approaches to child development, particularly for those growing up in disadvantaged circumstances. As access to language services and providers is limited for socioeconomically disadvantaged parents (Davidson et al., 2022), and as children attend school regularly and intensively, working with teachers would be a great opportunity to support the vocabulary development of all children. Preschool teachers are seen as particularly privileged interlocutors. International literature has documented an increase in children's vocabulary use following an increase in teachers' use of vocabulary support strategies in the classroom (Kane et al., 2023; McLeod et al., 2019; Sembiente et al., 2023). Given its importance to children's development, several studies have focused on how children learn new vocabulary and the best strategies to support this learning.

### **How Can Teachers Support Children's Vocabulary Growth in Preschool?**

Learning a word involves associating a lexical label with the concept to which it refers (Nation, 2014). To do this, children need multiple exposures to words in different linguistic contexts so that they can receive a variety of semantic, linguistic, or context-related cues (Ambridge et al., 2015; Goodman et al., 2008). This association can be facilitated by various strategies (e.g., definitions, open-ended questions, relating, and sentence completion). An initial strategy of defining a word provides an explicit approach to teaching word meanings (Wasik et al., 2016). Its use in classrooms with disadvantaged children enables them to significantly increase word learning compared to others who do not receive any explanation of the words they hear in class (Beck & McKeown, 2007).

A second strategy for children to consolidate their learning of new words is to use new words in a meaningful context by relating them to their own experience or knowledge (Harris et al., 2011). Children also need opportunities to use new words in rich and varied conversations (Wasik et al., 2016). Some strategies, such as sentence completion and open-ended questions, make this possible because they prompt children to produce new vocabulary words. For example, van der Wilt and colleagues (2022) highlighted a positive correlation between typically developing children's vocabulary growth and teachers' use of open-ended questions. Although these strategies support vocabulary learning, they also appear to support other areas of language such as morphosyntax and narrative skills, as well as contributing to overall cognitive development.

### **Current Use of Vocabulary Learning Strategies in Kindergarten**

Despite their importance in vocabulary support, vocabulary learning strategies are not widely used in preschool classrooms (Al Otaiba et al., 2008; Dwyer & Harbaugh, 2020), and even less so with children who need the most support (Barnes et al., 2017; Pentimonti & Justice, 2010). For example, the quality of teachers' comments differs according to the children's basic language level, following the pattern of a Mathieu effect (Barnes et al., 2017). One possible explanation is that teachers do not feel adequately prepared to deal with the language needs of these children (Moats, 2009). It may also be more difficult to engage in rich interactions with children with lower language levels who are known to be less active in initiating and participating in social interactions (Vuksanovic, 2015). It is, therefore, essential to focus on how to increase and improve the use of these strategies, especially in environments such as preschools in socioeconomically disadvantaged neighbourhoods, which may accommodate large numbers of children with low language levels.

### **How Can Teachers Be Trained to Use These Strategies?**

A growing body of research has implemented and evaluated the effects of language-focused professional development (PD) programs aimed at increasing language support for children in early childhood (Cabell et al., 2011; Girolametto et al., 2003; Neuman & Cunningham, 2009). Nevertheless, the effect size associated with the outcomes of supportive language practices remains low (Markussen-Brown et al., 2017). Most of these studies used an experimental randomized control trial design (Biel et al., 2020), which, because of standardization issues, limited the opportunity to individualize the PD: Participants all

followed the same PD of the same duration and intensity. One hypothesis for the weak positive impact on practice is the lack of individualization offered in PD programs. Individualization would allow for the consideration of each person's individual needs to assimilate new practices (Markussen-Brown et al., 2017).

A recent study (Hreich et al., 2022) took into account these interindividual differences by proposing PD that included variation in the time spent on training in the use of each strategy varied according to each preschool teacher's learning needs. A multiple single case experimental design (SCED) was required for program individualization. The results of the study were quite promising, showing a significant increase in the use of trained language support strategies during the intervention (Hreich et al., 2022).

However, due to the global pandemic, Hreich et al. (2022) were not able to conduct multiple baselines postintervention to assess maintenance. In consequence, the significant increase in each strategy was very specific and was only observed at the end of the intensive training periods dedicated to each strategy. Furthermore, the study only provided information on the increase in language support strategies during the activity specifically targeted by the program, that is, book reading. Finally, the study was conducted in a favorable socioeconomic context, specifically within a private French school in Lebanon. It did not address the issue of language support in contexts of social and economic vulnerability, whereas socioeconomic disadvantage is widely recognized as a risk factor associated with lower quality classroom interactions, including weaker language support (LoCasale-Crouch et al., 2007; Pianta et al., 2005).

Therefore, it is challenging to conclude whether there was a lasting change in language support practices at the end of the intervention. It is also impossible to determine whether the effects were limited to book reading or whether the use of the taught strategies generalized to all activities throughout the school day. However, to have a positive impact on children's language development, it is essential to promote quality language through the use of these strategies in sufficient quantity (Anderson et al., 2021). It is therefore important to use them frequently throughout the school day. Additionally, it is worthwhile to investigate if the methodology of the pilot study allows for an increase in language support strategies in more vulnerable contexts. For this reason, in this study we replicated and extended the research protocol in a context of social and economic vulnerability, documenting the use of vocabulary support strategies during both targeted and nontargeted activities.

## Objectives and Hypotheses

The aim of this study was to replicate and extend the effects of a PD program inspired by the pilot study by Hreich et al. (2022) designed to increase the use of vocabulary strategies among preschool teachers. Our study's program differed from Hreich et al.'s (2022) program in three essential ways. First, our intervention offered combination training sessions to prevent the neglect of previously taught strategies. Second, we had the capability to assess the utilization of these strategies upon program completion thanks to postintervention baseline data, whereas in Hreich's study those measures could not be carried out due to the global pandemic. Third, measures were taken to evaluate the use of the strategies in activities other than those specifically targeted by the program (the generalization effect).

The following research questions were formulated:

1. On the basis of all postintervention measures, will there be a significant increase in the use of the language support strategies taught during the intervention, and will teachers be able to effectively use these strategies in combination?
2. Will the use of these strategies be generalized to activities other than book reading, that are not specifically targeted by the program?

Owing to the program's individualization, based on the adjustment of the number of sessions focused on each strategy according to the time needed to master a strategy, and training in the use of multiple strategies in combination, a significant and substantial increase in the use of language support strategies was expected. Moreover, the language support strategies were not activity-specific but could be applied to any activity. For each strategy, this program provided examples of implementation in activities not targeted by the intervention. Therefore, it was expected that the use of strategies mastered in the activity targeted by the PD program would be generalized to other preschool activities conducted by the participating teacher.

## Methods

### Experimental Design

A multiple baseline design across behaviours (Kazdin, 2020) was used, complying with the SCED standards (Smith, 2012). Multiple baseline designs involve the evaluation of performance across several baselines (Kazdin, 2020). SCED allowed us to evaluate whether a significant modification in the dependent variables (i.e., use of vocabulary strategies) was related to the independent variable (i.e., intervention;

Smith, 2012). In this type of experimental design, each participant was their own control, and nontargeted strategies were used to determine the specificity of the intervention. Nontargeted strategies served as controls until they were worked on in turn.

In the present study, data during the baseline phase were collected across different behaviours of a given group of individuals, making it particularly interesting for the thorough evaluation of intervention outcomes. This project received approval from the ethical board of the University of Liège, number 1920-101.

## Participants

The participants were five preschool teachers, working with children aged between 4 and 5 in four different schools in the province of Liège (Belgium). Three of them had their own class and the other two worked in the same classroom. Class sizes averaged 16 children and ranged from 12 to 19 children. All teachers had a 3-year bachelor's degree in early childhood education, with little training in language development. They were all French speakers and worked in socioeconomically disadvantaged schools, as identified by the French community. They were between 27 and 52 years old and had 6–29 years of experience. These teachers were part of a larger study in which the quality of interactions in their classrooms was assessed using the Classroom Assessment Scoring System tool (Pianta et al., 2008). This standardized tool assesses the quality of emotional support, classroom organization, and instructional support. Each of these domains is characterized by a quality score ranging from 1 to 7. Scores of 1 and 2 were considered *low*, 3–5 *medium*, and 6–7 *high*.

The participants for the current study were selected on the basis of their willingness to participate and their low level of instructional support, that is, scores below 3 (see **Table 1**), because low scores in this domain are indicators of few conversations, few open-ended questions, and little extensive vocabulary. These low scores suggested that there was a need for support to increase the vocabulary strategies used in the preschool. Low instructional support scores are not uncommon and reflect a global trend for all teachers (Slot, 2018). However, participants' scores differed in terms of emotional support and classroom organization. The first teacher (P1) had the highest scores in both areas, with high quality scores. The second and fourth teachers (P2 and P4) had middle-to-high scores for both domains. The last two teachers (P3 and P5) had scores characterized as low-middle quality. Thus, they had different interaction profiles but all had common instructional support needs, an indicator of the need for increased language support.

## Vocabulary Strategies Targeted by the Intervention

The strategies proposed in this intervention were targeted because they are known to promote language development (Beck & McKeown, 2007; Harris et al., 2011; van der Wilt et al., 2022; Wasik et al., 2016). There were potentially four vocabulary strategies to learn during the intervention: (a) definitions, (b) inferential questions, (c) relating, and (d) sentence completion.

### Definitions

*Definitions* consist of providing an explanation, synonym, or example that allows children to access word meanings. It is important to emphasize defined words because in order to learn new words, children need to associate lexical labels with their conceptual reference (Akhtar et al., 2001). To draw children's attention to new lexical labels, it is important to repeat them with emphasis before defining them. For example, a teacher might read in a storybook, "The little piggy fell into the pond," and they might choose to define "pond." They might define it by saying, "The POND is an area of water."

### Inferential Questions

*Inferential questions* are open questions that require inferring plausible answers. These questions often begin with "Why," "How," or "What will happen to..." and thus provide respondents with the opportunity to use new vocabulary in multiword utterances and connect words to their referents; as such, the questions can support both expressive and receptive vocabulary development. Fathers' inferential questions predicted their toddlers' vocabulary growth over a year (Rowe et al., 2017). Parents' inferential questions, as well as children's responses to these questions, predicted children's receptive vocabulary growth (Rydland & Grøver, 2024). Interestingly, it was children's responses to parents' inferential questions, rather than parents' questions, that predicted children's vocabulary scores, which may reflect children drawing on and incorporating their growing vocabulary knowledge when responding to inferential questions. For example, a teacher might say, "We can see a ZEBRA disguised as a ghost on the cover of this book. What do you think will happen to this ZEBRA disguised as a ghost?"

### Relating

*Relating* is the capacity to link new word meanings to children's background knowledge or to their own experience. For example, a teacher might say, "This story takes place in a CIRCUS. Just like the CIRCUS we visited a month ago where we saw clowns and ate popcorn."

**Table 1****CLASS Scores of Participating Teachers**

Teacher	Emotional support	Classroom organization	Instructional support
P1	6.19	6.75	2.58
P2	5.25	5.00	1.44
P3	3.38	3.08	1.75
P4	5.06	4.33	1.08
P5	3.19	3.58	1.00

Note. CLASS = Classroom Assessment Scoring System; P = participant. Possible scores on each domain range from 1 to 7. Scores of 1 and 2 are considered *low*, 3–5 *medium*, and 6–7 *high*.

### Sentence Completion

*Sentence completion* is a strategy that prompts children to complete a sentence with a targeted word. This process allows children to use new words in appropriate contexts. For example, a teacher might say, “Oh, the little piggy got hurt when he fell in the POND. Running too fast, the piggy fell into the...” and wait for the children to respond “POND.”

### Intervention

Prior to the intervention, the first author and the participants had individual meetings. During these meetings, the aim of the study was explained with more information on the importance of language development, teachers’ opportunities to support this development, and the practical modalities of the project (i.e., frequency, duration, etc.). A second meeting was organized to observe the quality of interaction in each class using the Classroom Assessment Scoring System tool (Pianta et al., 2008). As recommended by the tool’s designers, these observations of the quality of the interventions were carried out by a certified observer.

During the preintervention baseline phase, vocabulary strategies seldom used by teachers were identified and prioritized among the four targeted by the intervention. The intervention itself consisted of six cycles of 2 weeks each (**Figure 1**), spread over 12 sessions lasting approximately 60 min each. To engage the teachers in the intervention, they were each given the opportunity to choose between two options and start with their preferred strategy. Given the uniformly low use of definitions and inferential questions, all participants had the choice of starting with one of these two strategies. All chose to start with definitions.

The intervention targeted story-reading activities in the program developed by Hreich et al. (2022). This target is a common preschool activity that provides training in everyday life conditions and offers natural opportunities for discussion beyond here-and-now topics (Burke Hadley et al., 2022). However, reading books is currently underutilized

in preschools to support language development. In fact, book reading activities without adult-child interaction result in limited language outcomes (Wasik et al., 2016). Therefore, it is not the story-reading activity alone that positively influences children’s language levels, but rather the quality of interactions that it provides. To reflect real classroom conditions as closely as possible, the activity was offered to the whole class group.

The books studied were chosen to offer stories that followed repeated narrative patterns so that the children could think about what might happen next. They were suitable for 4-year-olds (the target population for the study). All teachers worked on the strategies based on the same books.

Each first-cycle meeting consisted of three main modalities, known as active ingredients of the successful intervention (Biel et al., 2020): sharing information, modelling, and feedback. During the sharing information session (about 20 min), the same procedure was followed throughout. Information was provided about what was going to be proposed with the targeted strategy and why it was important for language development. In addition, it was explained how this strategy could be implemented in book reading as well as in other daily activities. Finally, a summary sheet with all this information was given.

The modelling session (about 20 min) consisted of demonstrating the use of the strategy in book reading. To do this, the speech-language pathologist researcher read the story using the strategy while the teacher observed. The intervention ended with a feedback session (about 20 min) to obtain the teacher’s first general impression of the strategy and to hear the strategy knowledge the teacher had learned. This session also provided an opportunity to train with an example and to identify the teacher’s remaining needs so that they could implement the strategy themselves.

Figure 1

Baseline phase			Intervention												Baseline phase								
BL1	Rec	A1 + A2	Cycle 1		M1	Cycle 2		M2	Cycle 3		M3	Cycle 4		M4	Cycle 5		M5	Cycle 6		M6	BL1	Rec	A1 + A2
			SI + MO	SP + FB	Rec	SI + MO	SP + FB	Rec	SI + MO	SP + FB	Rec	SI + MO	SP + FB	Rec	SI + MO	SP + FB	Rec	SI + MO	SP + FB	Rec	BL2	Rec	A1 + A2
			SI + MO	SP + FB	Rec	SI + MO	SP + FB	Rec	SI + MO	SP + FB	Rec	SI + MO	SP + FB	Rec	SI + MO	SP + FB	Rec	SI + MO	SP + FB	Rec	BL3	Rec	A1 + A2

Description of the Intervention

Note. BL = baseline; M = measure session; Rec = video recording; A1 = targeted activity (i.e., book reading); A2 = nontargeted activity; SI = sharing information; MO = modelling; FB = feedback; SP = supervised practice

For the second meeting of each cycle, which took place 1 week later, the same sessions were proposed except for the modelling time, which was replaced by supervised practice. During this session, the teacher read the same book as the speech-language pathologist researcher and practised the strategy.

After each intervention cycle (every 2 weeks), a measurement was taken. This measurement was a count of the number of occurrences of all strategies used when reading a book that the teacher had never read. The strategy was considered acquired and another strategy was practised in the next cycle if the teacher achieved at least nine occurrences of the targeted strategy. If not, the strategy was pursued until the nine occurrences were reached in the measurement session. Therefore, the number of strategies learned during the intervention differed for each participant. The threshold of nine occurrences was the same as in the study by Hreich et al. (2022). Hreich et al. chose this number because it is considered the minimum number of exposures to a word needed for children with developmental language disorders to learn it (Storkel et al., 2019). However, if the teacher used the strategy nine times while reading, this did not mean that they used it nine times for the same word. However, this threshold was still used in the present study because, as illustrated in Table 2, the number nine was slightly higher than the highest number of strategies used (all combined) observed before the intervention. We felt this threshold gave sufficient room for improvement without making it impossible to reach it in a single story-reading session.

Each time two strategies were acquired, a cycle was proposed in which the two acquired strategies were combined, because it was possible that use of the first strategy could decrease significantly during the acquisition phase of the second (Hreich et al., 2022). This combination cycle therefore allowed the acquired strategies to be consolidated. The way in which these cycles were carried out was identical to the way in which the strategies were learned alone. The aim for these sessions was to achieve a total of nine occurrences of the strategies.

