

Chapter 05



Language facilitation in child care settings: A social-interactionist perspective

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Abstract

A series of four studies investigated the language input of child care providers to toddlers and preschoolers in community child care centres. Their language input was compared across two age groups (toddlers, preschoolers) and two naturalistic contexts (book reading, play dough activity). The toddlers were between 17 and 33 months of age and the preschoolers were between 30 and 53 months of age. One study included children with language disorders who were between 33 and 50 months of age. The analyses focused on structural features of language input (e.g., number of utterances, mean length of utterance), linguistic responsiveness (e.g., follow the children's lead, encourage turn-taking, expand), and linguistic directiveness (e.g., attention calls, commands, test questions, turn-taking dominance, topic control). The results of our studies indicated that caregivers did not make many modifications in the structural features of their language input when talking with toddlers versus preschoolers. Moreover, caregivers made few modifications in their responsive and directive strategies when talking to younger versus older children. However, the context of the interaction exerted a strong, systematic influence on the caregivers' use of strategies, with the play dough activity providing the most responsive input overall. Caregivers' interactions with children who had language disorders were characterized by an increased number of utterances, decreased MLU, and more in directive input. There was a strong positive relationship between the caregivers' responsiveness and variation in the preschoolers' language productivity. In contrast, directive input was negatively correlated with language use.

Introduction

An increasing number of young children are spending the majority of their waking hours in day care centres. Once children enter full-time child care, relationships

with nonparental adults become increasingly important in shaping children's language learning experiences. Our research program has focused on investigating the nature of caregivers' language input to young children to describe language facilitation strategies that influence children's language development. This research has been guided by social interactionist perspectives of language acquisition: namely, that language learning occurs during naturalistic conversational exchanges with adults. Within this perspective, the 'responsivity' hypothesis explains the facilitatory effect of maternal input as a match between the child's processing mechanisms and the adult's responsive input. In other words, speech that is responsive to the child's plan-of-the-moment reduces contextual ambiguities, provides redundancy, and increases the saliency of the input, such that more cognitive resources can be available for language learning (Harris, Jones, Brookes, & Grant, 1986; Tomasello & Todd, 1983; Yoder, Kaiser, Alpert, & Fischer, 1993). The caregivers' responsive comments, descriptions, and interpretations of the children's interests create episodes of joint attention and joint action, thereby increasing the ease with which children make connections between spoken words, the context, and their referents. Moreover, these utterances are topically contingent and include similar meanings as the child's previous utterance, but express them using mature language forms or add new information. A second, compatible explanation is the 'structural' hypothesis that observes that adult speech input is slightly more advanced than the child's expressive language abilities. Thus, it may facilitate language development because it provides models that are one step ahead of the child but are still at a level that can be mastered (Cross, 1977; Weistuch & Brown, 1987; Yoder & Warren, 1993).

One problem in adopting a social interactionist model is that it is derived primarily from studies of mother-child dyadic interaction. Almost nothing is known about caregiver language input within polyadic interaction. Group-directed talk, in which the caregiver shares interaction time with several children, differs in important ways from child-directed talk. First, when addressing a group, the caregivers' language level cannot match the diverse language levels of all group members. Second, conversations can involve one group topic or a series of unconnected, simultaneous topics. Third, in joint constructions of a group topic, children must learn to attend simultaneously to multiple sources of information (e.g., adult, other children) and keep them in working memory to formulate appropriate responses. Given the growing cognitive capacities of young children, their failure to participate in group conversations may require frequent conversation repairs. Finally, caregivers are constrained not only by the topic and the number of children, but also by the group size, fluctuating group membership, disruptions, and group management functions that highlight safety and behaviour compliance. Given these differences, the question of whether group talk is appropriately simplified and sufficiently responsive for young, language-learning children is an important one.

Research questions

Our research program focused on four questions. First, what is the role of caregivers' directives in conversations with groups of children? This research examined the types of directives that caregivers use, contexts that influence directives, and how directives interact with children's language productivity. The second question focused on teachers' responsiveness in group interactions. This question examined structural simplifications that caregivers make to their grammar and vocabulary as well as to their linguistic and non-linguistic responsive language strategies. The third question investigated caregivers' language input to preschool-aged children with language disorders. We asked whether caregivers modified the structure and responsiveness of their language input when communicating with an integrated group that included a child with language disorders. Finally, our fourth question addressed whether a program designed to enhance caregivers' responsiveness was an effective and viable model of inservice training for child care professionals.

