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Comparison of Parent-Implemented and Clinician-Directed Intervention for Toddlers Identified as Late Talkers: A Literature Review

Shari L. DeVeney
University of Nebraska at Omaha, sdeveney@unomaha.edu

Jessica L. Hagaman
University of Nebraska at Omaha, jhagaman@unomaha.edu

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University of Nebraska at Omaha

Jessica L. Hagaman
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Structured Abstract

Clinical Questions: Would a child who is a late talker (P) show greater improvement with parent-implemented intervention models (I) or with clinician-directed intervention models (C) as shown by improvements in expressive language skills (O)? If so, under what circumstances?

Method: Literature Review

Study Sources: Education Source, ERIC, MEDLINE, PsycINFO, Web of Knowledge/Web of Science, ASHA journals

Search Terms:

Participant Terms: late talkers OR late language emergence OR early language delay

Intervention Terms: intervention OR treatment OR therapy

Number of Included Studies: 8 (representing 7 data sets)

Number of Participants: 175

Primary Results:

Positive outcomes for intervention were noted for all studies reviewed, indicating both parent-implemented and clinician-directed interventions are effective for late talkers.

The limited evidence available indicated parent-implemented interventions resulted in greater child outcome improvements than clinician-directed treatment.

Variability across potentially influential factors limited the results, namely intervention setting, participant characteristics, intervention approaches, and outcome measurements.

Conclusions: Evidence found in this literature review for the effectiveness of parent-implemented and clinician-directed intervention was limited. The best evidence available implies that both types of intervention providers are effective in treating late talkers and parent-implemented intervention is the more effective of the two. Parents and clinicians need to be mindful of the limitations in the evidence base for this area and use clinical expertise, client and family preferences, as well as current federal policy to guide intervention decisions.

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Comparison of Parent-Implemented and Clinician-Directed Intervention for Toddlers Identified as Late Talkers: A Literature Review

Shari L. DeVeney
Jessica L. Hagaman

Clinical Scenario

Claire had been worried about her son Henry for several months. He did not seem to talk like other children his age and did not say as many words as his older sister when she was a toddler. Claire consulted with Henry's pediatrician at his two-year wellness check. They discussed Henry's medical history and, other than his lack of words, neither had concerns about his development. "He really seems to understand everything we say to him or tell him to do," Claire explained, "But he barely *says* anything at all."

She decided to contact her local public school district for a speech-language evaluation. An early intervention speech-language pathologist (SLP) conducted a comprehensive assessment and concluded that Henry had an expressive language delay. As a "late talker," he qualified to receive early intervention special-education services through the school district. The SLP explained the intervention model employed by the school district in which the SLP would guide the intervention and the parent, through natural daily routines, would directly provide Henry's treatment. Claire was unsure about moving forward with this plan of care because she envisioned the SLP working directly with Henry. Claire decided to check with another SLP in a private practice setting.

The second SLP described how, if she were treating Henry, she would see him herself for about an hour a week. Claire could either sit in on the session or wait in the waiting area while Henry was in therapy, but she would not be expected to carry out the treatment directly. Claire had a decision to make: Should she move forward with the home-based parent-implemented services offered by the school district or should she consider center-based SLP-directed services? What would be better for Henry?

Background Information

Without a known etiology (e.g., autism spectrum disorder, sensory or intellectual limitations), an estimated 10 to 15% of two-year-olds are identified as "late talkers" because they add new words more slowly and produce fewer word combinations than their peers (Dale, Price, Bishop, & Plomin, 2003; Paul, 1996; Rescorla & Dale, 2013). Late talkers are of great interest to early-service providers and parents conflicted with the question of if, when, and how to intervene for early language delays.

Intervention Approaches

The three most common approaches for late talkers include general language stimulation, focused language stimulation, and milieu teaching. General language stimulation involves creating a rich linguistic environment that increases opportunities for a child to hear quality language input and use appropriate words and forms (e.g., following child's lead, delaying response to gestures, using self-talk, etc.). The intervention is geared toward "setting the stage" for semantic and syntactic developments (Finestack & Fey, 2013; Robertson & Ellis Weismer, 1999; Baxendale & Hesketh, 2003). Focused language stimulation is comparable to general language stimulation, but involves focusing on the identification of one or more specific aspects of language (Finestack & Fey, 2013; Girolametto, Pearce, & Weitzman, 1996). Target language aspects include target vocabulary words or syntactic structures (e.g., agent+action forms). Milieu teaching, like focused language stimulation, involves identifying specific language targets; however, milieu teaching is a more structured approach that includes an increased use of models and prompts (e.g., "Say *more*.") (DeVeney, Cress, & Reid, 2014; Ellis Weismer, Murray-Branch, & Miller, 1993; Kouri, 2005). For enhanced milieu teaching (EMT), adult responses are contingent on child utterances and encouragement of utterances to increase the child's communication rate (Roberts, Kaiser, Wolfe, Bryant, & Spidalieri, 2014).

Interventionist Considerations

Clinician-directed therapy. Traditional practice includes direct therapeutic service provided by an SLP. However, over the years, service delivery formats have modified and expanded in a number of key settings, including early-childhood intervention, in response to federal mandates (see IDEA, 2004) and changing clinical landscapes.