Data Collection

The number of occurrences of the strategies used by the teachers was counted in three phases: (a) preintervention baseline phase (a total of three measures), (b) repeated measures phase during intervention (a total of six measures), and (c) postintervention baseline phase (a total of three measures). All phases were video recorded. The number of occurrences of all four strategies (trained and

**Table 2**

**Number of Occurrences of Strategies Used per Book Reading Prior to Intervention**

Teacher	DEF		IQ		REL		SC		TOTAL	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
P1	1.00	1.73	1.00	1.00	1.00	1.00	0.00	0.00	3.00	1.00
P2	0.67	1.15	1.00	1.00	5.67	4.51	0.67	1.15	8.00	6.24
P3	1.67	0.58	2.00	2.00	1.33	0.58	1.33	1.53	6.33	3.51
P4	0.67	0.58	0.00	0.00	1.67	1.53	1.00	1.00	3.33	1.15
P5	0.33	0.58	0.33	0.58	3.67	3.51	0.00	0.00	4.33	2.52

Note. P = participant; DEF = definitions; IQ = inferential questions; REL = relating; SC = sentence completion.

not trained) was evaluated during two different activities: an activity targeted by the intervention and another activity not targeted by the intervention.

For the targeted activity, book reading, the teacher had to read an unknown book provided by the researcher. This procedure was the same for each measure except for the first session of baselines where the teacher chose their book. This method allowed us to verify that there was no difference in the use of strategies between familiar and unfamiliar books and that the teacher was able to use strategies spontaneously with any book, not just imitate what was learned with a trained book. The teachers did not have time to preview the unknown books. Giving the teacher time to prepare could lead to better quality questions or strategies. However, as this was already a long intervention, we decided to give more time for practice rather than preparation and to observe what could be generalized regardless of the book used.

For the nontargeted activity, the 15 min period immediately following the book reading measure was video recorded. That this did not include switching between activities: It could include independent workshops where the teacher interacted with the children, routines, arts and crafts, themed activities, cooking activities, and so on. The teacher chose the activity and no instructions were given for this measure. As a result, the activity varied from time to time and from teacher to teacher. The process allowed us to place each teacher under the same conditions of a possible priming effect of the strategies used just before the book reading. By assessing this in both targeted and nontargeted activities, it was possible to measure the use of strategies in targeted activities and the generalization of these strategies to other activities.

**Data Coding**

The video recordings were coded by three speech-language pathologists who were blind to the experimental conditions of each participant. They had to count the number of occurrences for each vocabulary strategy. In this way, they were unknowingly coding both trained and untrained strategies.

Prior to the study, training sessions were organized to ensure a degree of reliability between coders. They were given guidelines to precisely determine what behaviours were considered as vocabulary strategies. During these training sessions, the guidelines were corrected at points where the coders did not agree 100% in order to reach consensus. Once each coder was able to observe each behaviour accurately, the reliability between coders was checked through a sample of 20% of the recordings. They obtained at least 80% agreement for the sum of the strategies, ensuring fidelity between coders.

Once consensus was reached, if a strategy did not meet all the quality criteria set out in these guidelines, it was not counted. This process ensured that the strategies used were of a certain quality and that each teacher had the same degree of mastery.

**Data Analysis**

First, descriptive analyses were conducted to report on the use of different strategies prior to the intervention for each teacher. Then, visual analyses were performed to consider how often each strategy occurred in each phase, as recommended for multiple case studies (Kazdin, 2020).

Finally, statistical analyses were conducted to assess the outcomes of the intervention on strategy use in a

targeted activity and a nontargeted activity. To do this, the nonoverlap rates of the data between the baseline and intervention phases were calculated with statistical Tau, a test known for its robustness (Tarlow, 2017) that allows the effect size of an intervention to be characterized. Specifically, Tau-U is a nonoverlap statistic computed by analyzing all possible pairwise comparisons between baseline and intervention phases which allows for correction of baseline trends. Tau statistic values above .90 indicate a large effect size, values between .60 and .90 indicate a moderate effect, and values below .60 indicate a small effect (Kazdin, 2020).

## Results

### Use of Vocabulary Strategies in Book Reading Before Intervention

**Table 2** shows the average scores for the use of vocabulary strategies per book reading over the three baseline phase sessions. Definition, inferential questions, and sentence completion were rarely used by any of the teachers during book reading (on average, no more than two uses per book reading). Some strategies were never used by some teachers, such as inferential questions for P4, and sentence completion for P1 and P5.

### Sequence Completed by Each Participant

As explained above, based on the results of the use of each strategy before the intervention, each teacher was given the option of starting with definitions or inferential questions. Each of them began by working on the definitions (see **Table 3**). Nevertheless, the time needed to acquire a strategy differed from one teacher to another. P1 needed only one learning cycle per strategy. Once these two strategies were mastered in isolation, Cycle 3 was used to work on them in combination. P1 then learned relating and sentence completion in Cycles 4 and 5. Cycle 6 was designed to work on all the strategies in combination. As a result, teacher P1 learned all of the targeted strategies.

Teacher P2 also needed only one learning cycle to master the first two strategies taught (definitions and inferential questions). For the third strategy, sentence completion, P2 needed two learning cycles. Cycle 6 was also designed to work on all the strategies taught in combination. Therefore, at the end of the intervention, P2 had learned three different strategies.

In contrast, P3 needed at least two learning cycles to master each strategy. The first two cycles focused on training in definitions. After that, this teacher chose training in sentence completion. The latter was particularly difficult

to master and was pursued for two cycles in isolation. Because P3 used definitions to try to set up sentence completions, we decided to show her how to combine the two strategies in Cycle 5 during modelling sessions. As she still had not acquired sentence completion, we continued this combined work in the last cycle. Consequently, teacher P3 learned two targeted strategies.

Given that teachers P4 and P5 work together in the same classroom, the intervention had to be adapted; however, each step of the protocol was scrupulously respected. Given the homogeneously low use of each strategy for these teachers, identifying similar strategies for these teachers to practice was not a problem. In concrete terms, we targeted similar strategies to be practiced by both of these teachers. Together, they chose one strategy out of the two proposals to work on. Then, during the modelling session, they observed the same book reading by the speech-language pathologist. The following week, they took turns practising. When measurements were taken, each teacher was alone with the class while her colleague was in another room. Hence, the way one teacher read could not influence the way the other one read.

Each of them required two cycles to master definitions. At the end of the third cycle, P5 needed an additional cycle to master the new strategy, inferential questions. Cycle 4 was therefore dedicated to additional practice on inferential questions. Once the two strategies were mastered in isolation by the two teachers (i.e., at the end of Cycle 4), they were trained in a combined manner during Cycle 5. In the last cycle, a new strategy was worked on, namely sentence completion. Thus, P4 and P5 practised three strategies during the intervention.

### First Objective: Analysis of the Effectiveness of the PD Program in Book Reading

First, the effectiveness of the intervention was evaluated. Effectiveness was evidenced by an increase in the teachers' use of learned vocabulary strategies between the baseline phases before and after the intervention during book reading. Visual analyses (see **Figure 2**) and Tau statistical analyses (see **Table 4**) were conducted to verify this increase between baseline phases pre- and postintervention.

**Figure 2** illustrates the number of strategies used during each story-reading session at different intervention times. It shows an increase in each strategy targeted by the intervention for each teacher. This increase is confirmed by the statistical analyses reported in **Table 4**, which show a statistically significant increase for each targeted strategy, with mostly large effect sizes (range: .67–1.00). Thus,

**Table 3****Illustration of Sequences Completed by Each Participant**

Teacher	Intervention											
	Cycle 1	M1	Cycle 2	M2	Cycle 3	M3	Cycle 4	M4	Cycle 5	M5	Cycle 6	M6
P1	DEF	✓	IQ	✓	Comb	✓	REL	✓	SC	✓	Comb	✓
P2	DEF	✓	IQ	✓	Comb	✓	SC	X	SC	✓	Comb	✓
P3	DEF	X	DEF	✓	SC	X	SC	X	Comb	X	Comb	✓
P4	DEF	X	DEF	✓	IQ	✓	IQ	✓	Comb	✓	SC	✓
P5	DEF	X	DEF	✓	IQ	X	IQ	✓	Comb	✓	SC	✓

**Note.** P = participant; M = measure; DEF = definitions; IQ = inferential questions; REL = relating; SC = sentence completion; Comb = combination; ✓ = mastered strategy; X = not mastered strategy.

regardless of the teacher's profile or the strategy taught, at the end of the intervention, each teacher mastered each strategy targeted by the intervention. **Figure 2** also demonstrates the significant increase in the total number of strategies used at the end of the intervention.

**Figure 2** and **Table 4** demonstrate that the acquisition of a strategy overrode the use of previously acquired strategies, as reflected by a drop in the frequency of use (e.g., P1, IQ goes from 16 to 1, 2 weeks later). This observation was the same for every teacher each time a new strategy was proposed, except for the definition strategy when implementing the sentence completion strategy. Teachers tended to use the previously learned definition strategy when learning to implement sentence completion.

This effect suggests that, in general, it is difficult to combine two strategies that are being worked on separately. Incidentally, the strategy least used by teachers P4 and P5 in the posttest baselines (sentence completion) was the one that was not combined with the other two. The ones that were combined seemed to be more established in practice.

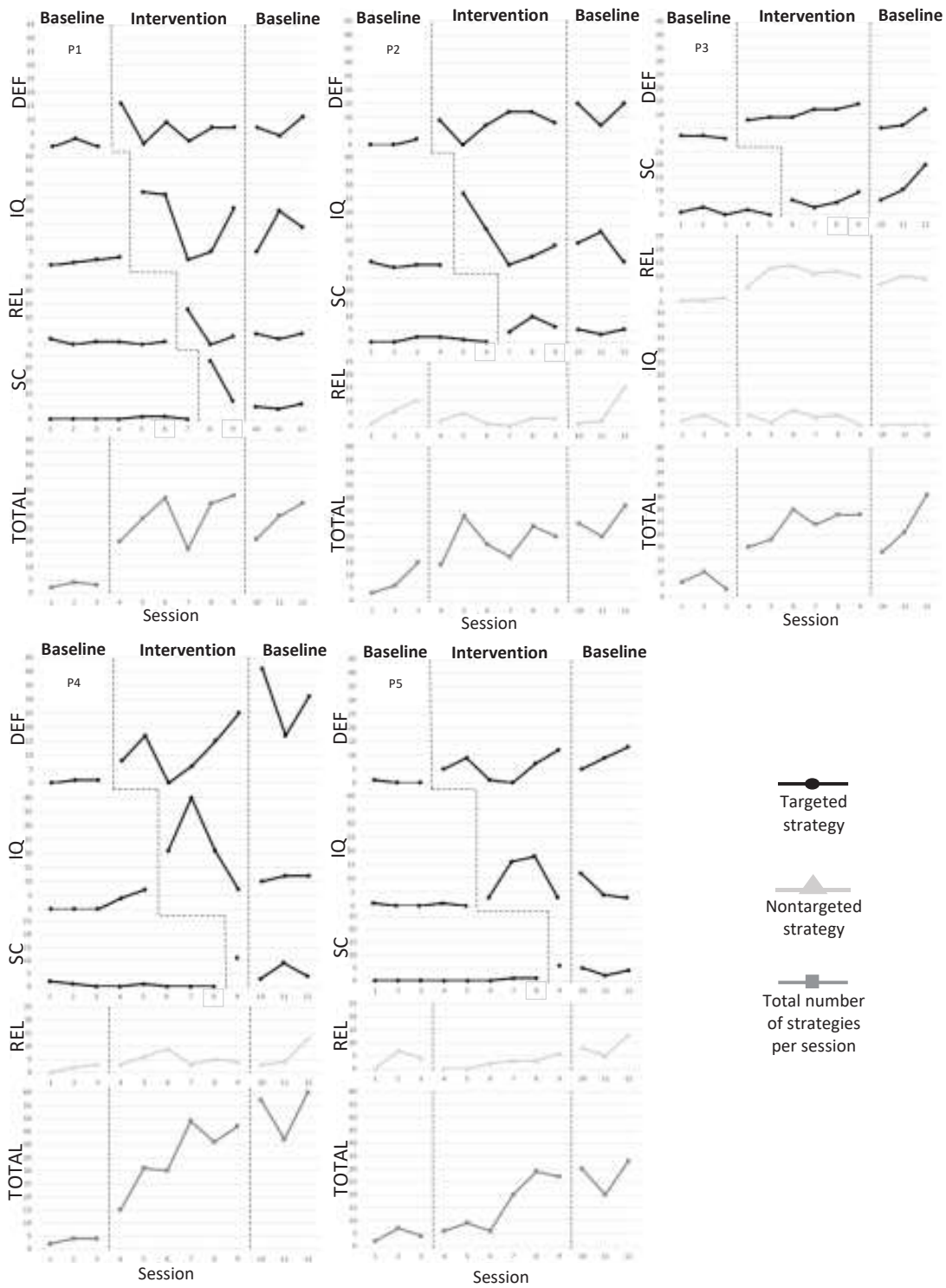
These Tau and visual analyses (**Figure 2** and **Table 4**) allowed us to verify the transfer effects between strategies, that is, whether training in one strategy led to a significant increase in the use of another nontargeted strategy. **Table 4** displays a statistically significant increase in the use of the relating strategy for teachers P3 and P4, a nontargeted strategy for all teachers except P1. Teacher P3 spontaneously used examples related to the children's experiences to define words. Teacher P4 also used examples related to children's experience to define words, but she used this strategy more to help children find answers to her inferential questions.

On the other hand, teachers P2 and P5 did not increase their use of the relating strategy despite the fact that, as with teachers P3 and P4, the intervention targeted definitional and inferential question strategies for P2 and P5. Therefore, the acquisition of inferential questions and definition strategies may lead to an increase in the use of the relating strategy, but it is not systematic. Moreover, it is possible that the relating strategy is inherently more variable than the others. Indeed, during baselines, the frequency of use of definitions varied from 0 to 3, but for relating, it varied from 0 to 10. P3's use of inferential questions, a nontargeted strategy for her, did not increase.

Finally, the specificity of the intervention was verified to ensure that the increase in the use of strategies was due to the intervention. Visual analyses (**Figure 2**) show a clear increase in the use of each strategy once targeted training had been provided. This specificity was confirmed by Tau statistics analyses (**Table 5**), which compared measures collected before the implementation of specific training on a strategy (baseline measures and measures during the intervention) to measures collected after this specific training on a strategy (measures after the specific intervention and baseline measures). Thus, if a strategy was taught in the intervention measure 3, the three measures collected in the preintervention baseline sessions and the two collected in intervention measures 1 and 2 were compared with measures collected in the intervention sessions following the implementation of the specific strategy (i.e., intervention measure 3, 4, 5, 6) and the three measures collected in the postintervention baseline sessions. With statistically significant *p* values for all comparisons, the data in **Table 5** show that the significant increase in the use of targeted strategies was due to the intervention.



Figure 2



Visual Analyses of the Number of Occurrences of Strategy by Time of Intervention

Note. DEF = definitions; IQ = inferential questions; REL = relating; SC = sentence completion.