Settings

Our research program included not-for-profit, licensed day care centres in Metropolitan Toronto. The toddler classrooms had a caregiver-child ratio of 1:5 and the preschool classrooms had a caregiver-child ratio of 1:8, as mandated by law in the Province of Ontario. All day care centres were on a waiting list at The Hanen Centre to receive an inservice training program, *Learning Language and Loving It - The Hanen Program*® for Early Childhood Educators (Weitzman, 1992, 1994). In our series of studies, we decided to examine caregiver-child interaction in two settings: play dough, which is a child-centred play context, and book reading, which is an adult-directed play context. For the play dough situation, one caregiver and four children sat at a child-sized table and interacted with four colours of play dough, small figures, utensils, and miniature vehicles. In the book reading context, the caregiver and children sat on pillows on the floor and used four books provided to them. Caregivers were instructed to interact as they normally would in a similar, unobserved situation.

We also decided arbitrarily to restrict the group size to four children. Previous research revealed that small groups of children receive more responsive language input, while larger groups tend to receive language input that expresses management functions concerned with group safety or task compliance (Cross, 1989; Palmerus, 1996; Pellegrino & Scopesi, 1990; Schaffer & Liddell, 1984). For example, Pellegrino and Scopesi (1990) reported that adult language input was optimal with groups of three children and became increasingly more directive and less interactive when the group size approached seven children. Previous research also indicated that preschool children experience more interaction in small rather than large group settings (McCabe et al., 1996).

Participants and methods

The series of studies that we conducted involved between eight and 26 child care providers, all of whom had completed high school, as well as two years of post-secondary education resulting in an early childhood education (ECE) diploma. None of the caregivers had received any post-diploma training on facilitating language development. All child care providers were female, had at least two years experience in child care, and were responsible for curriculum planning in their respective classrooms. Their average age was approximately 31 years. Approximately half of the caregivers worked in toddler classrooms (18 to 30 months) and the remainder worked in preschool classrooms (greater than 30 months).

Each child care provider selected two boys and two girls from her classroom to take part in the study. The toddlers ranged in age from 17 to 30 months and the preschoolers ranged in age from 30 to 53 months. Typical development was confirmed using a parent report on a brief intake questionnaire and the *Speech and Language Assessment Scale* (Hadley & Rice, 1993) that was completed by the child care provider for each child. Most of the children attended the facility on a full time basis (i.e., at least 40 hours per week) and all had attended the particular child care centre for at least two months prior to the study.

For the integration study, we recruited eight children with cognitive and language disorders, as determined by scores more than two standard deviations below the mean on the *Developmental Profile-II* (Interview Edition) (Alpern, Boll, & Shearer, 1984) and the *Preschool Language Scale – 3* (Zimmerman, Steiner, & Pond, 1992), respectively. Two of the children had Down syndrome, one had a diagnosis of developmental delay, and the etiologies of the remaining five children were unknown. None of the children had physical disabilities, PDD/autism, or oral motor difficulties. The mean age of the children was 44 months, ranging from 33 to 50 months of age. All children were severely delayed in their communication abilities and used word approximations or were at the one-word stage of language development.