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Parent-implemented therapy. When speech-language interventions are implemented by parents or other primary caregivers, some type of clinician-directed training procedures are typically included (Roberts & Kaiser, 2011, 2012) (e.g., parent workshops, videos, manuals, and/or coaching and feedback). Researchers have noted the effectiveness of parent-implemented intervention for a number of different normative and clinical populations (Ciccone, Hennessey, & Stokes, 2012; Fey, Warren, Fairchild, Sokol, & Yoder, 2006; McConachie & Diggle, 2007; O'Neil-Pirozzi, 2009).

Clinical Question

The purpose of the present literature review is to answer a clinical question important to parents and speech-language pathologists working with young children identified as late talkers. Claire used the PICO framework (Richardson, Wilson, Nishikawa, & Hayward, 1995) to construct her question. Using this framework, (P) indicates the population group, (I) the intervention in question, (C) the intervention being compared to, and (O) the outcome:

Would a child who is a late talker (P) show greater improvement with parent-implemented intervention models (I) or with clinician-directed intervention models (C) as shown by improvements in expressive language skills (O)? If so, under what circumstances?

Search for the Evidence

Initial Selection Criteria

Claire followed a three-step identification process to identify all published articles on parent-implemented and clinician-directed intervention for toddlers identified as late talkers. First, an electronic database search of Education Source, Education Resources Information Center (ERIC), MEDLINE, PsycINFO, and Web of Knowledge/Web of Science was conducted (1990 through October 2015) with the following search terms arranged in two fields: (a) late talkers, late language emergence, early language delay; AND (b) intervention, treatment, therapy. In addition, a hand-search of three American Speech-Language-Hearing Association (ASHA) journals was conducted: *American Journal of Speech-Language Pathology;* the *Journal of Speech, Language, and Hearing Research;* and *Language, Speech, and Hearing Services in Schools.*

Second, for all the articles identified in these initial searches, titles and abstracts were reviewed for possible inclusion using five criteria: (1) the study was written in English, (2) the study used experimental, quasi-experimental, or descriptive/nonexperimental group design, (3) the target population included toddler/preschool children 18 to 42 months of age (mean age less than 36 months) identified with a delay in language development *not secondary to other developmental deficits,* (4) intervention provided in home-based or clinical settings (not classroom-based), and (5) the intervention was provided by speech-language pathologists, graduate students, parents, or any combination. After screening titles and abstracts, 73 articles met criteria.

Final Selection Criteria

The search of titles and abstracts yielded 73 articles. These articles were obtained, read, and reviewed using the identified criteria above. Full reviews of these papers resulted in eight articles that met the selection criteria. There were a number of reasons that articles did not meet inclusion criteria. The majority of the 65 articles were rejected because the study was not a child-intervention study (n = 23). Additional factors for excluding articles were participant characteristics did not meet inclusion criteria (e.g., included target populations of children with primary conditions beyond language delay or participant inclusion criteria were unclear; n = 13) or participants in the study were too young or too old (n = 9). Two were not conducted in home-based or clinical settings. The remaining 18 were search duplicates. Table 1 displays the coding protocol.

Evaluating the Evidence

From the eight studies, seven data sets were reported (i.e., two studies presented data separately on the same sample).

Participants

The seven data sets included a total of 175 children identified by the researchers as late talkers (See Table 2 for study descriptions). Participant age was reported in all seven data sets; the mean age was 27.7 months and the range was 21 to 42 months. Receptive language skills were assessed in six of the seven data sets, but only distinguished

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in intervention outcomes for one data set consisting of three participants, one of whom was identified as having a receptive language impairment. The other five data sets (n = 150 participants), assessed receptive language skills at intake, but did not distinguish in intervention outcome reporting. One data set (n = 22 participants) did not specifically report receptive language capabilities.

Participant gender was also reported in all data sets; male participants (n = 91; 52%) slightly outnumbered female participants (n = 84; 48%). Participants' race/ethnicity backgrounds were only reported in five data sets (71%): 128 Caucasian (73%), 19 African American/African Canadian (11%), four Other (2%), and two Asian (~1%). Finally, socioeconomic status data were reported in nearly all of the data sets (n = 6; 85%); however, these data were reported in nominal or ordinal formats that were not quantifiable (e.g., middle class, upper middle class, armed forces).

Intervention Providers

Of the seven data sets, three reported on clinician-directed interventions, two reported on parent/caregiver-implemented interventions, and two reported on both parent/caregiver-implemented and clinician-directed interventions.

Parent Training

When parents implemented the intervention (n = 4 data sets), information on parent training was reported. While parent training was reported in all data sets that involved parents as the primary deliverer of intervention, parent-training procedures were not reported in a quantifiable manner. Specifically, one data set reported parent training to include role-playing, lectures, discussions, and individualized feedback and coaching. Two data sets reported using a teach-model-coach-review method, while the final data set reported parents receiving structured teaching and demonstrations that included practice activities. Training length ranged from just under three months (11 weeks) to six months with a mean of 14.75 sessions across the four studies. Specific information on "testing out" of training (e.g., after a certain fidelity of implementation was attained) was not reported.