**Table 4**

**Frequency of Use of Vocabulary Strategies by Time of Intervention and Comparison of the Number of Occurrences of Each Strategy Before and After Intervention**

Teacher & T/NT	Strategy	BL1	BL 2	BL3	I1	I2	I3	I4	I5	I6	BL1	BL2	BL3	BL Pre M	BL Post M	p	Tau	Effect size	
<b>P1</b>																			
T	DEF	0	3	0	16	1	9	2	7	7	7	4	11	1.00	7.33	0.025*	1.00	large	
T	IQ	0	1	2	3	27	26	2	5	21	5	20	14	1.00	13.00	0.025*	1.00	large	
T	REL	2	0	1	1	0	1	13	0	3	4	2	4	1.00	3.33	0.04*	.89	mod	
T	SC	0	0	0	0	1	1	0	23	7	5	4	6	0.00	5.00	0.025*	1.00	large	
Total		2	4	3	20	29	37	17	35	38	21	30	35	3.00	28.67	0.025*	1.00	large	
<b>P2</b>																			
T	DEF	0	0	2	9	0	7	12	12	8	15	7	15	0.67	12.33	0.025*	1.00	large	
T	IQ	2	0	1	1	27	14	1	4	8	9	13	2	1.00	8.00	0.04*	.89	mod	
T	SC	0	0	2	2	1	0	4	10	6	5	3	5	0.67	4.33	0.025*	1.00	large	
NT	REL	1	6	10	2	5	1	0	3	3	1	2	15	5.67	6.00	0.5	0.00	no	
Total		3	6	15	14	33	22	17	29	25	30	25	37	8.00	30.67	0.025*	1.00	large	
<b>P3</b>																			
T	DEF	2	2	1	8	9	9	12	12	14	5	6	12	1.67	7.67	0.025*	1.00	large	
T	SC	1	3	0	2	0	6	3	5	9	6	10	20	1.33	12.00	0.025*	1.00	large	
NT	IQ	2	4	0	4	1	6	3	4	0	0	0	0	2.00	0.00	0.91	.67	no	
NT	REL	1	1	2	6	13	14	11	12	10	7	10	9	1.33	8.67	0.025*	1.00	large	
Total		6	10	3	20	23	35	29	33	33	18	26	41	6.33	28.33	0.025*	1.00	large	
<b>P4</b>																			
T	DEF	0	1	1	8	17	0	6	15	25	41	17	31	0.67	29.67	0.025*	1.00	large	
T	IQ	0	0	0	4	7	21	40	21	7	10	12	12	0.00	11.33	0.025*	1.00	large	
T	SC	2	1	0	0	1	0	0	0	11	3	9	4	1.00	5.33	0.025*	1.00	large	
NT	REL	0	2	3	3	6	9	3	5	4	3	4	13	1.67	6.67	0.04*	.89	mod	
Total		2	4	4	15	31	30	49	41	47	57	42	60	3.33	53.00	0.025*	1.00	large	

**Table 4 (continued)**  
**Frequency of Use of Vocabulary Strategies by Time of Intervention and Comparison of the Number of Occurrences of Each Strategy Before and After Intervention**

**P5**

T	DEF	1	0	0	<u>5</u>	<u>9</u>	1	0	<u>7</u>	12	5	9	13	0.33	9.00	0.025*	1.00	large
T	IQ	1	0	0	<u>1</u>	<u>0</u>	<u>3</u>	<u>16</u>	<u>18</u>	3	12	4	3	0.33	6.33	0.025*	1.00	large
T	SC	0	0	0	0	0	0	1	1	6	5	2	4	0.00	3.67	0.025*	1.00	large
NT	REL	0	7	4	0	0	2	3	3	6	8	5	13	3.67	8.67	0.063	0.78	no
	Total	2	7	4	6	9	6	20	29	27	30	20	33	4.33	27.67	0.025*	1.00	large

Note. P = participant; BL = baseline; BL Pre M = baseline mean before intervention; BL Post M = baseline mean after intervention; I = intervention; mod = moderate; T = targeted strategy; NT = nontargeted strategy; DEF = definitions; IQ = inferential questions; REL = relating; SC = sentence completion. Underlined values indicate the time of strategy implementation. Boxed values indicate sessions with a combination of strategies.  
 \*p ≤ .05

**Second Objective: Generalization of the Use of Vocabulary Strategies in Activities Not Targeted by the Intervention**

The frequency of strategy use was assessed in activities not targeted by the intervention to assess the extent to which learning of a strategy may be generalized. This was done by comparing the frequency of strategy use before the intervention (3 preintervention baselines) with the frequency of strategy use after the intervention (3 postintervention baselines; see **Table 6**). Some data were missing for nontargeted activities, because it was not always possible to collect them immediately after the book reading. For example, teachers did not have enough time to offer a new activity before the children went home. Sometimes teachers had other activities planned immediately after the book reading, such as rehearsing choreography for the end-of-year show, going to a theatre performance, etc., without informing the researcher in advance. As teacher P3 was missing data from the last measurement time of the baseline phase, the data collected during measurement 6 of the intervention were used for the analyses.

The comparison between the three preintervention baselines and the three postintervention baselines (**Table 6**) shows that none of the teachers increased the use of the strategies they had mastered in the targeted activity in nontargeted activities. Thus, generalizing learning from one specific activity to a different activity appeared to be complicated. It should be noted that the frequency of use of vocabulary strategies observed in the baseline phase measures was low, as was that observed in the preintervention book reading activities.

**Discussion**

The first objective of this study was to evaluate the effects of a collaborative PD program between teachers and a speech-language pathologist researcher on the number of vocabulary strategies used in a targeted activity at the end of the intervention. The second was to assess the teachers’ ability to generalize the use of the strategies in any activity other than that targeted by the program. The results allow us to identify three findings around which the discussion is structured: (a) the limited use of language support strategies in preschool, (b) the outcomes of the program in book reading, and (c) the difficulty in generalizing the use of mastered strategies in book reading to other nontargeted activities.

**Limited Use of Language Support Strategies in Preschool Before Intervention**

The first finding was that, prior to the intervention, few vocabulary strategies emerged spontaneously in book reading, a situation that is known to be conducive to the emergence of rich conversations between children and teachers (Burke Hadley et al., 2022). This finding is consistent with other studies showing that only 5 min per day are specifically dedicated to supporting oral language skills in preschools (Dwyer & Harbaugh, 2020). This result highlights the importance of supporting preschool teachers to increase language support for all children. To support them efficiently, a sustained accompaniment seems required to help them recognize the importance of oral language in early

<b>Table 5</b>																	
<b>Comparison of the Number of Occurrences of Each Strategy Before and After Specific Implementation of Each Strategy</b>																	
Teacher	Strategy	BL1	BL2	BL3	I1	I2	I3	I4	I5	I6	BL1	BL2	BL3	Pre M	Post M	Tau	p
<b>P1</b>																	
	DEF	0	3	0	16	1	9	2	7	7	7	4	11	1.00	7.11	.85*	.020
	IQ	0	1	2	3	27	26	2	5	21	5	20	14	1.50	15.00	.91*	.010
	REL	2	0	1	1	0	1	13	0	3	4	2	4	0.83	4.33	.69*	.020
	SC	0	0	0	0	1	1	0	23	7	5	4	6	0.29	5.00	1.00*	.002
<b>P2</b>																	
	DEF	0	0	2	9	0	7	12	12	8	15	7	15	0.67	9.44	.85*	.020
	IQ	2	0	1	1	27	14	1	4	8	9	13	2	1.00	9.75	.84*	.010
	SC	0	0	2	2	1	0	4	10	6	5	3	5	0.83	5.50	1.00*	.002
<b>P3</b>																	
	DEF	2	2	1	8	9	9	12	12	14	5	6	12	0.83	9.67	1.00*	.006
	SC	1	3	0	2	0	6	3	5	9	6	10	20	1.20	8.43	.97*	.003
<b>P4</b>																	
	DEF	0	1	1	8	17	0	6	15	25	41	17	31	0.67	17.78	.82*	.020
	IQ	0	0	0	4	7	21	40	21	7	10	12	12	2.20	17.57	.97*	.003
	SC	2	1	0	0	1	0	0	0	11	3	9	4	0.50	6.75	1.00*	.003
<b>P5</b>																	
	DEF	1	0	0	5	9	1	0	7	12	5	9	13	0.33	6.78	.82*	.020
	IQ	1	0	0	1	0	3	16	18	3	12	4	3	0.40	8.43	1.00*	.002
	SC	0	0	0	0	0	0	1	1	6	5	2	4	0.25	4.25	1.00*	.003

Note. P = participant; BL = baseline; Pre M = mean before intervention; Post M = baseline mean after intervention; I = intervention; DEF = definitions; IQ = inferential questions; REL = relating; SC = sentence completion. Bold vertical bars indicate time of strategy implementation.

\*p ≤ .05

childhood, to learn how to promote it through vocabulary strategies, and to use these strategies by reconsidering their role as a communication partner with children.

### **Significant Increase in the Use of all Trained Strategies for the Targeted Activity**

The second finding concerns the effectiveness of the PD program. The use of each strategy targeted by the intervention was significantly increased for each teacher, with the effect sizes ranging from moderate to high. Therefore, the PD program proved to be effective for each teacher and increased the use of vocabulary strategies in book reading.

However, not every teacher learned the same number of strategies, due to the learning time required by individual teachers to master strategies, which differed among participants. This variation emphasizes the extreme importance of individualizing PD programs according to participants' learning needs and of determining clear acquisition thresholds to identify when a strategy is acquired and when to move to a new strategy. It is not surprising that one-size-fits-all programs demonstrate limited effectiveness (Markussen-Brown et al., 2017).

These findings are also consistent with the fact that there is no consensus on the optimal duration of a PD program (Desimone, 2009). It is generally acknowledged that practice change takes time and that there is a need for intensive, ongoing, and long-term PD programs (Markussen-Brown et al., 2017; Schachter et al., 2019) that account for the variation in individual learning. Therefore, it would be complicated to determine the universal duration of PD programs. As each teacher mastered each strategy targeted by her individualized PD program, it was hypothesized that each teacher could have mastered all the strategies with additional learning cycles.

Beyond individualization, another key to effectiveness could lie in the active ingredients of the PD program recommended by Biel and colleagues (2020): information sharing, modelling, supervised practice, and feedback. We attribute the significant increase in each strategy for each teacher to these 4 key parameters that were respected in this program. More specifically, sharing information on strategies provides new knowledge about the benefits of each strategy for children's oral language. This allows teachers to buy into the program and want to use strategies. Information on how to implement each strategy in practice also allows teachers to observe target behaviours during the modelling phase. Modelling is necessary to precisely show what behaviour is expected to implement the strategy (Brock & Carter, 2013, 2017). Teachers need to be allowed to practice the strategies.

This active participation simplifies the establishment of links between the theoretical concepts presented and their concrete application in the classroom (Zaslow et al., 2010). Finally, feedback on practice is imperative to engage in a process of reflection on practice, an essential step in changing one's practice. These feedback sessions are recognized as a fundamental parameter for the success of programs (Brock & Carter, 2016; Fallon et al., 2015; Peleman et al., 2018).

### **Inability to Generalize the Use of Mastered Strategies in Book Reading to Nontargeted Activities**

This study showed that without coaching in all activities, teachers did not generalize the learning of a mastered strategy in book reading to another activity. It should be noted that while sharing information about each strategy, some examples were given of the application of the targeted strategy in activities other than book reading. This again highlights that traditional training that only provides knowledge is insufficient for a change in practice (Markussen-Brown et al., 2017). The finding also stresses that practice change is a process that takes time and practice, and requires long, continuous, intensive, and individualized PD programs.

It is likely that teachers would be able to quickly apply these learned strategies to other activities. It can be assumed that they would not need as much time as the first time to master them in new activities. One could imagine a program in which, once the strategy is mastered in book reading, a video of strategy use in another activity is shown, thus reducing the modelling phase. Nevertheless, this study shows that the generalization of practices from one activity to another does not happen naturally and that it is necessary to encourage teachers to engage in a process of reflection about strategies used in all activities. In any case, the process of practice change takes time and requires close support.

Together, these three findings have societal implications and must be considered by policymakers. Individualized, sustained, and ongoing PD programs are costly in terms of time, effort, and economics, but they are one of the most effective ways to support teachers in using more frequent language support strategies for all children (Peleman et al., 2018), and especially those who are socioeconomically disadvantaged. Early support for language development is indeed very important because early language level is notably predictive of future social and academic success (Chow & Wehby, 2018). Policymakers should consider how best to allocate the budget for PD.

Table 6																		
Tau Comparison of Occurrences of Trained Strategies During Nontargeted Activities Between Pre- and Postintervention Baselines																		
Teacher	Strategy	BL1	BL2	BL3	I1	I2	I3	I4	I5	I6	BL1	BL2	BL3	Pre M	Post M	Tau	P	Effect size
<b>P1</b>																		
	DEF	0	0	0	<u>0</u>	0	0	-	0	0	0	0	0	0.00	0.00	.00	.50	None
	IQ	6	7	0	0	1	2	-	0	0	0	3	4	4.33	2.33	.44	.81	None
	REL	1	2	0	2	0	1	-	0	0	1	0	0	1.00	0.33	.44	.81	None
	SC	1	5	0	0	0	0	-	<u>2</u>	0	1	0	0	2.00	0.33	.44	.81	None
<b>P2</b>																		
	DEF	2	0	0	<u>0</u>	0	1	0	0	1	0	7	0	0.67	2.33	.11	.41	None
	IQ	0	0	1	0	<u>30</u>	8	0	1	0	1	3	1	0.33	1.67	.78	.06	None
	SC	6	0	0	0	0	0	<u>0</u>	<u>0</u>	0	0	9	9	2.00	6.00	.56	.14	None
<b>P3</b>																		
	DEF	0	1	0	<u>0</u>	<u>2</u>	0	0	-	1	2	0	-	0.33	1.00	.44	.19	None
	SC	0	0	0	0	0	<u>0</u>	<u>0</u>	-	0	0	0	-	0.00	0.00	.00	.50	None
<b>P4</b>																		
	DEF	0	0	0	<u>0</u>	<u>0</u>	2	-	0	-	0	0	1	0.00	0.33	.33	.26	None
<b>P5</b>																		
	IQ	2	6	1	0	0	<u>2</u>	-	0	-	6	4	14	3.00	8.00	.67	.09	None
	SC	0	0	0	0	0	0	-	<u>0</u>	-	0	0	0	0.00	0.00	.00	.50	None

Note. P = participant; BL = baseline BL Pre M = baseline mean before intervention; BL Post M = baseline mean after intervention; I = intervention; DEF = definitions; IQ = inferential questions; REL = relating; SC = sentence completion. Underlined values indicate time of strategy implementation. Boxed values indicate time of combined use of several strategies.

Several limitations, inherent in all research, must be considered when reading these results. First, a threshold of nine occurrences of the same strategy per measure had to be reached in order to consider that the strategy had been mastered by the teacher, allowing training in a new strategy. This threshold remains arbitrary and could be debated. Other means of determining strategy acquisition could have been proposed as a criterion for use in other activities. However, the results show that setting this threshold as a target for each strategy in the training phases resulted in a significant increase in each strategy taught for each teacher after the intervention. Therefore, setting a threshold of nine

occurrences to be reached during the intervention phase seems to be effective in increasing the use of language support practices.

A second limitation could be advanced concerning the choice of activities to measure the ability to generalize the strategies mastered in book reading. Our methodological choice was to observe the activities planned immediately after the story-reading measures. That way, it was possible to check for a priming effect, but it involved considering activities of a very diverse nature from one teacher to another and from one measurement time to another. However, the target activities for

measurement were activities conducive to interaction, and the taught strategies are known to support word learning in any context (Wasik & Hindman, 2015). Therefore, regardless of the activity chosen, it should have been possible for teachers to use the strategies.

Finally, this study examined the number of strategies used, not their quality. Although the very specific counting criteria followed by the coders ensured a certain threshold of quality for each strategy counted, this study did not measure the improvement in the quality of the strategies used by the teachers during the intervention. For example, during the preintervention baselines, the recorded definitions tended to be rudimentary. In contrast, during the postintervention baselines, the recorded definitions were more elaborate and the information given about the words was more varied, such as the use of gestures and multiple synonyms. Counting occurrences does not highlight this improvement in the quality of strategies. It would be interesting to consider this improvement in strategy quality in future research protocols.

## Conclusion

Oral language support is regarded as a key focus in preschool education. This is particularly important for the most disadvantaged children who are known to have generally lower levels of language skills than their peers. To this end, much research has examined the effectiveness of several PD programs. However, further individualization could increase the impact of these programs. The purpose of this study was to implement a PD program, individualized in terms of content and learning time with preschool teachers, and to evaluate its effectiveness in a targeted activity and nontargeted activities. The results show a significant increase in the use of strategies taught, with a majority of large effect sizes regardless of the teacher or strategy taught. However, these increases were only observed in book reading, the activity targeted by the program.

Despite theoretical information on how to generalize strategies mastered in the targeted activity to other activities, without modelling, it remains complicated to apply these strategies to other activities. This lack of generalization raises questions, as supporting language in one-time activities cannot guarantee a positive influence on children's language. Further research is needed to develop interventions that would allow teachers to easily use language support strategies throughout the day regardless of the activity offered in order to maximize the influence on children's language development.