Results and discussion

Directiveness

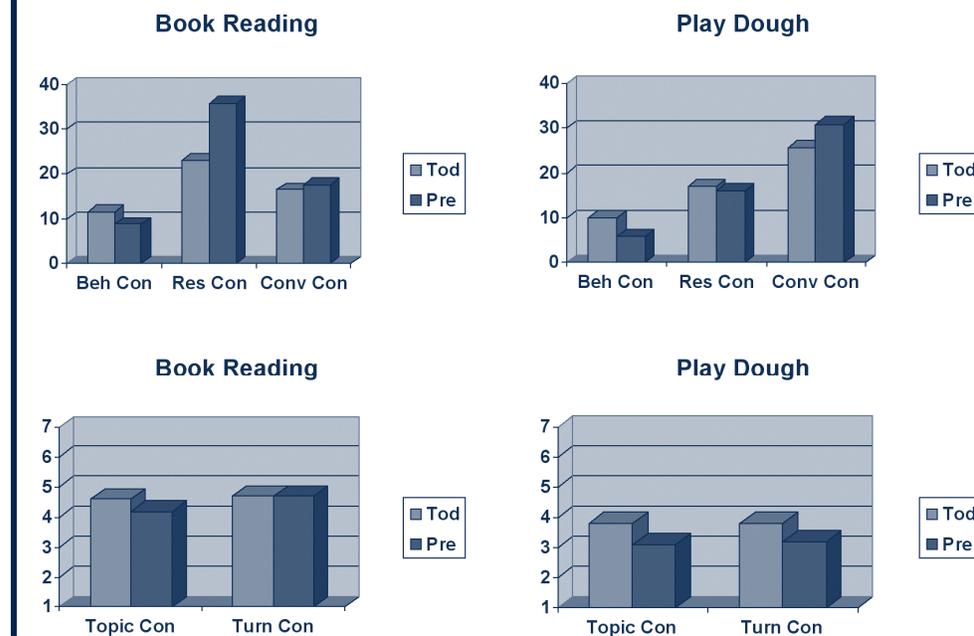
The specific role of directive language input in language acquisition is not clearly defined by social interactionist theories. Some adherents of this perspective generally maintain that language learning may be inhibited when the input is at odds with the child's plan-of-the-moment in topic and content (McDonald & Pien, 1982; O'Brien & Bi, 1995; Ogilvy, 1992; Olsen-Fulero, 1982). It is thought that directive input lacks semantic contingency and provides few opportunities for joint engagement. Five subtypes of directiveness were examined in this study, three of which were adapted from the work of Tannock (1988):

- *behaviour control* refers to utterances that are used by teachers to elicit group participation around a common activity or to manage safety concerns

- *conversation control* refers to caregivers' use of open-ended questions to elicit conversation and is generally construed as having a positive controlling effect
- *response control* refers to teachers' use of commands, test questions, and yes-no questions that serve to elicit a specific vocal, verbal, or action response from the child
- *turn-taking control* is the extent to which teachers dominate the conversation by using frequent verbal turns
- *topic control* refers to the extent to which adults select the topic of the conversation and direct the child's attention to adult-selected topics or activities

The first question investigated the types of directives that caregivers use with toddlers versus preschoolers. The data in Figure 1 indicate that caregivers used similar levels of response control, turn-taking control, and topic control with both age groups. However, they used significantly more behaviour control with younger children (who were 24 months old on average) and significantly more conversation control with older children (who were 41-months-old on average). This finding indicates a surprisingly stable pattern of directiveness across toddlers and preschool groups that display significantly different language abilities.

Figure 1. Directive behaviour of caregivers in two contexts



Note: Tod = toddler; Pre = preschooler; Beh Con = behaviour control; Res Con = response control; Conv Con = conversation control; Topic Con = topic control; Turn Con = turn-taking control

The second question asked, how do contexts influence directives? Figure 1 indicates that book reading elicited significantly more directive input than play dough. In book reading, caregivers used more behaviour control, response control, turn-taking control, and topic control. The caregivers' general expectation appeared to be for the children to listen, attend, and respond to specific questions related to the book's content. In contrast, play dough facilitated interaction. Child care providers utilized less behaviour control and response control. They followed the child's lead more often, and the turn-taking was more balanced. This activity yielded the greatest amount of child talk in terms of number of utterances and word combinations.

Responsiveness

The purpose of our next study was to examine responsive input used by caregivers with toddlers and preschoolers. According to the social interactionist theories, responsive input facilitates language acquisition because it is responsive to the child's plan-of-the-moment and provides language models that highlight regularities in the input. Three different subtypes of responsive language input used in interactions with young children (Tannock & Girolametto, 1992). Three subtypes of responsive strategies were examined:

- *child-oriented responses* that follow the children's lead in terms of topic and include waiting for children to initiate as well as being at the children's physical level
- *interaction-promoting responses* that engage children in extended conversations and include questions to encourage turn-taking and each child's participation
- *language-modelling responses* that include labels, expansions, and extensions that provide semantic and syntactic models of mature language forms

