Late Talkers

Language Development, Interventions, and Outcomes

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Evidence-Based Language Intervention Approaches for Young Late Talkers

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Speech-language pathologists working with 2-year-olds identified as late talkers (LTs) have several options when planning and implementing speech-language services. For example, there is a broad range of language intervention approaches that have been developed and evaluated for young children from other clinical populations—such as children with autism, Down syndrome, specific language impairment (SLI), and specific speech sound disorder— that clinicians may consider using with LTs. In addition, there are a few studies that have evaluated language intervention efficacy specifically with LTs as participants and even a very few comparative intervention studies that have examined the benefits of one intervention approach over another. However, based on the external evidence of published research, there is no single intervention approach that is best for all LTs.

Although the intervention approach implemented by a clinician should be supported by external evidence, every evidence-based management decision also requires consideration of internal evidence (i.e., an individual child's profile, familial preferences, and clinician expertise and experience; Fey & Justice, 2007). When limited external evidence is available or when each intervention approach is equally supported, the service plan the clinician adopts must hinge on these internal factors.

We begin this chapter by discussing approaches to language intervention that are suitable for children who are considered LTs, highlighting investigations that have focused on late-talking children. We then introduce four children who may be considered LTs and their families. Based on the external and internal evidence presented with each child, we discuss an intervention approach that appears most suitable for that child and family.

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LANGUAGE INTERVENTION OPTIONS

When working with a child considered to be an LT, a clinician may choose not to deliver intervention services but instead to monitor the child's progress aggressively. Alternative approaches, all of which entail the delivery of direct intervention services, include general language stimulation, focused stimulation, milieu teaching, or the use of augmentative and alternative communication.

A Nonintervention Option: Watch and See

The only intervention approach designed specifically to accommodate LTs is the "watch and see" approach (Paul, 1996). Based on her longitudinal study of 2-year-old children who had an expressive vocabulary of fewer than 50 words or were not yet combining words, Paul found that 23 of the 31 children in her study had grown out of their initial language delay by the time they reached first grade. That is, in first grade, 74% of children previously meeting criteria for being an LT performed no differently than children with typical language development on measures of grammatical complexity, reading recognition, and reading comprehension. These children with a history of expressive language delay performed in the average range on standardized language assessments, even though their scores were still significantly lower than those of the control children with typical language development histories. These findings align closely with other studies that have found that, based on norm-referenced instruments, the majority of late-talking children catch up with their peers by 5 years of age, though they may still lag behind control children who have been followed longitudinally (e.g., Girolametto, Wiigs, Smyth, Weitzman, & Pearce, 2001; Rescorla, 2002; Whitehurst et al., 1991). It is important to note that although the majority of children appeared to catch up on several measures, on more complex language tasks, including classroom discourse, grammatical perspective taking, narrative ability, and reading, clinically significant language delays persisted or reappeared throughout the elementary years (Manhardt & Rescorla, 2002; Paul, Hernandez, Taylor, & Johnson, 1996; Rescorla, 2002). Based on her early findings, Paul recommended that late-talking children of middle-class families should *not* be eligible for intervention that is provided at public expense. Instead, she argued that they should be aggressively monitored during the early years. This watch and see approach entailed systematically reexamining the late-talking child for evidence of clinically significant slow language growth every 3–6 months between the ages of 2 and 3 years and every 6–12 months between the ages of 3 and 5 years.

Paul (1996) included several caveats to this recommendation, however. First, it would be appropriate only for children identified as LTs for whom the only concern is expressive language; receptive language is not significantly delayed; and there are no concerns with cognitive, behavioral, hearing, medical, emotional, or neurological development. Second, direct services should be provided if the child's speech is significantly impaired such that family, friends, and peers cannot readily understand the child. Third, Paul insists that the watch and see approach is only appropriate for children from well-educated, middle-class families who are not otherwise at risk for language impairment. Finally, the watch and see recommendation is appropriate only as long as the child's language skills continue to develop in terms of lexical and grammatical complexity, conversational participation, and

speech intelligibility. When implementing a watch and see program, Paul proposed that at the time of assessment and decision to watch and see, the clinician identify a set of speech and language goals that would be appropriate for the child if intervention were to be recommended. At the subsequent reevaluation, the clinician's objective would be to determine whether these goals had been met without therapy. If they had been, there would be no call for initiating intervention; instead, new goals would be selected for later evaluation. If the reevaluation provided evidence that goals were not being met without treatment, the clinician would have strong evidence in support of starting treatment and an effective baseline, which would be helpful in measuring the effects of that treatment.