## References

- Akhtar, N., Jipson, J., & Callanan, M. A. (2001). Learning words through overhearing. *Child Development, 72*(2), 416–430. <https://doi.org/10.1111/1467-8624.00287>
- Al Otaiba, S., Connor, C., Lane, H., Kosanovich, M. L., Schatschneider, C., Dyrland, A. K., Miller, M. S., & Wright, T. L. (2008). Reading first kindergarten classroom instruction and students' growth in phonological awareness and letter naming-decoding fluency. *Journal of School Psychology, 46*(3), 281–314. <https://doi.org/10.1016/j.jsp.2007.06.002>
- Ambridge, B., Kidd, E., Rowland, C. F., & Theakston, A. L. (2015). The ubiquity of frequency effects in first language acquisition. *Journal of Child Language, 42*(2), 239–273. <https://doi.org/10.1017/S030500091400049X>
- Anderson, N. J., Graham, S. A., Prime, H., Jenkins, J. M., & Madigan, S. (2021). Linking quality and quantity of parental linguistic input to child language skills: A meta-analysis. *Child Development, 92*(2), 484–501. <https://doi.org/10.1111/cdev.13508>
- Barnes, E. M., Dickinson, D. K., & Grifenhagen, J. F. (2017). The role of teachers' comments during book reading in children's vocabulary growth. *The Journal of Educational Research, 110*(5), 515–527.
- Beck, I. L., & McKeown, M. G. (2007). Increasing young low-income children's oral vocabulary repertoires through rich and focused instruction. *The Elementary School Journal, 107*(3), 251–271. <https://doi.org/10.1086/511706>
- Biel, C. H., Buzhardt, J., Brown, J. A., Romano, M. K., Lorio, C. M., Windsor, K. S., Kaczmarek, L. A., Gwin, R., Sandall, S. S., & Goldstein, H. (2020). Language interventions taught to caregivers in homes and classrooms: A review of intervention and implementation fidelity. *Early Childhood Research Quarterly, 50*(1), 140–156. <https://doi.org/10.1016/j.ecresq.2018.12.002>
- Brock, M. E., & Carter, E. W. (2013). A systematic review of paraprofessional-delivered educational practices to improve outcomes for students with intellectual and developmental disabilities. *Research and Practice for Persons with Severe Disabilities, 38*(4), 211–221. <https://doi.org/10.1177/154079691303800401>
- Brock, M. E., & Carter, E. W. (2016). Efficacy of teachers training paraprofessionals to implement peer support arrangements. *Exceptional Children, 82*(3), 354–371. <https://doi.org/10.1177/0014402915585564>
- Brock, M. E., & Carter, E. W. (2017). A meta-analysis of educator training to improve implementation of interventions for students with disabilities. *Remedial and Special Education, 38*(3), 131–144. <https://doi.org/10.1177/0741932516653477>
- Burke Hadley, E., Barnes, E. M., Wiernik, B. M., & Raghavan, M. (2022). A meta-analysis of teacher language practices in early childhood classrooms. *Early Childhood Research Quarterly, 59*(2), 186–202. <https://doi.org/10.1016/j.ecresq.2021.12.002>
- Cabell, S. Q., Justice, L. M., Piasta, S. B., Curenton, S. M., Wiggins, A., Turnbull, K. P., & Petscher, Y. (2011). The impact of teacher responsiveness education on preschoolers' language and literacy skills. *American Journal of Speech-Language Pathology, 20*(4), 315–330. [https://doi.org/10.1044/1058-0360\(2011\)10-0104](https://doi.org/10.1044/1058-0360(2011)10-0104)
- Chow, J. C., & Wehby, J. H. (2018). Associations between language and problem behavior: A systematic review and correlational meta-analysis. *Educational Psychology Review, 30*, 61–82. <https://doi.org/10.1007/s10648-016-9385-z>
- Davidson, M. M., Alonzo, C. N., & Stransky, M. L. (2022). Access to speech and language services and service providers for children with speech and language disorders. *American Journal of Speech-Language Pathology, 31*(4), 1702–1718. [https://doi.org/10.1044/2022\\_AJSLP-21-00287](https://doi.org/10.1044/2022_AJSLP-21-00287)
- Desimone, L. M. (2009). Improving impact studies of teachers' professional development: Toward better conceptualizations and measures. *Educational Researcher, 38*(3), 181–199. <https://doi.org/10.3102/0013189X08331140>
- Dickinson, D. K., & Porche, M. V. (2011). Relation between language experiences in preschool classrooms and children's kindergarten and fourth-grade language and reading abilities: Preschool language experiences and later language and reading. *Child Development, 82*(3), 870–886. <https://doi.org/10.1111/j.1467-8624.2011.01576.x>
- Dwyer, J., & Harbaugh, A. G. (2020). Where and when is support for vocabulary development occurring in preschool classrooms? *Journal of Early Childhood Literacy, 20*(2), 252–295. <https://doi.org/10.1177/1468798418763990>
- Fallon, L. M., Collier-Meek, M. A., Maggin, D. M., Sanetti, L. M. H., & Johnson, A. H. (2015). Is performance feedback for educators an evidence-based practice? A systematic review and evaluation based on single-case research. *Exceptional Children, 81*(2), 227–246. <https://doi.org/10.1177/0014402914551738>

- Fernald, A., Marchman, V. A., & Weisleder, A. (2013). SES differences in language processing skill and vocabulary are evident at 18 months. *Developmental Science, 16*(2), 234–248. <https://doi.org/10.1111/desc.12019>
- Girolametto, L., Weitzman, E., & Greenberg, J. (2003). Training day care staff to facilitate children's language. *American Journal of Speech-Language Pathology, 12*(3), 299–311. [https://doi.org/10.1044/1058-0360\(2003\)076](https://doi.org/10.1044/1058-0360(2003)076)
- Goodman, J. C., Dale, P. S., & Li, P. (2008). Does frequency count? Parental input and the acquisition of vocabulary. *Journal of Child Language, 35*(3), 515–531. <https://doi.org/10.1017/S0305000907008641>
- Harris, J., Golinkoff, R. M., & Hirsh-Pasek, K. (2011). Lessons from the crib for the classroom: How children really learn vocabulary. In S. B. Neuman & D. K. Dickinson (Eds.), *Handbook of early literacy research* (Vol. 3, pp. 49–65). Guilford Press.
- Hoff, E. (2013). Interpreting the early language trajectories of children from low-SES and language minority homes: Implications for closing achievement gaps. *Developmental Psychology, 49*(1), 4–14. <https://doi.org/10.1037/a0027238>
- Hreich, E. K., Messarra, C., Martinez-Perez, T., & Maillart, C. (2022). Effects of a professional development program designed by speech-language pathologists targeting the use of vocabulary strategies in preschool teachers: A pilot study. *Canadian Journal of Speech-Language Pathology and Audiology, 46*(4), 299–316. <https://www.cjslpa.ca/detail.php?ID=1317>
- Huttenlocher, J., Waterfall, H., Vasilyeva, M., Vevea, J., & Hedges, L. V. (2010). Sources of variability in children's language growth. *Cognitive Psychology, 61*(4), 343–365. <https://doi.org/10.1016/j.cogpsych.2010.08.002>
- Kane, C., Sandilos, L., Hammer, C. S., Komaroff, E., Bitetti, D., & López, L. (2023). Teacher language quality in preschool classrooms: Examining associations with DLLs' oral language skills. *Early Childhood Research Quarterly, 63*, 352–361. <https://doi.org/10.1016/j.ecresq.2023.01.006>
- Kazdin, A. E. (2020). *Single-case research designs: Methods for clinical and applied settings* (3<sup>rd</sup> ed.). Oxford University Press.
- LoCasale-Crouch, J., Konold, T. R., Pianta, R. C., Howes, C., Burchinal, M., Bryant, D., Clifford, R., Early, D., & Barbarin, O. (2007). Observed classroom quality profiles in state-funded pre-kindergarten programs and associations with teacher, program, and classroom characteristics. *Early Childhood Research Quarterly, 22*(1), 3–17. <https://doi.org/10.1016/j.ecresq.2006.05.001>
- Markussen-Brown, J., Juhl, C. B., Piasta, S. B., Bleses, D., Højen, A., & Justice, L. M. (2017). The effects of language- and literacy-focused professional development on early educators and children: A best-evidence meta-analysis. *Early Childhood Research Quarterly, 38*(1), 97–115. <https://doi.org/10.1016/j.ecresq.2016.07.002>
- McLeod, R. H., Kaiser, A. P., & Hardy, J. K. (2019). The relation between teacher vocabulary use in play and child vocabulary outcomes. *Topics in Early Childhood Special Education, 39*(2), 103–116. <https://doi.org/10.1177/0271121418812675>
- Moats, L. (2009). Still wanted: Teachers with knowledge of language. *Journal of Learning Disabilities, 42*(5), 387–391. <https://doi.org/10.1177/0022219409338735>
- Nation, K. (2014). Lexical learning and lexical processing in children with developmental language impairments. *Philosophical Transactions of the Royal Society B: Biological Sciences, 369*(1634), Article 20120387. <https://doi.org/10.1098/rstb.2012.0387>
- Neuman, S. B., & Cunningham, L. (2009). The impact of professional development and coaching on early language and literacy instructional practices. *American Educational Research Journal, 46*(2), 532–566. <https://doi.org/10.3102/0002831208328088>
- Peleman, B., Lazzari, A., Budginaite, I., Siarova, H., Hauari, H., Peeters, J., & Cameron, C. (2018). Continuous professional development and ECEC quality: Findings from a European systematic literature review. *European Journal of Education, 53*(1), 9–22. <https://doi.org/10.1111/ejed.12257>
- Pentimonti, J. M., & Justice, L. M. (2010). Teachers' use of scaffolding strategies during read alouds in the preschool classroom. *Early Childhood Education Journal, 37*(4), 241–248. <https://doi.org/10.1007/s10643-009-0348-6>
- Pianta, R. C., Howes, C., Burchinal, M., Bryant, D., Clifford, R., Early, D., & Barbarin, O. (2005). Features of pre-kindergarten programs, classrooms, and teachers: Do they predict observed classroom quality and child-teacher interactions? *Applied Developmental Science, 9*(3), 144–159. [https://doi.org/10.1207/s1532480xads0903\\_2](https://doi.org/10.1207/s1532480xads0903_2)
- Pianta, R. C., LaParo, K., & Hamre, B. (2008). *Classroom Assessment Scoring System (CLASS) manual: Pre-K*. Brookes.
- Ramsook, K. A., Welsh, J. A., & Bierman, K. L. (2020). What you say, and how you say it: Preschoolers' growth in vocabulary and communication skills differentially predict kindergarten academic achievement and self-regulation. *Social Development, 29*(3), 783–800. <https://doi.org/10.1111/sode.12425>
- Rowe, M. L. (2012). A longitudinal investigation of the role of quantity and quality of child-directed speech in vocabulary development. *Child Development, 83*(5), 1762–1774. <https://doi.org/10.1111/j.1467-8624.2012.01805.x>
- Rowe, M. L., Leech, K. A., & Cabrera, N. (2017). Going beyond input quantity: Wh-questions matter for toddlers' language and cognitive development. *Cognitive Science, 41*(1), 162–179. <https://doi.org/10.1111/cogs.12349>
- Rydland, V., & Grøver, V. (2024). Parent inferential questions and child responses during shared reading predict DLLs' receptive vocabulary development. *Journal of Early Childhood Research, 22*(2), 166–179. <https://doi.org/10.1177/1476718X231210637>
- Schachter, R. E., Gerde, H. K., & Hatton-Bowers, H. (2019). Guidelines for selecting professional development for early childhood teachers. *Early Childhood Education Journal, 47*(4), 395–408. <https://doi.org/10.1007/s10643-019-00942-8>
- Schwab, J. F., & Lew-Williams, C. (2016). Language learning, socioeconomic status, and child-directed speech. *Wiley Interdisciplinary Reviews: Cognitive Science, 7*(4), 264–275. <https://doi.org/10.1002/wcs.1393>
- Semiante, S. F., Yeomans-Maldonado, G., Johanson, M., & Justice, L. (2023). How the amount of teacher Spanish use interacts with classroom quality to support English/Spanish DLLs' vocabulary. *Early Education and Development, 34*(2), 506–529. <https://doi.org/10.1080/10409289.2022.2039872>
- Slot, P. (2018). Structural characteristics and process quality in early childhood education and care: A literature review. *OECD Education Working Papers, 176*. <http://doi.org/10.1787/edaf3793-en>
- Smith, J. D. (2012). Single-case experimental designs: A systematic review of published research and current standards. *Psychological Methods, 17*(4), 510–550. <https://doi.org/10.1037/a0029312>
- Storkel, H. L., Komesidou, R., Pezold, M. J., Pitt, A. R., Fleming, K. K., & Romine, R. S. (2019). The impact of dose and dose frequency on word learning by kindergarten children with developmental language disorder during interactive book reading. *Language, Speech, and Hearing Services in Schools, 50*(4), 518–539. [https://doi.org/10.1044/2019\\_LSHSS-VOIA-18-0131](https://doi.org/10.1044/2019_LSHSS-VOIA-18-0131)
- Suggate, S., Schaughency, E., McAnally, H., & Reese, E. (2018). From infancy to adolescence: The longitudinal links between vocabulary, early literacy skills, oral narrative, and reading comprehension. *Cognitive Development, 47*, 82–95. <https://doi.org/10.1016/j.cogdev.2018.04.005>
- Tarlow, K. R. (2017). An improved rank correlation effect size statistic for single-case designs: Baseline corrected Tau. *Behavior Modification, 41*(4), 427–467. <https://doi.org/10.1177/0145445516676750>
- van der Wilt, F., van der Veen, C., & Michaels, S. (2022). The relation between the questions teachers ask and children's language competence. *The Journal of Educational Research, 115*(1), 64–74. <https://doi.org/10.1080/00220671.2022.2029806>
- Vukanovic, J. R. (2015). Relationship between social interaction bids and language in late talking children. *International Journal of Speech-Language Pathology, 17*(6), 527–536. <https://doi.org/10.3109/17549507.2015.1010579>
- Wasik, B. A., & Hindman, A. H. (2015). Talk alone won't close the 30-million word gap. *Phi Delta Kappan, 96*(6), 50–54. <https://doi.org/10.1177/0031721715575300>
- Wasik, B. A., Hindman, A. H., & Snell, E. K. (2016). Book reading and vocabulary development: A systematic review. *Early Childhood Research Quarterly, 37*(4), 39–57. <https://doi.org/10.1016/j.ecresq.2016.04.003>
- Zaslow, M., Tout, K., Halle, T., Whittaker, J. V., & Lavelle, B. (2010). *Toward the identification of features of effective professional development for early childhood educators: Literature review*. Office of Planning, Evaluation and Policy Development, U.S. Department of Education. <https://files.eric.ed.gov/fulltext/ED527140.pdf>



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### Data Availability Statement

All data obtained and/or analyzed are available from the authors upon reasonable request.





## Speech-Language Pathologists' Access to Diverse Literature for Therapy Activities in Canada



## L'accès des orthophonistes du Canada à une littérature diversifiée pour leurs activités de thérapie

### KEYWORDS

CULTURAL RESPONSIVITY

LINGUISTIC SENSITIVITY

SHARED READING

Carlos Pérez Valle  
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### Abstract

Cultural responsiveness is an important aspect of evidence-based practice. When a speech-language pathologist is providing services to a child whose home environment does not represent the majority language or culture, special efforts are required to adapt to the values, beliefs, backgrounds, and experiences of the family when selecting materials and designing therapeutic activities. When providing services to children, the use of culturally appropriate storybooks is especially important to promote a sense of belonging and support co-creation of knowledge by the clinician and child. In this study, we asked speech-language pathologists from across Canada to complete a survey about their sociodemographic information, their practice and caseload, and their use of diverse literature with their pediatric clients. As expected, the survey revealed that speech-language pathologists in Canada were overwhelmingly white English-speaking women, even though their caseloads were somewhat or very diverse with respect to racial and linguistic characteristics. The respondents in this study agreed that culturally responsive therapy materials were important for the children on their caseloads. However, one third used books that had no human characters, and another third used books that presented white human characters. The speech-language pathologists reported barriers to obtaining culturally appropriate books, with insufficient resources and a lack of books being the most important.

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Stefano Rezzonico

### Abrégé

La sensibilité culturelle est un aspect important d'une pratique clinique fondée sur les données probantes. Lorsqu'un ou une orthophoniste offre des services à des enfants dont l'environnement familial ne correspond pas à la langue majoritaire ou à la culture dominante, des efforts particuliers doivent être déployés pour sélectionner du matériel thérapeutique et concevoir des activités de thérapie adaptés aux valeurs, aux croyances et aux expériences de la famille. En particulier, il est important d'utiliser des livres d'histoires culturellement appropriés pour promouvoir un sentiment d'appartenance et soutenir la co-construction des connaissances entre l'orthophoniste et l'enfant. Dans cette étude, nous avons sondé des orthophonistes du Canada quant à leurs informations sociodémographiques, leur pratique, les caractéristiques de leur clientèle, ainsi que leur utilisation d'une littérature jeunesse diversifiée auprès de cette dernière. Conformément à nos hypothèses, l'étude a révélé que les orthophonistes du Canada étaient en grande majorité des femmes blanches anglophones, même si les caractéristiques raciales et linguistiques de leur clientèle étaient assez ou très diversifiées. Les personnes interrogées dans cette étude reconnaissaient l'importance d'utiliser du matériel thérapeutique culturellement adapté avec les enfants avec lesquels elles travaillaient. Toutefois, un tiers de ces personnes utilisait des livres sans personnages humains et un autre tiers utilisait des livres dans lesquels figuraient des personnages humains blancs. Les orthophonistes ont rapporté plusieurs obstacles à l'obtention de livres culturellement appropriés, les plus importants étant un manque de ressources et de livres.