The first question asked whether caregivers' use of responsive strategies differed when addressing a group of toddlers versus preschoolers. The above strategies were investigated using the *Teacher Interaction and Language Rating Scale* (Girolametto, Weitzman, & Greenberg, 2000). And a summary of the means for each of the rating scale items can be found in Table 1. The results revealed that, for the most part, two-year-olds and three-year-olds received similar amounts of child-oriented and interaction-promoting strategies that included both nonverbal responses (e.g., waiting, being face-to-face, visually scanning the group) as well as verbal responses (e.g., linking comments and questions, verbally inviting children to interact). However, the data revealed that the caregivers of toddlers used simple labels more often than the caregivers of preschoolers. In contrast, caregivers of preschoolers used more extensions of the children's' topics, thus providing more opportunities for children to use advanced language for predicting outcomes, relating the here-

and-now to past experiences, and explaining their observations. Taken together, these findings suggest that group-directed talk is not very sensitive to variation in expressive language abilities.

Table 1 - Mean ratings for nine items from the *Teacher Interaction and Language Rating Scale*

	Context	Toddler Group (13) Mean Rating	Preschool Group (13) Mean Rating
I Child-centred strategies			
Wait and listen	Bk	3.4	3.2
	PI	4.8	4.5
Follow children's lead	Bk	3.8	3.4
	PI	4.6	4.5
Be face-to-face	Bk	4.4	4.5
	PI	3.8	4.6
II Interaction-promoting strategies			
Use a variety of questions	Bk	3.3	3.7
	PI	3.9	4.5
Encourage turn-taking	Bk	2.9	3.3
	PI	3.8	4.8
Scan	Bk	3.2	3.8
	PI	3.9	4.4
III Language modelling strategies			
Use a variety of labels	Bk	5.1	4.0
	PI	4.8	4.2
Expand	Bk	2.8	2.8
	PI	4.3	3.8
Extend	Bk	3.4	3.9
	PI	3.8	4.2

Note: *Bk* - book reading; *PI* = play dough

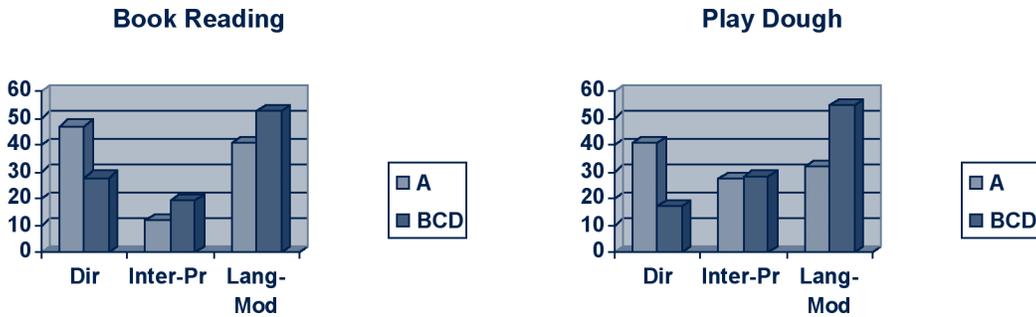
It is interesting to note that there were four interactive strategies that were used least often by both groups of child care providers. A post hoc examination of the within group data revealed that over half of the caregivers in each group received consistently low ratings for *use a variety of questions*, *encourage turn-taking*, *expand*, and *extend*. These techniques are important for eliciting high levels of child participation and providing contingent language input.

The second question asked whether the caregivers' use of responsive strategies differed in play dough and book reading. The play dough activity filmed in this study elicited higher ratings for two child-oriented strategies (*wait and listen*, *follow the children's lead*); all three interaction-promoting strategies (*use a variety of questions*, *encourage turn-taking*, *scan*); and one language-modelling strategy (*expand*). This suggests that book reading was not used by caregivers to encourage conversations but rather as a didactic discourse activity. This raises the question of whether book reading can be turned into a more responsive context given inservice training.

What happens when you integrate a child with language impairments?

