



## Language Learning in Children Exhibiting Characteristics of Apraxia Using Contextually Mediated Practices

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### ABSTRACT

The results of a pilot study assessing the effectiveness of Contextually Mediated Practices (CMP) with children exhibiting apraxic-like characteristics are described in this *CASEinPoint*. CMP is a promotional approach to early childhood therapy and intervention that uses everyday family and community activities and child interests as contexts of child learning opportunities. Results indicated that using CMP with children exhibiting characteristics of apraxia holds promise for enhancing language competence. Implications for intervention are discussed.

### INTRODUCTION

The purpose of this *CASEinPoint* article is to describe the results of a pilot study assessing the effectiveness of Contextually Mediated Practices (CMP) with children exhibiting apraxic-like characteristics. CMP is a promotional approach to therapy and early childhood intervention that uses *everyday* family and community activities as sources of child learning opportunities and child *interests* as the basis of child participation in the activities where competence enhancement is *mediated* by the social and nonsocial experiences afforded a child in the everyday activity (Bronfenbrenner, 1992, 1995, 1999).

The context component of CMP refers to the everyday activity best suited for supporting and strengthening child competence (Trivette, Dunst, & Hamby, 2004). Interests refers to the personal preferences of a child that motivates him or her to want to participate in the activities (Dunst, Herter, & Shields, 2000). The term mediated refers to the roles practitioners play in supporting and strengthening parenting competence and confidence promoting their children's participation in activity settings having both development-instigating characteristics and development-enhancing consequences (Dunst et al., 2001). CMP is based on an emerging body of evidence showing that interest-based child participation in family and community activity settings is associated with a number of different child, parent, and family benefits, including improved child behavioral competence and developmental progress (e.g., Bruder, Trivette, Dunst, & Hamby, 2000; Dunst, 2000; Dunst, 2001; Dunst et al., 2001; Dunst, Bruder, Trivette, & Hamby, in press;

Dunst, Trivette, & Cutspec, 2002; Trivette et al., 2004). The extent to which CMP was applicable to children with characteristics of developmental apraxia of speech (DAS) was the focus of the investigation described in this *CASEinPoint*. The term *apraxia* means difficulty in programming and planning movement. Children with DAS are described as having particular difficulty with programming and planning of speech movements (Skinder-Meredith, Stoel-Gammon, & Betz, 2000).

Although clinicians do not generally agree on the critical elements of the diagnosis of DAS or its underlying causes, they generally agree that interventions for children having DAS will be long (an average of nine years) and that the intervention needs to be intense (five times a week being optimal) (Hall, 2000). Information on websites (e.g. [Apraxia-kids.org](http://Apraxia-kids.org)) and articles on best practice for children with DAS (Hall, 2000) describe an intense and incremental (sound, sound unit, word, phrase, etc) approach to therapy performed by a speech and language pathologist over an extended period of time. As noted by Zeit and Johnson (2002) however, only 16% of children with severe disorders attained a functional level of communication at discharge given 17 hours of direct therapy. The purpose of this study was to ascertain if the use of an alternative intervention approach might be more effective with children with DAS.

## METHOD

### *Participants*

The study participants were three children, two boys and one girl, participating in an early childhood intervention program. The children ranged in age from 22 to 31 months. Practitioner administered developmental test results showed no delays in the children's development other than a discrepancy between their receptive and expressive language scores. This discrepancy ranged from a 22% to 56% difference based on items on the Developmental Observation Checklist System (Hresko, Miguel, Sherbenou, & Burton, 1994).

The Apraxia Checklist (Skinder-Meredith et al., 2000) was used to discern the child's apraxic-like characteristics. Eight of twelve items were used to assess the participants' speech qualities. The two boys exhibited all eight characteristics (limited phonetic repertoire, frequent omission/articulation errors, decreased intelligibility, longer unit of speech errors, imitation difficulties, depressed expression skills, reduces diadochokinetic rates, and oral apraxia) and the one girl exhibited four characteristics (limited phonetic inventory, decreased intelligibility, frequent omissions, and depressed expression skills). Two of the children (one boy and one girl) also were born with a cleft lip and palate which had been

repaired prior to the conduct of the study. None of the children in this study had received any formal language therapy prior to or during the study.

### *Procedure*

The principal investigator (N.R.) met with the children's parents to describe the CMP practices and to explain the study. Following the collection of baseline data (see below), the CMP practices were introduced to the parents. The procedure included practices to identify the children's interests, everyday activities that were the contexts of child interest expression, and the use of responsive teaching procedures by the parents to facilitate child language in the interest-based participation in the everyday activity settings.

Child interests were identified by asking parents to describe their children's likes, preferences, and favorites (Dunst et al., 2000). This was done by asking questions such as "What is your child good at doing?" and "What makes your child smile, laugh, and/or work hard?"

Everyday activity settings were identified by asking parents' to describe the everyday experiences, opportunities, and events that involve a child's interaction with people and objects. This was done by asking questions such as, "Where and with whom does your child spend their day?" and "What does a typical weekday or weekend look like for you and your child?"

After identifying both child interests and everyday activity settings, practitioners and parents identified those activity settings that provided opportunities for interest expression which became the focus of interventions. For example, if a parent indicated that water was a child interest, the parents identified those activity settings that currently or could be used to provide the child with the opportunity to engage in their "water" interest. Five activity settings were selected for each child that would provide the best opportunities for interest-based learning. For this particular study, the activity settings chosen were ones that not only provided many opportunities for child interest-based expression but also provided the children with many language expression opportunities.