An important aspect of evidence-informed practice is the need for culturally responsive care (Horton & Muñoz, 2021; Inglebret et al., 2007). An evidence-informed approach requires integration of the best scientific evidence with clinical expertise and the perspectives of the client (Sackett et al., 1996). When designing an assessment or treatment approach for a child, a biopsychosocial model helps to focus attention on the whole child, identifying personal, social, and environmental factors that contribute to activity and participation strengths and limitations (McCormack et al., 2010; Rvachew & Brosseau-Lapr e, 2018). When a speech-language pathologist (S-LP) is providing services to a child whose home environment does not match the majority language or culture, special efforts like altering materials and assessments are required to adapt to the values, beliefs, backgrounds, and experiences of the child when selecting materials and designing therapeutic activities (Albin et al., 2022; Horton & Mu oz, 2021). As such, *cultural and linguistic responsivity* is key to the child's engagement with the S-LP and learning during the intervention sessions (Hern andez et al., 2022; Unger et al., 2021). To understand this, we first define terms that we use throughout this paper.

### Definition of Terms

In this paper, we use the term *racialized children* to refer to children from visible minority backgrounds. The theoretical grounding for using "racialized" stems from critical race theory, which posits that race is a social construct utilized to perpetuate and legitimize power disparities, rather than a natural biological difference (Soto-Boykin et al., 2021). *Racialized* refers to the process and state whereby individuals or groups are ascribed a racial identity through social constructs designed to maintain certain power dynamics, focusing particularly on how these identities are intertwined with language and societal perceptions of normality (Privette, 2023; Soto-Boykin et al., 2021; Souissi, 2022). This term not only emphasizes racial distinctions but also how those distinctions are used to enforce systemic inequalities in linguistic, educational, and social settings (Brea-Spahn & Bauler, 2023; Soto-Boykin et al., 2023; Whitfield, 2023). *Visible minority* is used by the Canadian government to classify individuals based on their physical racial traits as non-white, excluding Indigenous peoples (Statistics Canada, 2021). However, the term "racialized" emphasizes systemic influences on racial identity and addresses the socially constructed nature of racial disparities, thereby promoting a more critical and intersectional approach to understanding and challenging the inequities that children from non-white backgrounds face (Soto-Boykin et al., 2021, 2023; Whitfield,

2023). It highlights the active role of societal structures in perpetuating racial categorizations and does not rely solely on physical appearance, thus providing a more nuanced understanding of racial experiences and the impacts of systemic racism in S-LP service delivery (Whitfield, 2023).

Many racialized children, especially in Canada, speak more than one language. However, care must be taken when addressing the power differentials between the languages they speak. The distinction between *minoritized* language and *minority* language reflects deeper sociopolitical dynamics beyond numerical representation. Minoritized languages are those systematically marginalized within societal structures, often spoken by significant portions of a population but lacking institutional power or prestige due to dominant sociopolitical forces (Privette, 2023; Soto-Boykin et al., 2021, 2023). This term emphasizes the active process of marginalization, highlighting how these languages are devalued by societal norms and policies. In contrast, minority languages are defined by their smaller number of speakers compared to dominant languages in a region and do not inherently suggest systemic oppression, although they may also lack power (Kay-Raining Bird et al., 2016; Privette, 2023; Whitfield, 2023). For example, French in certain Canadian contexts can be a minority language but still retains significant cultural and political influence by being a co-official language, illustrating that minority status does not always correlate with reduced power or prestige. In this paper we refer to nonofficial and/or Indigenous languages spoken by racialized children and their families as *linguistically minoritized languages*.

### Ongoing Need for Culturally Responsive Therapy

The need for cultural and linguistic responsivity in therapeutic practice has been highlighted for the past 30 years in scientific and position papers (Crago & Westernoff, 1997; Damico & Damico, 1993). The situation appears to be increasingly acute. The racial composition of speech-language pathology as a profession has remained overwhelmingly white and homogenous (for Canada, see Bourassa B edard et al., 2020; for the United States, see Yu et al., 2022). This lack of diversity is especially concerning given that it is due to institutional ideas, policies, and practices that perpetuate inequities for clientele from racialized and linguistically minoritized backgrounds (Brea-Spahn & Bauler, 2023; Whitfield, 2023). During the same period, the potential clientele population has become more and more diverse (for Canadian data, see Statistics Canada, 2022b).

Linguistic diversity was highlighted in the 2016 census with one quarter of the Canadian population having a mother tongue other than French or English, including

approximately one fifth of children (Schott et al., 2022). Minoritized languages vary across Canadian regions with Mandarin, Punjabi, Spanish, Arabic, and Urdu being the most spoken by bilingual children who grow up speaking an official and nonofficial language in some combination (Schott et al., 2022). The Indigenous population of Canada comprises 1.8 million persons who, as a group, are younger on average than the non-Indigenous population (Statistics Canada, 2022a). An Indigenous language is spoken by about 20% of this population (Schott et al., 2022), with many of these languages being taught in schools run by Indigenous communities (O'Sullivan, 2021).

Culturally, diversity is increasing as well; currently 25% of Canadians are from racialized minorities, with over 74% of children with immigrant parents belonging to such groups, coming very often from Asian countries (Statistics Canada, 2017). The mismatch between the cultural and linguistic characteristics of S-LPs and their clients increases concerns about the appropriateness of adaptations during assessment and treatment sessions for children who require services (Guiberson & Ferris, 2023).

Recent survey data suggest growing confidence by S-LPs in their cultural competence (Parveen & Santhanam, 2021), perhaps because S-LPs are exposed to more training on techniques for assessment and treatment of children who require cultural and linguistic adaptations. Bilingual S-LPs perceived themselves to be more competent and sought out more sources of information to help with their clients who required these adaptations (Parveen & Santhanam, 2021; see also Narayanan & Ramsdell, 2022). The challenge of finding appropriate materials to use with their clients remained a frustration for all the S-LPs who responded to Parveen and Santhanam's (2021) survey in the United States. These resource inequities require further investigation.

Several studies focused on assessment practices have described the use of linguistically appropriate techniques by Canadian S-LPs. Kerr et al. (2003) asked S-LPs to describe their use of assessment tools, including standardized and criterion-referenced instruments. Kerr et al. were especially concerned with inappropriate assessment practices such as using standardized measures with populations other than those the test norms were based on. They found that S-LPs were often aware that certain practices were not appropriate but engaged in problematic decision-making processes in the absence of effective tools. Ball and Lewis (2011) obtained detailed feedback from a large number of people who worked with Indigenous children in Canada. Their replies highlighted the cultural and pragmatic

differences between Indigenous interaction styles and those of the professionals working with them. The S-LPs in Ball and Lewis's study recommended much more screening of the Indigenous children on one hand, but a more community-based and collaborative approach to intervention on the other.

Finally, D'Souza et al. (2012) investigated assessment practices by S-LPs with linguistically diverse clients in Canada. Many practices were found to be appropriate – in particular, using natural language samples and dynamic assessment methods. However, there was a mismatch between the S-LPs and the clients with respect to language knowledge; barriers in access to important resources such as interpreters was also raised as an issue.

Although the studies of assessment practices are important, continued research is needed. Investigation of cultural and linguistic responsiveness is required. More knowledge of adaptations in the realm of treatment practices is also crucial. In the present study, we were particularly concerned with the use of diverse literature when intervening with young children. Not only can storybooks build early literacy skills, but these materials also support the development of a broad range of communication skills. Interventions that involve careful selection of books and stories are very common in speech-language pathology and in early years classrooms (Kaderavek & Justice, 2002). Larson et al. (2020) reported an in-depth systematic review of language interventions and found that the best results were observed when the intervention was adapted to the culture and the language of the children in the program. This principle can be extended to books and other materials used in therapy, including print books, digital books, wordless books, oral storytelling, and visual media for presenting stories.

Regarding books used by S-LPs, Harris and Owen Van Horne (2021b) reported that even very young children were sensitive to the race of characters in picture books, with diverse race of characters contributing to a sense of self and belonging for racialized children. Conversation about appropriate picture books provides a mechanism for the co-construction of knowledge by the S-LP and a racialized child. Experiencing a variety of perspectives in the books is important for racialized children and for children who are part of the majority white culture (Harris & Owen Van Horne, 2021a). Considering the language or dialects spoken by the characters in the books is equally important, as this provides legitimacy to diverse modes of communicating (Privette, 2021). For these reasons, we designed a survey to obtain information from Canadian S-LPs about their sensitivity to

cultural and linguistic responsiveness and their access to diverse children's literature in their clinical practice.

### A Survey on Cultural Responsiveness

A literature largely focused on education informed the selection of variables for the survey designed for this study (Chu & Garcia, 2014; Dickson et al., 2016). A multicultural children's literature approach for culturally responsive practice includes using books with diverse racial characters while including other forms of diversity such as gender, sexual orientation, immigration, language, and disability or intersectionality of multiple identities for authentic manifestation of lived experiences (Dahlen, 2020; Harris & Owen Van Horne, 2021a; Hartenstein et al., 2023; Nguyen, 2022). Much of the current scholarly discourse pertaining to children's books has focused on describing the ethnoracial characteristics of the characters as a way of raising consciousness about representation in books used with children (e.g., Cahill et al., 2021; Harris & Owen Van Horne, 2021a, 2021b; Knight et al., 2021; Kuehl, 2021).

Historically, main characters in children's books were most often animals, followed by white children or inanimate characters such as trucks and trains (Dahlen, 2020; Dundas, 2019, 2020). For this study, each S-LP was asked to provide a list of 10 books they used in their practice. To describe these responses, we focused on the main characters in the books selected by the S-LPs who responded to the survey.

It was also necessary to probe variables that may mediate S-LP choices with respect to books that are used during treatment. We obtained sociodemographic information about the S-LPs, including cultural and linguistic characteristics. The relationship between cultural and linguistic demographics and culturally responsive practice is unclear in published studies but certainly important to examine (Harris & Owen Van Horne, 2021b; Narayanan & Ramsdell, 2022; Unger et al., 2021). Related items gathered information about the S-LPs' years of experience and formal preparation (i.e., preservice clinician training and continued professional development), because other published studies identified those variables as important predictors of outcomes around cultural and linguistic responsivity (Fumero et al., 2021; Suswaram et al., 2023). Questions about the cultural and linguistic diversity of the S-LPs' caseloads were included.

Studies in schools have shown that teacher engagement with ethnoracial diversity plays a role in student academic outcomes and identity formation, especially when examined from the perspective of the students themselves (Byrd, 2016). It is possible that caseload characteristics (e.g., race and languages) may play a role in S-LP treatment

practices and use of more culturally and linguistically responsive materials (Harris & Owen Van Horne, 2021b; Narayanan & Ramsdell, 2022). Examples of such practices include using culturally relevant books that are familiar and respectful towards the cultural background of racialized children (Guiberson & Ferris, 2023; Guiberson & Vining, 2023) and using bilingual books with bilingual children (Cuervo & Hobek, 2021).

In summary, we developed a survey to explore Canadian S-LPs' use of children's literature in their pediatric practice. A copy of the survey can be obtained from the last author. The survey responses were submitted to a quantitative analysis, yielding answers to the following questions:

1. Do Canadian S-LPs use diverse literature in their clinical practice with pediatric clients?
2. Is the use of diverse literature moderated by the sociodemographic characteristics of the S-LP?
3. Is the use of diverse literature moderated by the clinical experience of the S-LP and their prior training about cultural responsiveness?
4. Is the use of diverse literature moderated by sociodemographic characteristics of the S-LP's caseload?

## Method

### Survey Development Procedure

Survey design was informed by previous findings related to the use of children's literature in speech-language pathology (Harris & Owen Van Horne, 2021b). However, given the exploratory nature of this study, we first extracted a comprehensive list of variables of culturally responsive teaching from survey studies (Chu & Garcia, 2014; Dickson et al., 2016) to serve as the framework for our design. These variables were tailored to meet the speech-language pathology context. Then, the indicators used by Harris and Owen Van Horne (2021b) and D'Souza et al. (2012) were matched with variables as both studies conducted survey studies with S-LPs on the use of diverse books and service for multilingual clients. Other indicators were drafted and modified as part of the survey draft to capture both quantitative and qualitative trends.

In line with Harris and Owen Van Horne (2021b), when describing the books that the S-LP respondents used, we focused on assessing the ethnoracial characteristics of the main character. Due to Canada's linguistic landscape, we also assessed the language in which the books were written. Additional questions probed the factors that may influence

the S-LP's choice of books and the ways in which they used books in their clinical practice. The respondents were also asked to describe their understanding of the essential characteristics and the benefits of diverse children's literature. These questions elicited detailed answers from the S-LPs that were subjected to qualitative thematic analyses that are not described in this paper.

Another section of the survey requested information about the sociodemographic characteristics of the S-LPs. These questions focused on age, gender, self-identified ethnoracial characteristics, and the language(s) spoken by the S-LP. Final questions in this section probed the language(s) used by the S-LP in clinical practice.

The survey also solicited information about barriers to accessing diverse children's literature and the resources that the respondents used and found most helpful to support their work. To this end, S-LPs were asked if they had access to sufficient resources, the types of professional learning they partook in, and tools that supported their work with clients from diverse backgrounds.

Finally, the survey requested information about the diversity of the S-LP's caseload. The S-LPs provided information about their work settings and the ages of clients (infants/toddlers, school-aged children, or both). Ethnoracial diversity was queried in one question and linguistic diversity in another. Ethnoracial diversity was defined by the presence of racialized children within an S-LP's caseload, with 2 or fewer racialized children defined as *not diverse*, more than 2 but less than half of the caseload defined as *somewhat diverse*, and more than half the children being racially minoritized defined as *very diverse*. Linguistic diversity in relation to the two official languages (English and French) was categorized as *not diverse* where not more than 2 children spoke a linguistically minoritized language at home, *somewhat diverse* when more than 2 but less than half of the caseload spoke a linguistically minoritized language, and *very diverse* when more than half the children spoke a nonofficial language.

After the survey was developed, a draft was submitted to pilot testing with distribution among S-LPs, staff of the McGill University Child Phonology Lab, and volunteers. Pilot testing provided an estimate of completion time of 30 min. Some items were modified to provide the best options for Canadian S-LPs (e.g., options for items such as age of clients or mother tongue of S-LPs). The study's protocol and data collection procedures were approved by the Institutional Review Board of the Faculty of Medicine and Health Sciences at McGill University (Study Number A02-E10-22A). A final English version of the survey was hosted on the Lime

Survey platform administered by McGill University once all modifications were made.

### Participants and Recruitment

The final survey link was distributed, in English, via the Speech-Language and Audiology Canada website (<https://www.sac-oac.ca>). The link was also disseminated through the McGill University's School of Communication Sciences & Disorder's mailing list for school-affiliated S-LPs and clinical educators. Finally, the research information and survey link were shared with individual S-LPs and private practices across Canada. Individual potential respondents were identified by examining the member rolls for the professional associations in Canadian provinces, emailing persons, groups, and businesses that advertised services for children specifically. All recipients of the survey were invited to forward the link to other eligible participants that they may know. Recruitment took place between February and December of 2022.

The survey was accessed by 289 respondents. Of those, 213 consented to be included in the survey and declared themselves to be an S-LP. Among those 213, 102 were excluded: 2 filled out the survey with irrelevant information; 6 declared that they did not use commercial books in their practice; and 94 did not answer the question about the use of commercial books. The final sample of eligible surveys included 104 completed surveys in which a list of books was provided as requested and 11 surveys in which the respondent did not provide the list of books even after answering all other questions. Respondents provided rough approximations of their location of residence and service as follows for completed surveys: 29 in Ontario; 21 in Québec; 26 in British Columbia; 16 in Alberta, Saskatchewan, and Manitoba; and 21 in Nova Scotia, New Brunswick, and Newfoundland/Labrador. We had no respondents from the northern regions and 2 were from an unknown location. Postal codes permitted an estimate of the size of the communities using Statistics Canada criteria, with 74 living in large communities and the remainder living in medium or small communities. Province and size of population centre were not correlated with any of the outcomes and therefore are not considered further in the results.