When a child with a disability is integrated into the group, some studies report that child care providers overcompensate by interacting more frequently with these children than with other children (Brophy & Hancock, 1985; Stipek & Sanborn, 1985). However, the situation may be less favorable for children who are nonverbal. Pecyna Rhyner and her colleagues (1990) found that nonverbal initiations of young children with developmental disabilities and language delays were ignored or invited only infrequent responses from child care providers, indicating that there may be reduced opportunities for joint interaction for such children in group contexts. This study compared caregivers' input to a group of four children, one of whom had a language disorder, and a second group of four typically developing children. Both directive and responsive strategies were examined. Directive strategies included behaviour control, commands, attention calls, test questions, and directive yes/no questions. Interaction-promoting strategies included open-ended questions and clarification questions. Language-modelling strategies included imitations, labels, expansions, and comments.

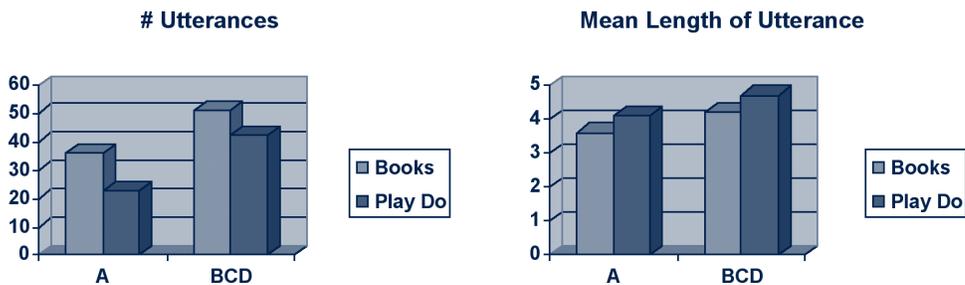
Figure 2. Directive and responsive language input strategies used by caregivers



Note: A = child with language disorders; BCD = typically-developing children; Dir = directiveness; Inter-Pr = interaction-promoting strategies; Lang-Mod = language-modelling strategies

The first question asked whether the caregivers were more directive with children who had language disorders. The data in Figure 2 indicate that the caregivers used significantly more directive language input but less language-modelling input when addressing the child with language delay, in comparison to the typically developing children in the group. On average, 44 percent of the adults' utterances were used to direct the behaviour of the child with language delay – almost twice as many as those used for any other child in the group. The proportion of language-modelling utterances addressed to the child with language delay averaged 36 percent, the least of all of the children in the group. Given the value of these strategies for stimulating progress in language acquisition (Nelson, 1973; Richards, 1994; Snow, 1994), it may be advisable for child care providers to optimize the frequency of usage of language-modelling strategies such as labels and expansions.

Figure 3. Number of utterances and MLU in the caregiver's language input to individual children within the integrated group



Note: A = child with language disorders; BCD = typically-developing children

The second question asked whether the caregivers would simplify their language input in terms of the number of utterances used and linguistic complexity, as measured by mean length of utterance in morphemes (MLU). The data in Figure 3 indicate that the child care providers in the current study talked more to the individual children with language disorders (A) and also lowered their MLU when talking with these children, as compared to the typically-developing children in the group (BCD). However, inspection of the MLU data reveals that the adults' average MLU values were still at least twice as long as the average length of utterance produced by the children with language disorders.

Therefore, it appears that when children with language disorders are integrated into the group, caregivers make positive adjustments to their MLU values, increase their amount of child-directed talk, but use language to direct the children rather than to provide language models.

Effects of inservice training

Our final question asked about the effects of an inservice training program on caregivers' group talk. The general recommendation derived from our previous studies is that inservice education should focus on increasing children's initiation of interactions and on providing higher levels of responsive language, limiting the use of directives, extending turn-taking sequences, and promoting peer interactions. One model of inservice training frequently used for early childhood educators is *interactive language stimulation* that trains child care providers to use naturalistic interaction strategies that are associated with accelerated language development in typically-developing children.