Paul's watch and see policy position was challenged by several child language development and intervention researchers, as well as practicing speech-language pathologists (e.g., Nippold, 1996; Nippold & Schwarz, 1996; van Kleeck, Gillam, & Davis, 1997). Experts argued that the available outcome data revealing that most LTs grow out of their delays are short-term, and they cannot be depended on for decisions that have such long-term consequences. In response, Paul maintained that early language delays that qualify children as LTs should be viewed as risk factors for language disorders but should not be considered disorders or impairments in and of themselves (Paul, 1997). Children who have no significant delays in development other than in communication and who are not at risk for language learning difficulties due to environmental or known neurodevelopmental factors are likely to be well-suited for the watch and see approach, never requiring direct intervention services.

As a service delivery option, adoption of the watch and see approach is supported primarily by the weak evidence provided by the results of studies with longitudinal observational designs. These study results broadly indicate that LTs who do not receive language intervention tend to catch up with their peers. However, the watch and see approach has never been tested experimentally as an alternative either to intervention or to a less aggressive wait and see option. Still, the available evidence is consistent; each prospective study that has been designed to study the natural history of early language delay (Girolametto et al., 2001; Paul, 1996; Rescorla, 2002; Thal, Bates, Goodman, & Jahn Samilo, 1997; Whitehurst et al., 1991) has found that the majority of children identified at 20–34 months of age as late talking no longer demonstrated delays in language performance by the time they reached school age. Thus, a watch and see approach should be considered a viable alternative for some children who have been identified as LTs yet have few or no additional concerns.

General Language Stimulation

At their core, all general language stimulation approaches involve modifications of the physical and linguistic environments that aim to increase opportunities for children to hear frequent adult models of developmentally appropriate language and to use language at the edge of their abilities. Thus, intervention agents (e.g., parents, clinicians) performing general language stimulation limit their use of controlling behaviors, such as commands and questions, and increase their levels of responsiveness to the child and the child's communicative acts. General language stimulation does not target specific language forms or communication acts, and the

intervention agent never tells the child directly to produce any specific words, word combinations, or grammatical constructions. Instead, the intervention focuses on creating a rich language environment that is tailored to the child's interests and abilities. Children may then focus on those aspects of language that they are most prepared to learn.

General stimulation activities may include reading a book, playing house, baking a cake, or making lemonade, depending on how well each activity provides opportunities and creates the need for the child to talk and for the intervention agent, such as the parent or clinician, to employ the intervention procedures. Typical procedures include 1) following the child's lead, 2) talking about the object to which the child is attending (i.e., parallel talk), and 3) responding to the child's verbalizations with semantically and grammatically contingent responses. Perhaps most significantly, the intervention agent produces recasts, namely responses to the child's utterances that repeat parts or all of the child's utterance while adding semantic and grammatical detail to the child's verbal contributions (Fey, Krulik, Loeb, & Proctor-Williams, 1999).

There are a few studies that have examined general stimulation approaches for young children with the clinician or teacher as the intervention agent (e.g., Boyd, 1980; Robertson & Ellis Weismer, 1999; Weiss, 1981). Robertson and Ellis Weismer (1999) conducted the most rigorous of these investigations. Their randomized controlled trial compared the outcomes of a 12-week clinician-delivered intervention with those of a no-treatment condition. The 21 children in the study, all identified as late-talking toddlers, ranged from 21 to 30 months in age and averaged 15 spoken words. Each participant in the treatment group received two 75-min group treatment sessions per week. The children in the treatment group made both statistically and clinically significant gains on a diverse set of measures of child behavior, including words produced, speech intelligibility, and socialization. Effect sizes (d) ranged from 0.63 to 1.67. Perhaps even more important was the significant reduction in parent stress ($d = .41$), presumably stemming from the children's improved communication skills. Robertson and Ellis Weismer suggested that the children's positive response to treatment led parents to view their child as more similar to peers with typical development. This, in turn, helped parents to accept their child despite his or her language limitations. In addition, the authors argued that the children's increases in verbal communication resulted in more parent–child communicative exchanges, which reinforced parents' efforts to communicate with their children and yielded even more linguistic input directed toward the children. Thus, there was a bidirectional, or transactional, effect of this general stimulation approach in which the gains made by the children led to changes in the parents' communication and interaction patterns, which presumably fostered continued growth in child and parent communication.