The respondents indicated that they provided S-LP services and held licensure to practice in their respective province at the time of filling out the survey. To participate in this study, S-LPs also had to attest to serving clients from infancy through 13 years of age (an age range for whom children's books, including picture books, are suitable). Canadian S-LPs who did not serve pediatric clients or use books in their practice were excluded (meaning that retired S-LPs and those on leave were also excluded).



## Coding Procedures

A thorough coding scheme was implemented to analyze the ethnoracial and linguistic diversity of children's books routinely used by participant S-LPs. All data were first cleaned and classified by the first author. All unique identifiers were removed from responses to ensure blind coding by coders in the Child Phonology Lab. Coders then used the type of questions asked and other factors to categorize quantifiable survey responses into categorical or ratio scales given the complexities of service and service providers in Canada. For instance, responses relating to home language and language of service delivery were coded on a categorical scale (1 = *English only*, 2 = *French only*, 3 = *English and French*), facilitating a graded analysis of the responses. Additionally, ordinal variables age and years of service were collapsed into ratio scales ranging from 1 to 7, offering a structured framework to analyze the data.

Book titles provided by S-LPs were crucial to the coding procedure. Due to the COVID-19 restrictions at the time, each book was hand-coded using internet search engines (e.g., YouTube videos, Amazon Look Inside, online catalogues) to review the book content and determine the language of the book to be either English, French, multilingual, other, or unscorable (i.e., information was not accessible, which was 0.2% of the items). This technique was also used to code the character type (human, animal, fairytale character, etc.) and ethnoracial background for human figures based on previous studies (e.g., Dahlen, 2020; Harris & Owen Van Horne, 2021b) and other categories routinely used to describe this feature of books in Canada (Dundas, 2019, 2020).

The initial coding that differentiated human characters from nonhuman and anthropomorphic characters was essential because research has indicated that children develop more prosocial behaviours when experiencing books with human characters than with books with other types of characters (e.g., Ding et al., 2023; Larsen et al., 2018).

The list of books that was provided by 104 of the respondents was coded to gauge the diversity of the main character(s) in each book. This process involved creating a diversity rating system for the books where the ethnoracial backgrounds of primary characters were coded on a decimal scale from .00 to 1.00. Characters were coded into the following groups and scored as shown: unscorable, animals, fairytale or legend characters, inanimate objects (.00); white character (.25); mixed race combining racialized and white characters (.50); Black character, Indigenous/Native/First Nations characters, East Asian, South Asian, other racialized character (1.00). These

categories were based on Harris and Owen Van Horne's (2021a) tutorial, which recommended that S-LPs select books with people, books in which lead characters are from racialized backgrounds, and books that are attentive to intersectionality. We developed this coding scheme to recognize that racialized children have historically lacked positive and authentic representation while honouring the intersectionality of all human characters in children's literature (Boyd et al., 2015; Nguyen, 2022). This complex coding approach allowed us to use main characters as a proxy for diversity in line with a multicultural view of children's literature (Dahlen, 2020). Doing so permitted us to assess variation in children's reading as described in the next section.

Finally, S-LP responses were coded to identify barriers and facilitators to accessing and using diverse books according to Bishop's (1990) concept of "mirrors, windows, and sliding doors" which has been used to guide service providers on how to include books that validate personal experiences of individual children and introduce them to books that showcase diverse experiences different to them (Diehm & Hendricks, 2021; Harris & Owen Van Horne, 2021a; Inglebret et al., 2007).

## Data Analysis

Central to this study was the diversity score average (DSA), a metric we developed to quantify the diversity of the books used by S-LPs. The DSA was calculated by summing the ethnoracial diversity of the human characters of all titles submitted by each S-LP (.00–1.00) divided by the number of titles they submitted. This metric offered a quantitative lens through which the diversity of book selections could be assessed. The DSA scores were further categorized to facilitate a graded analysis of the diversity in book repertoires in which a higher DSA signified that the S-LP had more diverse books in their list of books. This was a proxy for measuring the likelihood for an S-LP using diverse books in their practice, because participants were asked to list up to 10 they routinely used in their practice.

In some analyses, the DSA scores were reduced to categories as follows: DSA = 0.00 signified a book repertoire that was *not diverse*; a DSA score  $\geq .01$  but  $\leq .39$  signified a *somewhat diverse* book repertoire; and a DSA score  $\geq .40$  signified a *very diverse* book repertoire. Given the low number of S-LPs with high DSA scores, DSA scores were divided in these three sections to facilitate analysis. This was also done due to chi-square analyses requiring that each expected frequency (or count) be at least 5 (see Narayanan & Ramsdell, 2022).

To answer Questions 2 to 4, the study employed a series of statistical tests to investigate the relationships between predictor variables and the DSA score. The answers related to these questions were subjected to quantitative analyses, providing a description of the S-LPs' use of books, sociodemographic characteristics of the S-LPs, their opinions about facilitators and barriers to accessing appropriate resources, and the diversity of their caseloads. These simple counts were used in chi-square tests to investigate the independence between predictor variables and the use of diverse children's literature (DSA score). Due to the small sample size of certain groups and other constraints, the likelihood ratio chi-square test ( $LR\chi^2$ ) was used for this purpose. This adjustment in the analysis strategy showcases the study's commitment to analyzing the effect of potential variables that influence S-LP book choices and practices. Effect sizes were calculated for each predictor variable–DSA association test, using Cramer's  $V(\phi_c)$ , used to identify small ( $2 df = 0.07$ ;  $4 df = 0.05$ ;  $8 df = 0.04$ ), medium ( $2 df = 0.21$ ;  $4 df = 0.15$ ;  $8 df = 0.11$ ), and large effects ( $2 df = 0.35$ ;  $4 df = 0.25$ ;  $8 df = 0.18$ ) as done by Narayanan and Ramsdell (2022). This allowed us to gauge the strength of the association between the predictor variables and the DSA score rank, offering a deep understanding of the variables influencing the use of diverse literature.

## Results

### Books

All 115 respondents reported that they used books and/or graphic novels in their practice. **Table 1** shows the domains of language development targeted when these materials were used. Although phonological awareness and emergent literacy targets were identified most frequently, all the possible domains were targeted frequently with books and graphic novels. The respondents who selected "other" indicated a variety of domains, such as narrative and storytelling skills, early language development, augmentative communication, and reading. The respondents also reported the frequency with which they used books in their practice, ranging from less than once per week ( $n = 24, 21\%$ ), at least once per week ( $n = 35, 30\%$ ), several times per week ( $n = 33, 29\%$ ), and at least once per day ( $n = 22, 19\%$ ).

Among these respondents, 104 (90%) provided a list of books they used in therapy. These lists were subjected to the coding procedure described above and shown in **Table 2**. Of the 848 titles reported by all S-LPs, the codes revealed that nearly half of all main characters were animals. Among the human leads, white main characters were commonly occurring ( $n = 122, 14\%$ ) although racialized characters were seen as main

**Table 1**

### Domains of Language Therapy Targeted with Books and/or Graphic Novels

Domain targeted	Respondents (%)
Speech accuracy/intelligibility	74.78
Phonological awareness/emergent literacy	83.48
Syntax	75.65
Morphology	68.70
Semantics	80.00
Pragmatics	73.91
Other	28.70

Note. Respondents could select more than one domain of therapy.

characters as well ( $n = 82, 10\%$ ). A DSA was calculated for each respondent as an average of the scores across the books they listed. The number of respondents who received DSAs within categories differentiated by a single decimal point is shown in **Figure 1**. Approximately one fifth received a score of 0. Just over one third received a score between 0 and .1 and almost a third received scores between .1 and .3. The remainder of the frequencies decline very rapidly towards 1 respondent, indicating that only 15 (13%) of the respondents reported book selections that could be considered very diverse overall. Regarding the linguistic characteristics of the books: 732 (87%) were English; 68 (8%) were French; 39 (5%) were wordless; and 7 (1%) were written in a linguistically minoritized language.

### S-LP Demographics

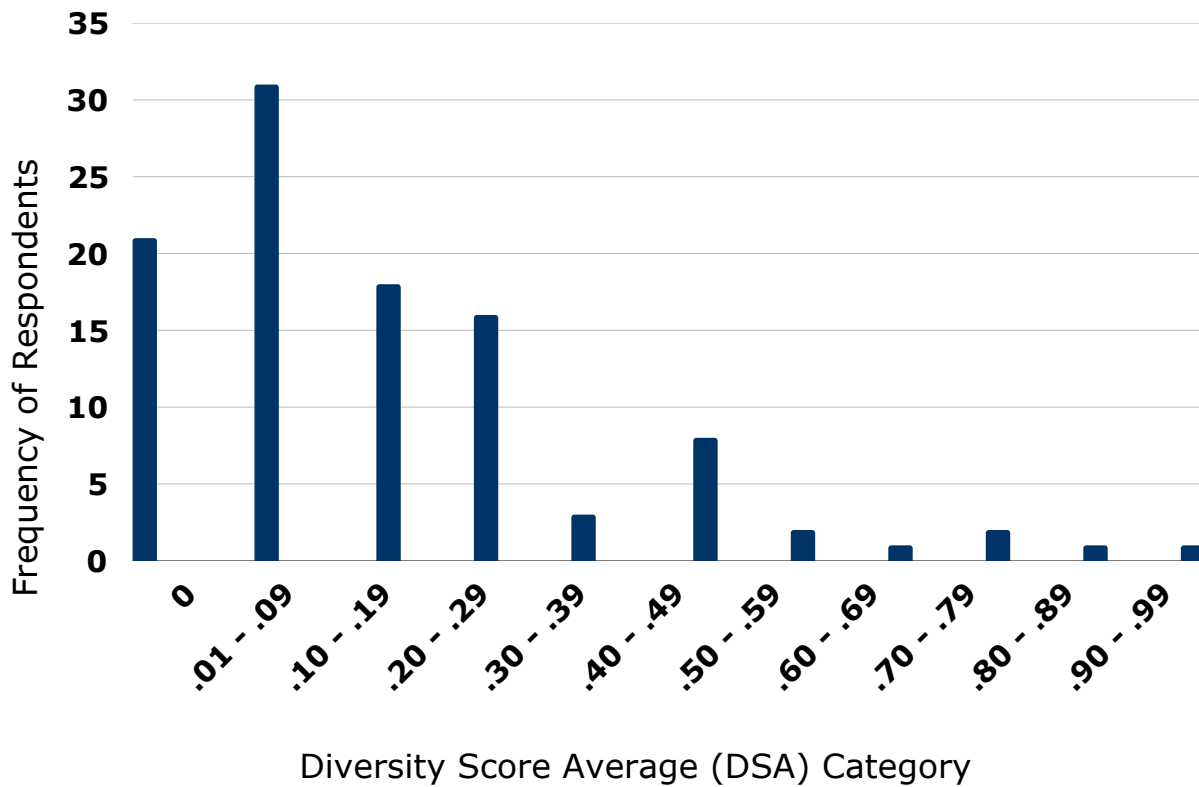
The respondents provided information about themselves although there were some nonresponders for these questions as revealed by the total number of responses for each category shown in **Table 3**. Beginning with age, of the 108 (94%) S-LPs who provided their age, the average was 41 years, with the most frequent age category being between 31 and 40 years. By far, the most frequent gender category to be selected was cisgender female ( $n = 104, 90\%$ ). Self-identification of race was also relatively homogenous with 98 (85%) of respondents choosing white. Although most respondents used English as their mother tongue, a noticeable number used French or another language since a young age. The proportions of languages used at home and languages used to provide S-LP services were mostly "English only" with "French only," "English and French," and "English and nonofficial language" reflecting national trends of language use. The reported number of years of experience as an S-LP averaged 14, with a fairly even spread across categories.

**Table 2**  
**Coding of Main Characters in the Books Listed by Respondents**

Coding of main character	<i>n</i>	%
Animal	412	48.58
White	122	14.39
Uncodable	102	12.03
Racialized <sup>a</sup>	82	9.67
Mixed race <sup>b</sup>	55	6.49
Inanimate object	51	6.01
Fairytale or legend	24	2.83
Total	848	100.00

<sup>a</sup>Racialized characters included Black (20), Indigenous (22), East Asian (10), and a variety of other racialized identities.  
<sup>b</sup>Mixed race characters were a mix of White and a racialized identity.

**Figure 1**



Bar Chart Illustrating the Distribution of Books Used by S-LPs According to the DSA Metric.

Note. S-LP = speech-language pathologist; DSA = diversity score average. DSA was calculated by dividing the sum of the ethnoracial diversity of the human characters of all titles submitted by each S-LP (.00–1.0) by the number of titles they submitted. For this study, DSA = .00 signified a book repertoire that was *not diverse*, a DSA score  $\geq .01$  but  $\leq .39$  signified a *somewhat diverse* book repertoire, and a DSA score  $\geq .40$  signified a *very diverse* book repertoire.

<b>Table 3</b>	
<b>Characteristics of S-LP Respondents</b>	
<b>Characteristic</b>	<b><i>n</i></b>
<b>Age (years; <i>n</i> = 108)</b>	
20–30	33
31–40	36
41–50	23
≥ 51	16
<b>Gender (<i>n</i> = 110)</b>	
Cisgender woman	104
Cisgender man	5
Other	1
<b>Race/ethnicity (<i>n</i> = 110)</b>	
White	98
Visible minority	8
Multiracial or mixed	4
<b>Mother tongue (<i>n</i> = 109)</b>	
English	77
French	19
Other	13
<b>Languages used at home (<i>n</i> = 109)</b>	
English	69
French	16
English and French	15
English and nonofficial language	9
<b>Language of speech-language pathology services (<i>n</i> = 109)</b>	
English only	71
French only	13
English and French	14
English and nonofficial language	11
<b>Years experience as S-LPs (<i>n</i> = 114)</b>	
1–5	23
6–10	28
11–15	20
>15	43

Note. S-LP = Speech-language pathologist.

## Resources

Although the S-LPs in the final survey sample thought that it was important to provide culturally appropriate materials, only 35 (30%) of the S-LPs reported they had access to sufficient resources to service clients from culturally and linguistically diverse backgrounds. In contrast,

most respondents ( $n = 71$ , 62%) said they did not. Among the survey respondents, 81 provided information about their common sources of information. Of the resources that S-LPs frequently used or found most helpful, formal training/professional development was the most frequent response

(69 mentions, 62%), as provided by their university instructors, professional associations, or employers. S-LPs also consulted with colleagues or clients from diverse backgrounds, including drawing on their own experiences with diversity. Colleagues with useful information included teachers, elders, and interpreters in addition to other S-LPs. Some respondents pointed out the importance of clients as informants and others discussed the necessity of a social justice framework to guide practice.

In response to the open-ended question, respondents provided information about the criteria they used to select books, and most often they were concerned with the match between the book and their therapy goals and the child. Pictures and storyline being developmentally appropriate while being fun and engaging was important to approximately half the respondents. The storyline supporting the therapy goal and the linguistic structure of the text being developmentally appropriate were also crucial for at least half the respondents, a recommendation supported by Harris and Owen Van Horne (2021a). Other criteria were mentioned much less often (cost, availability, diversity). With regard to barriers, the respondents pointed out that it is difficult to find and/or vet books that meet all their criteria as to therapeutic appropriateness and cultural responsiveness.

### Caseload Diversity

Caseloads were influenced by the work settings reported by the S-LPs. **Table 4** shows that the majority of respondents worked in multiple work settings. Over half of them ( $n = 65$ , 57%) reported that they provided services to infants/toddlers and school-aged children. Large numbers provided services only to infants/toddlers ( $n = 29$ , 25%) or to school-aged children ( $n = 21$ , 18%) however. In response to the question about diversity of their caseload, 93% of respondents provided a response, as shown in **Table 5**. Nearly all S-LPs reported that their caseload was somewhat diverse or very diverse with respect to race; almost half

the responses indicated that the children were somewhat diverse with respect to language with the remainder of the children split between not diverse and very diverse. This table shows a disconnect between the S-LPs and their clients as the S-LPs were overwhelmingly white users of the official languages.