Responsive teaching was the primary method used for promoting child communicative behavior in the activity settings (Raab, Wortman Lowe, & Dunst, 1991). Responsive teaching strategies include caregiver responsiveness, modeling, and elaborations directly related to the child's communicative interests and abilities within an activity setting. The parents were provided opportunities to practice the responsive teaching strategies, observe the strategy being implemented by the investigator or co-authors, and receive feedback on their abilities to implement the practices. Parents received training on using the strategies until they were comfortable imple-

menting responsive teaching in the activity settings.

*Research Design*

A multiple baseline design across study participants was used to assess the effectiveness of CMP (Barlow & Hersen, 1984). This was used to evaluate whether parents' use of responsive strategies in interest-based activity settings affected children's language expression. The independent variable was CMP and the dependent variable was the number of one- and two-word phrases manifested in the activity settings.

After two to eight weeks of using CMP, parents recorded their child's language use in the five activity settings. The number of post intervention data collection points varied from one to four for the study participants. Parents also maintained a log of qualitative information about their children's language use in the activity settings. Information recorded in the logs included whether or not they engaged in the activity settings on a given day, if their child enjoyed participation in the activity settings, if they remained engaged in the activity settings, and if they learned or produced new language behavior in the activity settings.

RESULTS

Participants were randomly assigned to the order in which CMP was implemented. This enabled the other participant's baseline performance to be used as a measure of the extent to which the implementation of intervention was the variable that accounted for the change in the dependent variable.

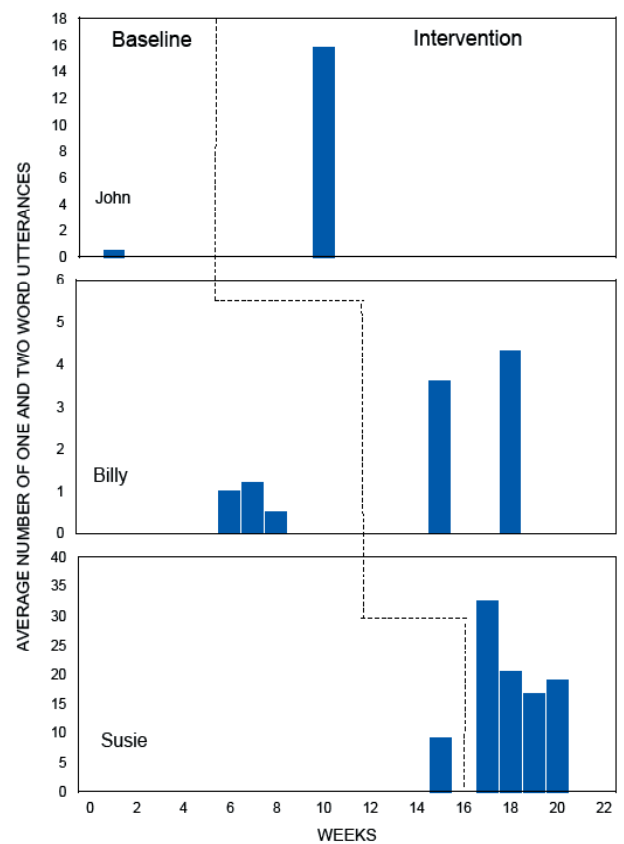
Figure 1 shows results for the three participants. Findings showed that each child demonstrated an increase in the production of one and two-word phrases following the introduction of CMP. John used an average of one one- and/or two-word phrases during baseline, and an average of 16 one- and two-word phrases following the introduction of CMP. Billy averaged one word during baseline and four one- and two-word phrases after the introduction of CMP. Susie averaged seven one and two-word phrases during the baseline, and an average of 22 one and two-word phrases after CMP was introduced.

The quantitative results are supplemented by observed changes in quality of child language. For example, Susie's mother reported that friends and family were able to understand more of what Susie was trying to communicate now that her speech had become "clearer." Other changes in quality were linked to amount of language production. For the two boys who had very little functional language before the intervention, their parents

reported a noticeable difference in the amount of talking. For example, John's parents reported that "he now talks all the time."

DISCUSSION

This pilot study produced preliminary evidence indicating that using contextually mediated practices (CMP) with children exhibiting characteristics of apraxia holds promise for promoting language use. Inasmuch as CMP strategies use child interests and everyday learning activity as the contexts for child learning, children are not only motivated to participate in everyday activities but also have more frequent opportunities to practice emerging skills. The responsive teaching procedures were well-suited to facilitating language behavior in the activity settings because they supported and strengthened the children's interest-based language production. The consequences included, but were not limited to, the children learning to use their language to initiate interactions with other family members, describe their wants and desires,



**Figure 1. Participants' language production use during the baseline and intervention phases of the study.**

and comment on the characteristics and features of people, objects, and events in their surroundings.

In contrast to traditional therapy that typically elicits and evokes language behavior by children in nonfunctional settings, CMP provides children greater opportunities to “have a reason” to communicate and to learn about their own capacities to use language as a means to an end. This is the case because the goal of CMP is to provide children everyday opportunities to use language in the contexts of interactions with objects and people that are interesting rather than to simply produce correct speech patterns.

Findings from this study add to an emerging body of evidence demonstrating the benefits of CMP type practices (Bruder et al., 2000; Dunst, 2001; Dunst et al., 2001; Dunst et al., in press; Dunst et al., 2002; Trivette et al., 2004). While it may seem too simple an intervention to be so effective, CMP is characterized by features that other research has shown are the factors accounting for variations in child behavioral and developmental competencies (see especially Dunst et al., 2001). The potential value of CMP therefore deserves attention as an alternative approach to promoting child competence.

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