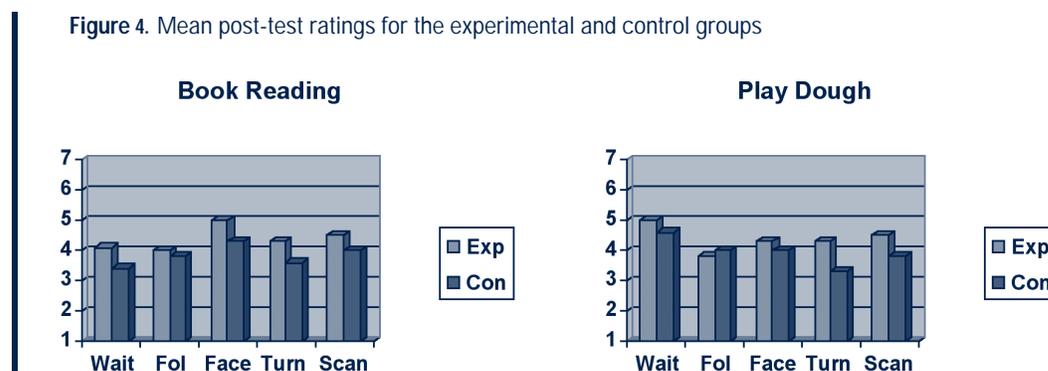
In this research study, *Learning Language and Loving It – The Hanen Program*[®] for Early Childhood Educators (Weitzman, 1992, 1994) was offered to eight caregivers in the experimental (treatment) group. A second group of eight caregivers were randomly assigned to the control group. The 15-week program included eight evening group sessions to teach program strategies, and seven individual sessions in the day care. The group sessions were 2.5 hours long and took place in the evening, after the day care was closed. Each session included various learner-centred activities such as interactive lectures, observation and analysis of videotapes that illustrated program techniques, large and small group discussions, and role-plays of program techniques. The individual videotaping sessions occurred during the two-week interval between evening sessions, each consisting of a five-minute videotape of caregiver-child interaction followed by 30 minutes of individual feedback and discussion regarding the use of program strategies.

The content focused on three main groups of strategies for enhancing child participation in interactions and modelling simplified language input, derived from ratings

on the *Teacher Interaction and Language Rating Scale* (Girolametto, Weitzman, & Greenberg, 2000). These included:

- *child-oriented responses* (e.g., waiting for initiations, using verbal and nonverbal responses that follow the child’s plan-of-the-moment, being face-to-face)
- *interaction-promoting responses* (e.g., waiting for turns, encouraging turns on topic, ensuring that all children in the group are actively participating)
- *language-modelling responses* (e.g., using responsive labels, expansions, and extensions of the child’s topic)

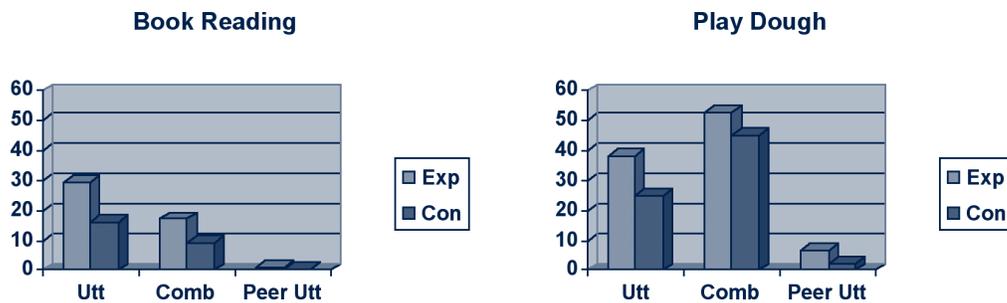
Figure 4. Mean post-test ratings for the experimental and control groups



Note: Fol = Follow the children’s lead; Exp = experimental group; Con = control group

The post-test data in Figure 4 indicate that the child care providers who participated in the inservice training program were able to adopt a number of the responsive strategies recommended by the inservice program. The child care providers became more child-centred (e.g., by waiting for initiations or being face-to-face), and promoted the children’s active participation and turn-taking more frequently than the control group. Moreover, they maintained these changes over the nine month follow-up period without further inservice training. This resulted in very positive outcomes for the children’s use of language (see Figure 5). Children in the experimental group mirrored their child care providers by increasing their overall talkativeness to both adults and peers in the two activities that were investigated in this study (i.e., play dough and book reading). In addition, they used more multiword combinations, suggesting that their higher levels of productivity were accompanied by a more complete representation of their language abilities.