### Statistical Analysis Results

To test for the likelihood that any of the variables discussed thus far moderated the outcome (DSA), likelihood ratio chi-square tests ( $LR\chi^2$ ) were conducted for each variable and the S-LP's DSA rank. The results are shown in **Table 6**, alongside the effect size measure for each statistic. The analyses are shown in groups corresponding to the paragraphs discussed above, that is S-LP characteristics, access to resources, professional learning, and tools, as well as caseload characteristics. Three moderators were associated with higher DSAs. Those S-LPs with the most years of experience were the most likely to achieve high DSA, that is, to select books with characters who were racialized. S-LP language was also significantly associated with DSA. Specifically, the monolingual S-LPs mostly obtained DSA scores of .1 (*not diverse*) or .2 (*somewhat diverse*) with only a small number showing very diverse sets of books. Bilingual S-LPs (those who spoke English and French at home, or those who spoke English and a nonofficial language at home) listed books that were somewhat diverse or very diverse. Similarly, the pattern of results was different for S-LPs who provided services in only English or only French versus those who provided services in more than one language. Unilingual service providers provided lists of books that were less diverse than S-LPs who provided services in more than one language, with this latter group selecting books that were more diverse.

No other potential moderating variables yielded significant results. S-LP age, gender, and race was not associated with book choices. Access to resources was also not associated with the diversity of the book selections.

**Table 4**  
Workplaces Reported by Speech-Language Pathologists

Workplace	<i>n</i>	%
Multiple	42	36.52
Private practice	28	24.35
Education	22	19.13
Healthcare	21	18.26
Other	2	1.74
Homecare	0	0.00

**Table 5**  
**Racial and Linguistic Caseload Diversity**

Diversity level	<i>n</i>	%
<b>Racial</b>		
Not diverse	11	9.57
Somewhat diverse	51	44.35
Very diverse	46	40.00
<b>Linguistic</b>		
Not diverse	25	21.74
Somewhat diverse	53	46.09
Very diverse	30	26.09

Note. Seven respondents did not respond to these questions, but the percentages are based on a total of 115 respondents.

**Table 6**  
**Chi-Square Tests of Independence Between Moderator Variables and DSA Rank**

Moderator variable	$LR\chi^2$	<i>df</i>	<i>p</i>	$\phi c$	Relation	ES
<b>S-LP demographics</b>						
Age rank	2.76	6 (2)	0.839	0.12	no	small
Gender	10.71	4 (2)	0.098	0.20	no	medium
Years worked	15.70	8 (2)	0.047	0.26	yes	medium
Race/ethnicity	6.35	4 (2)	0.175	0.18	no	small
Mother tongue	8.18	4 (2)	0.225	0.21	no	medium
Home language	20.35	6 (2)	0.009	0.29	yes	medium
Language of service	19.55	6 (2)	0.012	0.29	yes	medium
Workplaces	10.27	10 (2)	0.247	0.23	no	medium
<b>Resources</b>						
Access to resources	2.79	2 (1)	0.248	0.18	no	small
<b>Caseload Diversity</b>						
Client age group	6.92	4 (2)	0.140	0.18	no	small
Racial diversity	9.25	4 (2)	0.055	0.22	no	medium
Linguistic diversity	5.34	4 (2)	0.255	0.16	no	small

Note. DSA = diversity score average;  $LR\chi^2$  = likelihood ratio chi-square;  $\phi c$  = Cramer's V (phi coefficient for contingency tables); ES = effect size; S-LP = speech-language pathologist. For the determination of effect size, the *df* was taken as the minimum of [rows - 1] or [columns - 1] for each calculation of the chi-square statistic (as shown in parentheses).

Most surprising, caseload characteristics did not play a role either, although racial diversity provided a result that was close to significant.

**Discussion**

Our survey results from 115 S-LPs across Canada yielded a striking disconnect between service providers and clients: S-LPs were homogenous in their characteristics,

being largely white (89%) women (95%) who were English-speaking (71%); in contrast, their caseloads were reportedly mixed, with most S-LPs (84%) reporting that their clients were somewhat or very racially diverse, and a large proportion of S-LPs (72%) reporting that their caseloads were linguistically diverse as well. The lack of linguistic diversity among Canadian S-LPs has been observed by D'Souza et al. (2012), a study that is now 12 years old.

Although the ethnicity and race of Canadian S-LPs has not been assessed nationally, Bourassa Bédard et al. (2020) estimated that less than 5% of S-LPs and audiology professionals in Québec came from racialized backgrounds. Similarly, the lack of professionals from non-white backgrounds has continuously been observed in the United States (see Whitfield, 2023 for recent commentary).

According to participants, the clients who they provide services to were often racialized children and many spoke a minoritized language. Several studies have examined how cultural discrepancies between S-LPs and their clients can negatively impact the overall quality of service delivery (D'Souza et al., 2012; Guiberson & Atkins, 2012; Parveen & Santhanam, 2021). For example, Harris and Owen Van Horne (2021b) reported that Black S-LPs tended to consider more diverse books for their practice than did their white colleagues. As such, these findings raise questions about the ability of the S-LPs to adjust their assessment and treatment approaches to the needs of children from different backgrounds than most S-LPs.

Many of the racialized children on S-LPs' caseloads who speak a nondominant language could benefit from exposure to more material that reflects their cultural and linguistic realities (Guiberson & Ferris, 2023; Guiberson & Vining, 2023); the remainder of the children on caseloads who represent the dominant racial and linguistic groups may also benefit from an expanded cultural focus in their speech and language therapy sessions (Harris & Owen Van Horne, 2021a).

The main characters of the books routinely used by S-LPs in their practice were coded to reveal the diversity of the books, and these scores were aggregated across the S-LPs' list of books to yield a DSA. As shown in Figure 1, the result is highly skewed with almost one third of DSA scores being very low, suggesting lists with no human characters. Another two thirds of the lists obtained DSA scores greater than 0 but less than .4, indicating books with some human characters, who ranged from white characters only to including white, both white and racialized characters, and occasional books exclusively about visible minority characters. The remaining one third of DSAs scored high indicating frequent use of books that contained human characters who were primarily persons of colour. **Table 7** provides examples of book lists in these categories from white women S-LPs: The first list is a commonly occurring set of books with no human characters yielding a DSA of 0; the second list contains all types of books and yields a DSA of .35; the third list of books obtained the highest DSA in the study, reflecting the deliberate focus on books with

characters who were First Nations or Inuit. The diversity of the books in these lists is determined to some extent by the goals of the S-LP who chose them. The first list was chosen to correspond to therapy goals and to encourage inclusivity for their young clients. The second list was selected to correspond to goals and to themes in the preschool classroom while ensuring that the children would see themselves in the stories and illustrations. The third set was selected to ensure that children see representations of themselves with a specific focus on Indigenous Canadian themes. The S-LP who submitted the third list also noted that they frequently consulted with elders and other First Nations educators when trying to find resources, professional learning, and tools to work with their clients. Hence, it seems possible that the increase in diversity across the lists in **Table 7** might reflect situational level factors such as administrative expectations in the setting where they worked.

The analysis of potential moderators of book choices did not reveal many variables that explained differences in these selections, a finding that replicates other survey studies (Harris & Owen Van Horne, 2021b). Languages spoken at home and work played a role, in that unilingual S-LPs were more likely to select books that had no human characters or characters who were white; S-LPs who were bilingual were more likely to pick books with characters who were diverse with respect to race. A relationship between multilingualism and the use of culturally appropriate treatment materials has been reported in other studies (Narayanan & Ramsdell, 2022; Parveen & Santhanam, 2021). Those clinicians who had worked for a long time also had a tendency to choose more diverse books. Other potential moderators were not found to influence the use of diverse books in practice. In particular, neither access to resources nor S-LP age, gender, or race were associated with more diverse book choices. However, this may be due to the small sample size, particularly the low number of S-LPs from non-white, non-cis-female, and younger S-LPs that participated in our study.

Nonetheless, the respondents in this study agreed that culturally responsive therapy materials were important for the children on their caseloads. They wanted their clients to see themselves and their home lives represented in these materials. The respondents had clear ideas about what this meant for the storylines, the vocabulary, and the illustrations. However, they also reported that there were issues with access to appropriate books with culturally appropriate and accurate depictions of varied races, cultures, family arrangements, and social circumstances. Furthermore, their funds to buy new books were limited

**Table 7**

**Example Book Lists at Three Levels of Diversity Score Averages**

Book title	DSA	Book title	DSA	Book title	DSA
<i>Big Blue Truck</i>	0	<i>The Very Hungry Caterpillar</i>	0	<i>Amik Loves School</i>	1
<i>Peedie</i>	0	<i>Brown Bear, Brown Bear</i>	0	<i>Kohkum's Red Shoes</i>	1
<i>The Very Hungry Caterpillar</i>	0	<i>Chicka Chicka Boom Boom</i>	0	<i>Mama Do You Love Me?</i>	1
<i>Brown Bear, Brown Bear</i>	0	<i>Cars, Trucks and Things That Go</i>	0	<i>Fry Bread</i>	1
<i>The Family Book</i>	0	<i>My Heart Fills with Happiness</i>	1	<i>Little You</i>	1
<i>That's Not My... (series)</i>	0	<i>Annie and the Old One</i>	1	<i>My Heart Fills with Happiness</i>	1
<i>Where's Spot?</i>	0	<i>No David!</i>	.25	<i>When We Were Alone</i>	1
<i>Goodnight Gorilla</i>	0	<i>The Snowy Day</i>	1	<i>I Can't Have Bannock...</i>	1
<i>Goodnight Moon</i>	0	<i>Leo the Late Bloomer</i>	0	<i>Moccasin Goalie</i>	.5
<i>Pete the Cat</i>	0	<i>What Happened to You?</i>	.25		
Diversity score average	0	Diversity score average	.35	Diversity score average	.94

Note. DSA = diversity score average.

and S-LPs are able to buy only so many each year with their own funds. Many participants indicated that they tried to find books in the institutional setting (e.g., school library, classroom) but rarely saw diverse books in those catalogues, which raises the issue of what books are acceptable to teachers or permitted by the school board. Finally, the types of books available were reportedly limited with many focused on animals or nonhuman characters.

In an effort to bring more diverse books into the therapy setting, Harris and Owen Van Horne (2021a) recommended selecting books with people, as using anthropomorphic animals can reduce a child's ability to connect with lead characters (Ding et al., 2023; Larsen et al., 2018). Furthermore, replacing human characters with animal characters in books about racialized communities may unintentionally communicate that animals are more acceptable in books and society than actual people (Harris & Owen Van Horne, 2021a).

**Cultural Responsivity in Speech-Language Pathology**

Culturally responsive treatment materials have been promoted in the literature as a means to facilitate emergent literacy skills and overall language development (Gillispie, 2021; Harris & Owen Van Horne, 2021a; Knight et al., 2021; Larson et al., 2020). The use of diverse literature in S-LP practice influences the perspective of all the children who are receiving services, including those from the dominant culture and those from minority cultures (Bishop, 1990; Harris & Owen Van Horne, 2021a). As noted by Bishop (1990), when children engage with a variety of stories from multiple cultures, children can view themselves and their lives in the

books, so that the book reflects the child's life back like a mirror; children might also experience the book as a window that illuminates the lives of other persons not currently known by the child; finally, children might experience the book as a sliding door, in which it is possible to imagine other outcomes or futures, especially for children from backgrounds who have not been present in the canon of children's literature, such as becoming a scientist or leader. As such, it is necessary to present books that have a variety of characters for children to deepen their understanding and come to celebrate these similarities and differences. Our sample demonstrated that the background of an S-LP (particularly home language and language of service) influenced the ability of S-LPs to do this successfully. Additionally, more seasoned professionals were more likely to frequently use diverse books in their practice. This may be because the ability to implement culturally responsive practice depends upon the will of the S-LP, training in culturally responsive and sustaining practices, adoption of cultural humility, and availability of the books (Harris & Owen Van Horne, 2021b; Narayanan & Ramsdell, 2022; Parveen & Santhanam, 2021; Suswaram et al., 2023). Responses to our survey show that S-LPs are motivated to change their treatment materials to meet these goals. Albeit, they encounter significant barriers when it comes to implementing these changes, such as taking the time to vet reading materials, limited budgets to purchase new books, and materials limited to their immediate contexts such as workplace or local libraries. They also reported that they receive training in techniques for cultural responsivity but encounter significant challenges. Access to appropriate books and related activities, in particular, is not catching up to



the motivation to change S-LP practice. Many S-LPs reported that there are not many diverse books that can easily be used in therapy. Future research can benefit by exploring these highly nuanced and context-dependent barriers.

### Limitations

The findings and conclusions of this survey are based on responses from only 115 respondents, forming a convenience sample. Although the survey did receive some responses in French and French titles, it was published in English, which presented a significant limitation. Although the respondents practised across the country, the sample was admittedly small and some parts of the country, especially the north, were not represented. Although our survey did ask for clinicians to provide the location (either postal code or city) where they provided services, no respondents provided services up north. Future survey studies may benefit from targeted outreach to clinicians who provide services in this part of the country or by providing incentives. The homogeneous nature of the sample matches the samples reported in other surveys. For example, Kerr et al. (2003) reported that their 144 Canadian respondents were women who used English or French; in their study, questionnaires were mailed to specific people with a follow-up request to those who did not respond to the first mailing. In our study we did not know who had received the invitations or not, and we did not follow up to make a second request. Therefore, the responses were specific to those individuals who decided to respond when they first received the notice about the questionnaire. Notwithstanding this concern about the size and composition of the sample, it seems likely that the responses were a good representation of the opinions offered by S-LPs in Canada.

### Conclusions

Responses to the survey confirmed that S-LPs in Canada are a homogenous group, but their pediatric caseloads are considerably more diverse in ethnoracial characteristics and language. Overall, many respondents were committed to using therapy materials that were culturally appropriate. However, they reported that their access to these materials was limited. Providing training to Canadian S-LPs about cultural and linguistic responsiveness would be an important goal for professional associations and researchers (e.g., Hyter, 2022; Millar et al., 2023; Pesco, 2014). Preservice clinical training programs could also benefit from including strategies for culturally and linguistically responsive therapy into their curriculum (for guidance see Speech-Language and Audiology Canada, 2024; see also Wolford et al., 2023). Distributing lists and frameworks for how to assess and use

culturally responsive storybooks for S-LP therapy would be helpful (e.g., Guiberson & Vining, 2023; Harris & Owen Van Horne, 2021a; Knight et al., 2021). Encouraging employers to make such books available to S-LPs is also essential to provide sustainable use of such materials in absence of funds or budget limitations by individual S-LPs. Finally, publishing diverse books that authentically represent racialized and linguistically minoritized communities that simultaneously meet multiple therapy goals along with relevant therapy materials is warranted.