General language stimulation approaches have been studied most frequently in parent-implemented treatments with children with varying diagnoses, including autism and Down syndrome (e.g., Aldred, Green, & Adams, 2004; Buschmann et al., 2009; Carter et al., 2011; Girolametto, 1988; Tannock, Girolametto, & Siegel, 1992). Although general stimulation approaches have largely been successful in leading to more balanced parent–child verbal interactions, limiting parents' controlling behaviors, and increasing parents' responsiveness to their child (see Carter et al., 2011), the effects on children with autism and intellectual disabilities have

been mixed, and this has led some researchers to consider focused stimulation or milieu teaching for these children (Girolametto, Pearce, & Weitzman, 1996), as discussed in the next section.

Two studies have evaluated the efficacy of a parent-delivered general stimulation with LTs (Baxendale & Hesketh, 2003; Buschmann et al., 2009). The most rigorous of these studies, and thus, the one that yields the strongest evidence in support of general stimulation with LTs, is a study by Buschmann et al. (2009). In this study, 58 children between the ages of 24 and 27 months were randomly assigned to either a parent-implemented treatment group or a no-treatment group. All of the child participants had receptive language abilities and nonverbal cognitive abilities in the average range and had expressive vocabularies of less than 50 words. Parents in the treatment group completed seven 2-hour group sessions that taught them to use language facilitation techniques, especially during activities involving picture books. Twelve months after treatment onset, the children of parents in the intervention group outperformed the children assigned to the no-treatment group on both parental report measures of vocabulary, morphology, and syntax and norm-referenced clinician-administered tests of vocabulary and syntax. The effect sizes for all measures were medium to large ($d = 0.72$–1.16), indicating clinical significance. The strongest claim of clinical significance, however, was that 75% of the children in the treatment group no longer met criteria for late talking postintervention, compared with 44% of children in the no-treatment group.

In sum, although some studies have reported small or no effects of general stimulation on children with autism or other developmental disabilities (Carter et al., 2011; Tannock et al., 1992), studies with LTs have generally been successful, whether the intervention agent is a clinician or the child's parent. Thus, LTs who exhibit clinically significant limitations in the number of communication acts produced, responsiveness to the adult partner, and the use of words and early grammatical constructions may be viable candidates for some variation of this approach. However, when there is a need to target specific vocabulary items or grammatical forms, a more specified intervention approach may be necessary, such as focused language stimulation or milieu teaching.

Focused Language Stimulation

Focused stimulation is very similar to general stimulation but differs in one fundamental respect, which leads to many other smaller differences between these approaches. Unlike general stimulation, in which the clinician does not target specific words, grammatical constructions, or communication skills, focused stimulation involves the identification of one or, more typically, several specific language targets on which the clinician's teaching efforts and the child's language learning resources are to be focused. Consider a child who produces minimal action words and a handful of object words. An appropriate specific goal for this child might be for the child to use specified action (e.g., "go," "stop") and object (e.g., "car," "boat," "bus," "grapes," "cookie," "juice," "milk") words that are relevant to the child's particular needs and play interests when requesting or commenting on events. In focused stimulation, appropriate activities are not just interesting and fun for the child (e.g., play with a city set), and they are not designed to facilitate child talking in a general way; instead, they must provide many opportunities for

adult models of child targets (e.g., "Watch the car go," "The bus will stop") and encourage child attempts at the use of child targets (e.g. "Should the car stop or go?" "Do you want to play with the boat or the bus?"). In general, then, the child's target forms are presented at a high density in meaningful and functional contexts (Fey, 1986). Importantly, when using focused stimulation techniques, the child is never required to imitate the target form.

Girolametto and his colleagues (1996) experimentally evaluated the parent-implemented Hanen Program for Parents, which comprises eight weekly group sessions and three home visits across 11 weeks. The sessions are focused on teaching parents to use general language stimulation techniques, such as to follow the child's lead, model language that is contingent on the child's attentional focus, and promote turn taking. In addition, the study intervention included a focused stimulation component such that parents were given a list of 10 target words to incorporate into their daily activities. They also were taught how to replace these target words once their child produced the target at least three times in three different contexts in a 1-week time frame.