Figure 5. Mean number of utterances, combinations, and peer-directed utterances at post-test



Note: Exp = experimental group; Con = control group; Utt = utterances; Comb = multiword combinations; Peer Utt = peer-directed utterances

The results of this study suggest that child care providers can change their use of book reading from a listening activity to a conversational activity. In contrast to book reading, the play dough activity is inherently more child-centred. In this activity, the child care providers increased their engagement in face-to-face interaction and scanned the group to increase the participation of all the children. Taken together, these findings indicate that inservice training has a significant impact on the language facilitation strategies used by child care providers.

Implications and recommendations

The clinical implications of this line of research include activities and strategies that may be facilitative of child language, specific areas of inservice education for child care providers, and documentation of how the inclusion of children with language disorders influences group talk.

First, the results of our studies indicate that child-centred play contexts elicit more responsive interaction strategies from the caregivers and more verbal participation from the children than a more adult-directed activity such as book reading. However, caregivers are able to modify the book reading experience to make it more conversational. This suggests that book reading may have a dual role in the day care setting – as an instructional discourse activity and as a conversational activity. The data indicate that when caregivers use books using a conversational style, they elicit more verbal participation from the children. Given the role ascribed to practice and feedback in the social-interactionist model of language acquisition, the conversational style of book reading has positive implications for developing language in young, language-learning children. The disparity between the kinds of discourse elicited by the two contexts (books vs. play dough) also points out how important it is for speech-language pathologists who sample caregiver-child interactions to observe multiple contexts in order to form a complete picture of the children’s language facilitation experiences.

Second, our studies confirm the importance of responsive interaction strategies in eliciting children's participation in conversation. Directive strategies were associated with low levels of children's language productivity, whereas responsive strategies were associated with higher levels of language productivity (i.e., utterances, different words, combinations) in both toddlers and preschoolers. This suggests that responsive strategies (e.g., asking open-ended 'wh-' questions, making interactions child-centred, encouraging turn-taking, and using contingent language models) may play an important role in eliciting high levels of children's participation in conversations. Despite this positive finding, the child care providers in our studies used low levels of four responsive techniques (i.e., *questions*, *turn-taking*, *expand*, *extend*), suggesting that the group talk was not optimal. Thus, inservice education to optimize caregivers' use of these responsive language techniques may have even more beneficial effects on children's language experiences.

Third, our efficacy study indicated that inservice training can optimize caregiver-child interactions and produce positive effects on the children's language productivity. Caregivers who received the inservice program had children who used more utterances and more word combinations. Future emphasis on specific language input strategies that were observed infrequently may optimize caregiver group talk further. These strategies include: (a) *use a variety of questions*; (b) *encourage turn-taking*; (c) *expand*; and (d) *extend*. Why were these strategies used infrequently? One possible explanation is that these techniques tend to focus on responding to one specific child or one topic. Therefore, these four strategies may be easier to use in dyadic interactions as opposed to polyadic interactions. A second explanation is that caregivers may require booster sessions to help them focus on these more difficult strategies and maintain high levels of responsive group talk.

Fourth, it appears that caregivers talk more and talk slowly when children with language disorders are integrated into day care groups. However, their utterances are directive, complex, and provide few contingent language models. In turn, these children talk the least often and are exposed to the least amount of peer interaction when compared to other children in their group. This finding is the opposite of what one would expect, given that these children who need *more* language practice and feedback receive *less*. Further inservice training with caregivers in integrated settings may be needed to individualize the language input for these children. For example, modifications to reduce directiveness, match the language input to the child's level of understanding, and encourage turn-taking and peer interaction may result in more profitable interactive experiences for these vulnerable children.

Future directions

When taken together, the data indicate that group talk differs significantly from dyadic interaction in that it presents a more challenging, less finely-tuned language environment for young children. While this may be facilitative of language

development for some typically-developing children, the language environment may be overly challenging for children with language disorders. Our study indicated that these children were disadvantaged by group talk because the input they received was the least contingently responsive and they participated in conversational interactions infrequently. Efforts to create a language environment more conducive to language facilitation for these children needs to be the focus of future inservice training efforts.

A second line of future research involves peer interaction. In our studies, the proportion of peer talk is relatively small, indicating that peer language input is not likely to be an alternative source of language input in adult-child groups. Our ongoing work is investigating the extent to which peer interaction occurs in group talk and whether inservice training can facilitate peer interactions.

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