### References

- Albin, M., Micsinszki, S., & Phoenix, M. (2022). Cultural adaptation of parent-implemented early communication interventions: A scoping review. *American Journal of Speech-Language Pathology*, 31(5), 2229–2247. [https://doi.org/10.1044/2022\\_AJSLP-21-00286](https://doi.org/10.1044/2022_AJSLP-21-00286)
- Ball, J., & Lewis, M. (2011). "An altogether different approach": Roles of speech-language pathologists in supporting Indigenous children's language development. *Canadian Journal of Speech-Language Pathology & Audiology*, 35(2), 144–158. <https://www.cjslpa.ca/detail.php?ID=1067>
- Bishop, R. S. (1990). Mirrors, windows, and sliding glass doors. *Perspectives*, 6(3), ix–xi.
- Bourassa Bédard, V., Charest, L., Chénier, G., Dionne, M., Duquette-Laplante, F., Jaber, M., Le Nguyen, A., Létourneau, A., & Verduyck, I. (2020). *Report on the impacts of systemic racism in the speech-language pathology and audiology professions in Québec*. Anti-Racism Advocacy Group for Speech-Language Pathology and Audiology. [https://098b2e30-5aab-4d82-b8be-44b6a69baf6d.filesusr.com/ugd/ca9fa0\\_c60f8b222af9490bb0ce587a1face486.pdf](https://098b2e30-5aab-4d82-b8be-44b6a69baf6d.filesusr.com/ugd/ca9fa0_c60f8b222af9490bb0ce587a1face486.pdf)
- Boyd, F. B., Causey, L. L., & Galda, L. (2015). Culturally diverse literature: Enriching variety in an era of common core state standards. *The Reading Teacher*, 68(5), 378–387. <https://doi.org/10.1002/trtr.1326>
- Brea-Spahn, M. R., & Bauler, C. V. (2023). Where do you anchor your beliefs? An invitation to interrogate dominant ideologies of language and languaging in speech-language pathology. *Language, Speech, and Hearing Services in Schools*, 54(3), 675–687. [https://doi.org/10.1044/2023\\_LSHSS-22-00135](https://doi.org/10.1044/2023_LSHSS-22-00135)
- Byrd, C. M. (2016). Does culturally relevant teaching work? An examination from student perspectives. *SAGE Open*, 6(3). <https://doi.org/10.1177/2158244016660744>
- Cahill, M., Ingram, E., & Joo, S. (2021). Storytime programs as mirrors, windows, and sliding glass doors? Addressing children's needs through diverse book selection. *The Library Quarterly*, 91(3), 269–284. <https://doi.org/10.1086/714317>
- Chu, S.-Y., & Garcia, S. (2014). Culturally responsive teaching efficacy beliefs of in-service special education teachers. *Remedial and Special Education*, 35(4), 218–232. <https://doi.org/10.1177/0741932513520511>
- Crago, M., & Westernoff, F. (1997). Position paper on speech-language pathology and audiology in the multicultural, multilingual context. *Canadian Journal of Speech-Language Pathology and Audiology*, 21(3), 223–226. [https://www.cjslpa.ca/files/1997\\_JSLPA\\_Vol\\_21/No\\_03\\_145-228/Crago\\_Westernoff\\_JSLPA\\_1997.pdf](https://www.cjslpa.ca/files/1997_JSLPA_Vol_21/No_03_145-228/Crago_Westernoff_JSLPA_1997.pdf)
- Cuervo, S., & Hobek, A. (2021). Tutorial: Digital bilingual books for dual language learners. *eHearsay*, 11(1), 42–50. <https://www.ohioslha.org/wp-content/uploads/2021/03/WinterIssue2021.pdf>
- Dahlen, S. P. (2020). "We need diverse books": Diversity, activism, and children's literature. In N. op de Beeck (Ed.), *Literary cultures and twenty-first-century childhoods* (pp. 83–108). Palgrave Macmillan.
- Damico, J. S., & Damico, S. K. (1993). Language and social skills from a diversity perspective. *Language, Speech, and Hearing Services in Schools*, 24(4), 236–243. <https://doi.org/10.1044/0161-1461.2404.236>
- Dickson, G. L., Chun, H., & Fernandez, I. T. (2016). The development and initial validation of the student measure of culturally responsive teaching. *Assessment for Effective Intervention*, 41(3), 141–154. <https://doi.org/10.1177/1534508415604879>

- Diehm, E. A., & Hendricks, A. E. (2021). Teachers' content knowledge and pedagogical regarding the use of African American English. *Language, Speech, and Hearing Services in Schools*, 52(1), 100–117. [https://doi.org/10.1044/2020\\_LSHSS-19-00101](https://doi.org/10.1044/2020_LSHSS-19-00101)
- Ding, X. P., Tay, C., Chua, Y. J., & Cheng, J. K. T. (2023). Can classic moral stories with anthropomorphized animal characters promote children's honesty? *Journal of Applied Developmental Psychology*, 85, Article 101498. <https://doi.org/10.1016/j.appdev.2022.101498>
- D'Souza, C., Kay Raining Bird, B. E., & Deacon, H. (2012). Survey of Canadian speech-language pathology service delivery to linguistically diverse clients. *Canadian Journal of Speech-Language Pathology & Audiology*, 36(1), 18–39. <https://www.cjslpa.ca/detail.php?ID=1091>
- Dundas, D. (2019, October 25). Who do we see in kids' books? Star survey puts numbers to the state of diversity. *Thestar.com*. <https://www.thestar.com/entertainment/books/2019/10/25/who-do-we-see-in-kids-books-star-survey-puts-numbers-to-the-state-of-diversity.html>
- Dundas, D. (2020, December 17). Who do we see in Canadian children's books? The Star's second annual diversity survey tells the story. *Thestar.com*. <https://www.thestar.com/entertainment/books/2020/12/17/who-do-we-see-in-canadian-childrens-books-the-stars-second-annual-diversity-survey-tells-the-story.html>
- Fumero, K., Torres-Chavarro, M., & Wood, C. (2021). Challenges in service provision to children and families from linguistically diverse backgrounds. *Seminars in Speech and Language*, 42(05), 395–418. <https://doi.org/10.1055/s-0041-1736498>
- Gillispie, M. (2021). Culturally responsive language and literacy instruction with Native American children. *Topics in Language Disorders*, 41(2), 185–198. <https://doi.org/10.1097/TLD.0000000000000249>
- Guiberson, M., & Atkins, J. (2012). Speech-language pathologists' preparation, practices, and perspectives on serving culturally and linguistically diverse children. *Communication Disorders Quarterly*, 33(3), 169–180. <https://doi.org/10.1177/1525740110384132>
- Guiberson, M., & Ferris, K. (2023). Speech-language pathologists' preparation, practices, and perspectives on serving Indigenous families and children. *American Journal of Speech-Language Pathology*, 32(6), 2858–2870. [https://doi.org/10.1044/2023\\_AJSLP-23-00105](https://doi.org/10.1044/2023_AJSLP-23-00105)
- Guiberson, M., & Vining, C. B. (2023). Culturally responsive and Indigenous language strategies: Findings from a scoping review. *Communication Disorders Quarterly*, 45(1), 3–19. <https://doi.org/10.1177/15257401231155812>
- Harris, S., & Owen Van Horne, A. J. (2021a). Turn the page, speech-language pathologists: Adequate, authentic, and accurate representation as a consideration in the selection of picture books for use in treatment. *Language, Speech, and Hearing Services in Schools*, 52(4), 955–966. [https://doi.org/10.1044/2021\\_LSHSS-20-00155](https://doi.org/10.1044/2021_LSHSS-20-00155)
- Harris, S., & Owen Van Horne, A. J. (2021b). Speech-language pathologist's race, but not caseload composition, is related to self-report of selection of diverse books. *Perspectives*, 6(5), 1263–1272. [https://doi.org/10.1044/2021\\_PERSP-20-00280](https://doi.org/10.1044/2021_PERSP-20-00280)
- Hartenstein, J. L., Brumbaugh, K., Holguin, J., & Licani, A. (2023). The representation of differing abilities in children's literature: A local analysis. *International Journal of the Whole Child*, 8(1), 54–65. <https://libjournals.mtsu.edu/index.php/ijwc/article/view/2391/1424>
- Hernández, A. W., Campos, I., & Zyskind, K. Z. (2023). Considerations in utilizing translanguaging practices to meet the language needs of Maya children in US schools. *Language, Speech, and Hearing Services in Schools*, 54(2), 379–386. [https://doi.org/10.1044/2022\\_LSHSS-22-00082](https://doi.org/10.1044/2022_LSHSS-22-00082)
- Horton, R., & Muñoz, M. L. (2021). Teaching culturally responsive evidence-based practice in speech-language pathology. *Teaching and Learning in Communication Sciences and Disorders*, 5(3). <https://doi.org/10.30707/TLCD5.3.1649037688.663398>
- Hyter, Y. D. (2022). Engaging in culturally responsive and globally sustainable practices. *International Journal of Speech-Language Pathology*, 24(3), 239–247. <https://doi.org/10.1080/17549507.2022.2070280>
- Inglebret, E., Jones, C., & Pavel, D. M. (2008). Integrating American Indian/Alaska Native culture into shared storybook intervention. *Language, Speech, and Hearing Services in Schools*, 39(4), 521–527. [https://doi.org/10.1044/0161-1461\(2008\)07-0051](https://doi.org/10.1044/0161-1461(2008)07-0051)
- Kaderavek, J. N., & Justice, L. M. (2002). Shared storybook reading as an intervention context: Practices and potential pitfalls. *American Journal of Speech-Language Pathology*, 11(4), 395–406. [https://doi.org/10.1044/1058-0360\(2002\)043](https://doi.org/10.1044/1058-0360(2002)043)
- Kay-Raining Bird, E., Genesee, F., & Verhoeven, L. (2016). Bilingualism in children with developmental disorders: A narrative review. *Journal of Communication Disorders*, 63, 1–14. <https://doi.org/10.1016/j.jcomdis.2016.07.003>
- Kerr, M. A., Guildford, S., & Kay-Raining Bird, E. (2003). Standardized language test use: A Canadian survey. *Canadian Journal of Speech-Language Pathology & Audiology*, 27, 10–28. <https://www.cjslpa.ca/detail.php?ID=22>
- Knight, C., Gregory, K., & Nellenbach, K. (2021). Creating culturally supportive settings that foster literacy development: Guidance for S-LPs. *Perspective*, 6(4), 912–923. [https://doi.org/10.1044/2021\\_PERSP-20-00290](https://doi.org/10.1044/2021_PERSP-20-00290)
- Kuehl, R. (2021). Can children of different races "see" themselves in audiobooks? A comparison of U.S. library systems' offerings. *Collection Management*, 46(1), 14–34. <https://doi.org/10.1080/01462679.2020.1732252>
- Larsen, N. E., Lee, K., & Ganea, P. A. (2018). Do storybooks with anthropomorphized animal characters promote prosocial behaviors in young children? *Developmental Science*, 21(3), Article e12590. <https://doi.org/10.1111/desc.12590>
- Larson, A. L., Cycyk, L. M., Carta, J. J., Hammer, C. S., Baralt, M., Uchikoshi, Y., An, Z., & Wood, C. (2020). A systematic review of language-focused interventions for young children from culturally and linguistically diverse backgrounds. *Early Childhood Research Quarterly*, 50(1), 157–178. <https://doi.org/10.1016/j.ecresq.2019.06.001>
- McCormack, J., McLeod, S., Harrison, L. J., & McAllister, L. (2010). The impact of speech impairment in early childhood: Investigating parents' and speech-language pathologists' perspectives using the ICF-CY. *Journal of Communication Disorders*, 43(5), 378–396. <https://doi.org/10.1016/j.jcomdis.2010.04.009>
- Millar, C., Carey, L. B., Hill, A. E., Attrill, S., Avgoulas, M. I., Drakopoulos, E., & Sutton, C. A. (2023). Global citizenship and social justice among speech-language pathologists: A scoping review. *Journal of Communication Disorders*, 103, Article 106317. <https://doi.org/10.1016/j.jcomdis.2023.106317>
- Narayanan, T. L., & Ramsdell, H. L. (2022). Self-reported confidence and knowledge-based differences between multilingual and monolingual speech-language pathologists when serving culturally and linguistically diverse populations. *Perspectives*, 7(1), 209–228. [https://doi.org/10.1044/2021\\_PERSP-21-00169](https://doi.org/10.1044/2021_PERSP-21-00169)
- Nguyen, A. (2022). "Children have the fairest things to say": Young children's engagement with anti-bias picture books. *Early Childhood Education Journal*, 50(5), 743–759. <https://doi.org/10.1007/s10643-021-01186-1>
- O'Sullivan, J. T. (2021). *Model schools literacy project: Investing in children*. Martin Family Initiative.
- Parveen, S., & Santhanam, S. P. (2021). Speech-language pathologists' perceived competence in working with culturally and linguistically diverse clients in the United States. *Communication Disorders Quarterly*, 42(3), 166–176. <https://journals.sagepub.com/doi/abs/10.1177/1525740120915205>
- Pesco, D. (2014). Working with Aboriginal children and families: Cultural responsiveness and beyond. *Canadian Journal of Speech-Language Pathology & Audiology*, 38(2), 144–151. <https://www.cjslpa.ca/detail.php?ID=1147>
- Privette, C. (2021). Critical race theory for speech-language pathology: How race-conscious practice mitigates disparities. In R. Horton (Ed.), *Critical perspectives on social justice in speech-language pathology* (pp. 84–104). IGI Global. <https://doi.org/10.4018/978-1-7998-7134-7>
- Privette, C. (2023). Embracing theory as liberatory practice: Journeying toward a critical praxis of speech, language, and hearing. *Language, Speech, and Hearing Services in Schools*, 54(3), 688–706. [https://doi.org/10.1044/2023\\_LSHSS-22-00134](https://doi.org/10.1044/2023_LSHSS-22-00134)
- Rvachew, S., & Brosseau-Lapré, F. (2018). *Developmental phonological disorders: Foundations of clinical practice* (2<sup>nd</sup> ed.). Plural Publishing. [https://www.pluralpublishing.com/publication\\_dp2e.htm](https://www.pluralpublishing.com/publication_dp2e.htm)
- Sackett, D. L., Rosenberg, W. M. C., Muir, J. A., Haynes, R. B., & Richardson, W. S. (1996). Evidence based medicine: What it is and what it isn't. *British Medical Journal*, 312(7023), 71–72. <https://doi.org/10.1136/bmj.312.7023.71>
- Schott, E., Kremin, L. V., & Byers-Heinlein, K. (2022). The youngest bilingual Canadians: Insights from the 2016 census regarding children aged 0–9 years. *Canadian Public Policy*, 48(2), 254–266. <https://doi.org/10.3138/cpp.2021-064>

- Speech-Language & Audiology Canada. (2024). *SAC position paper on: School-based speech-language pathology services in the context of multilingualism*. [https://www.sac-oac.ca/wp-content/uploads/2024/02/2024-Multilingualism-in-Schools\\_Final-EN.pdf](https://www.sac-oac.ca/wp-content/uploads/2024/02/2024-Multilingualism-in-Schools_Final-EN.pdf)
- Soto-Boykin, X. T., Brea-Spahn, M. R., Perez, S., & McKenna, M. (2023). A critical analysis of state-level policies impacting racialized emergent bilinguals suspected or labeled as dis/abled. *Language, Speech, and Hearing Services in Schools, 54*(3), 729–745. <https://journals.sagepub.com/doi/10.1177/0271121421991222>
- Soto-Boykin, X. T., Larson, A. L., Olszewski, A., Velury, V., & Feldberg, A. (2021). Who is centered? A systematic review of early childhood researchers' descriptions of children and caregivers from linguistically minoritized communities. *Topics in Early Childhood Special Education, 41*(1), 18–30. <https://doi.org/10.1177/0271121421991222>
- Souissi, T. (2022, August 19). Racialized minorities. In *The Canadian encyclopedia*. <https://www.thecanadianencyclopedia.ca/en/article/racialized-minorities>
- Statistics Canada. (2017, October 25). *Census in brief. Children with an immigrant background: Bridging cultures*. <https://www12.statcan.gc.ca/census-recensement/2016/as-sa/98-200-x/2016015/98-200-x2016015-eng.cfm>
- Statistics Canada. (2021). *Visible minority of person*. <https://www23.statcan.gc.ca/imdb/p3Var.pl?Function=DECI&id=1323413>
- Statistics Canada. (2022a, September 21). Indigenous population continues to grow and is much younger than the non-Indigenous population, although the pace of growth has slowed. *The Daily*. <https://www150.statcan.gc.ca/n1/daily-quotidien/220921/dq220921a-eng.pdf>
- Statistics Canada. (2022b, August 17). While English and French are still the main languages spoken in Canada, the country's linguistic diversity continues to grow. *The Daily*. <https://www150.statcan.gc.ca/n1/daily-quotidien/220817/dq220817a-eng.htm>
- Suswaram, S., Brady, N. C., & Gillispie, M. (2023). The role of service providers' linguistic backgrounds on assessment of multilingual children. *Journal of Communication Disorders, 102*, Article 106302. <https://doi.org/10.1016/j.jcomdis.2023.106302>
- Unger, J. P., DeBonis, D. A., & Amitrano, A. R. (2021). A preliminary investigation of social justice perceptions among U.S. speech-language pathologists: Clinical implications. *American Journal of Speech-Language Pathology, 30*(5), 2003–2016. [https://doi.org/10.1044/2021\\_ajslp-20-00286](https://doi.org/10.1044/2021_ajslp-20-00286)
- Whitfield, J. A. (2023). Systemic racism in communication sciences and disorders academic programs: A commentary on trends in racial representation. *American Journal of Speech-Language Pathology, 32*(1), 381–390. [https://doi.org/10.1044/2022\\_AJSLP-22-00210](https://doi.org/10.1044/2022_AJSLP-22-00210)
- Wolford, L. L., Wolford, G. W., Smith, L., Clement, A., & de Diego-Lázaro, B. (2023). The impact of treating bilingual clients on speech-language pathology students' cultural responsiveness. *American Journal of Speech-Language Pathology, 32*(6), 2960–2981. [https://doi.org/10.1044/2023\\_AJSLP-23-00060](https://doi.org/10.1044/2023_AJSLP-23-00060)
- Yu, B., Horton, R., Munson, B., Newkirk-Turner, B. L., Johnson, V. E., Khamis-Dakwar, R., Muñoz, M. L., & Hyter, Y. D. (2022). Making race visible in the speech, language, and hearing sciences: A critical discourse analysis. *American Journal of Speech-Language Pathology, 31*(2), 578–600. [https://doi.org/10.1044/2021\\_AJSLP-20-00384](https://doi.org/10.1044/2021_AJSLP-20-00384)

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