The participants in Girolametto et al.'s (1996) study included 15 children between the ages of 23 and 33 months with standardized IQ scores ranging from low to high average (79–116). All of the children had expressive vocabularies in the lower 5th percentile and were in the single-word stage of language development, not producing any two-word phrases. Aside from language, the children had no other evidence of developmental delay. Children were randomly assigned to receive the intervention immediately ($n = 8$) or after a waiting period ($n = 7$).

Following treatment, the mothers who received the Hanen parent education used significantly fewer words per minute, shorter utterances, and more target words than mothers in the control group. Moreover, the children of mothers who received Hanen education had significantly larger vocabularies; used a significantly greater number of different words, including target and control words; and produced significantly more multiword combinations than the children in the control group. These statistically significant findings were supported by large effect sizes (d), ranging from 0.70 to more than 1.0. In addition, the focused stimulation treatment indirectly resulted in significant gains in phonology. The children who received the intervention produced more complex syllable shapes and expanded their phonetic inventories to include more consonant sounds (Girolametto, Pearce, & Weitzman, 1997). Thus, there is strong evidence that parent-implemented focused stimulation can be used to expand the vocabularies, early grammatical constructions, and phonetic inventories of LTs. In fact, at a 3-year follow-up, when the children were 5 years of age, the majority of the LTs studied by Girolametto et al. (1996, 1997) performed in the average range on norm-referenced language assessment instruments. Despite these encouraging findings, it is important to note that on tests of higher level language abilities, such as narration and interpretation of ambiguous sentences, these same 5-year-olds exhibited significant weaknesses that could require additional language services (Girolametto et al., 2001).

Milieu Teaching

In most respects, milieu teaching closely resembles the other language intervention approaches that have been proposed for LTs. Like both general and focused

language stimulation, milieu teaching takes place during meaningful, naturalistic activities. As in focused language stimulation, the clinician identifies one or more specific goals on which the intervention is to focus. Then, the clinician modifies the physical and linguistic contexts to increase the opportunities for the child to talk and, more specifically, to attempt to use the target language behaviors. The intervention agent must be highly responsive to the communication efforts of the child, making special efforts to recast child attempts at the targets into appropriate lexical and grammatical forms.

Despite these similarities between milieu teaching and, especially, focused stimulation approaches, there is one key feature that always distinguishes these models. In focused stimulation, the child may be queried in a manner designed to yield an attempt at production of some targeted language form or communication act (e.g., "Tell me about the car. What is the car going to do?"), but the child is *never* given an imitative prompt to produce any language forms (e.g., "Say, 'stop'"). The child is not required to attempt the form or produce the target correctly. Incorrect attempts at the target are likely to be followed by recasts. In contrast, when using milieu teaching, the intervention agent expects the child to use the target language forms correctly during each teaching episode. If the child does not respond correctly to nonimitative prompts for production of a target, the form is modeled and the child is required to imitate. A recast is then used to expand the child's utterance semantically and/or grammatically (Hancock & Kaiser, 2006). For example, when targeting the noun *milk,* the interventionist may begin by asking the child, "What do you want to drink?" If the child points to the milk, but does not respond verbally, the intervention would explicitly prompt the child to produce the form by providing an imitative model such as, "Say, 'milk.'" If the child appropriately responds with the target "milk," the interventionist would provide a recast such as, "You want milk."

There are two studies that have compared the effects of clinician-implemented milieu teaching, which for every teaching episode included imitative prompts in the prompt hierarchy, with the effects of focused stimulation on LTs (Ellis Weismer, Murray Branch, & Miller, 1993; Kouri, 2005). The Ellis Weismer et al. study used a single-subject experimental design to compare treatment approaches, whereas the Kouri study used a more rigorous randomized experimental design to teach expressive vocabulary.

Findings from the Kouri (2005) study provided some limited evidence that imitative prompts may significantly enhance classic focused stimulation. The 29 participants in the Kouri study ranged in age from 19 to 36 months and evidenced expressive language delays at least 1.5 *SD*s below the mean. All participants exhibited reduced expressive vocabularies relative to chronological age. Fifteen participants were randomly assigned to a milieu teaching treatment group, and 14 participants to a modeling only, focused stimulation group. Regardless of group assignment, each child participated in ten 50-minute individual treatment sessions. Based on data collected during the treatment sessions, results indicated that participants who received prompts for imitation acquired more target words than did the participants in the focused stimulation group (d = 0.73). However, there were no differences between groups based on measures derived from children's interactions with their mothers at home.