Intervention Settings and Intervention Approach

From the seven data sets, two reported the intervention was provided in a home-based setting, three reported the intervention occurred in a clinical setting, and two reported the intervention as being provided in both home-based and clinical settings.

In the seven data sets there were four types of interventions reported. Focused language stimulation and general language stimulation were reported in three data sets. Milieu teaching and enhanced milieu teaching (EMT) were reported in two data sets.

Areas Measured

Twelve areas were measured across the seven data sets. Because the majority of the data sets (n = 5) reported on more than one area, a total of 27 reports were identified. Areas measured were five expressive vocabulary, four receptive language, four expressive language, one "estimated" expressive vocabulary, one estimated phrase length, two mean length of utterance (MLU), one "talkativeness," one multiword utterance, one parent language, one phonological diversity and accuracy, two caregiver use of strategies, one intelligible utterances, one socialization, and two caregiver stress. Table 2 provides results on these measures.

Quality of Research

In accordance with ASHA's guidelines for evidence-based practice, the level of support offered by each study needs to be carefully evaluated. The evaluation of evidence generally utilized in the SLP field is organized using a six-level (Ia, Ib, IIa, IIb, III, IV) hierarchy spanning from Ia, meta-analysis of randomized controlled studies, to IV, expert opinion based on clinical experience (ASHA, n.d.; Dollaghan, 2004). Level Ib, well-designed randomized controlled studies, was the highest level achieved by the studies included in this review (e.g., Girolametto et al., 1996, 1997; Roberts & Kaiser, 2015; Robertson & Ellis Weismer, 1999). One study, Roberts et al. (2014), represented level IIa because it was a well-designed study, but did not include randomization. All other studies represented level IIb, quasi-experimental studies.

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The Evidence-Based Decision

After reviewing all of the studies, Claire needed to first determine how the evidence applied to her PICO question: Would a child who is a late talker show greater improvement with parent-implemented intervention models or with clinician-directed intervention models as shown by improvements in expressive language skills? Overall, positive outcomes for the interventions were noted for all studies reviewed, indicating that both parent-implemented and clinician-directed interventions are effective for late talkers. That is, participants across all studies demonstrated improvement in a variety of measured outcomes including specific targeted word use, expressive and receptive vocabulary, MLU, expressive and receptive language skills, "talkativeness," multiword utterances, phonological diversity, intelligibility, and socialization indicators.

Of the two studies that directly compared intervention according to provider type (Gibbard, Coglan, & MacDonald, 2004; Roberts & Kaiser, 2015), both found parent-implemented interventions resulted in greater improvements in child outcomes. Specifically, Gibbard et al. (2004) reported significantly greater gains in the parent-implemented condition for all measured language skills except estimated expressive vocabulary and Roberts and Kaiser (2015) found significantly better receptive language outcomes, but not broad-based expressive language outcomes for the parent-implemented condition.

Secondly, Claire needed to evaluate how the evidence applied to her follow-up question: If so, under what circumstances? For this question, variability across a number of key factors rendered the evidence more difficult to evaluate, namely participant characteristics, parent training, intervention settings and approaches, and areas measured.

Participants

Several participant and setting characteristics were clearly and regularly reported in the literature (i.e., gender, age), unfortunately, many other descriptive variables were not. Overall, participants were primarily male, Caucasian, and had a mean age of 27 months; however, information on race/ethnicity, socioeconomic status (SES), and cognitive abilities were not consistently reported. Additionally, in most data sets (n = 5) receptive language skills were reported, but not distinguished from expressive-only language delay identification in intervention outcome reporting.

Parent Training

In the studies that involved parent-implemented interventions, parent training was conducted for approximately three to six months and included structured lectures/workshops, strategy demonstrations, role-play, coaching, and feedback. While some of these procedures may be included in general early-childhood service provision, it is unknown whether all are considered standard procedure for early intervention home-based SLPs. Research results may not mirror typical practices.

Intervention Settings and Approaches

The setting for most clinician-directed interventions was a clinic (n = 4 in 5 studies reporting clinician-directed components) and most parent-implemented interventions were carried out in the home (n = 3) with only one conducted in a clinical environment (see Roberts et al., 2014). Although differences in treatment outcomes were noted between clinician-directed and parent-implemented interventions, treatment setting cannot be dismissed as a potential confounding factor when comparing these findings.

The use of each type of intervention approach (i.e., general language stimulation, focused language stimulation, and enhanced milieu teaching) was found effective for parent- and clinician-implementation interventions. However, in the direct comparison studies, both Roberts and Kaiser (2015) and Gibbard et al. (2004) found the parent-implemented treatment was more effective than the clinician-directed condition. There was not a direct comparison for focused language stimulation use with late talkers.

Areas Measured

Typically, the areas measured to evaluate the effectiveness of the intervention were dictated by the type of intervention approach used. For example, when implementing an approach in which one or more aspects of language are particularly targeted (focused language stimulation, EMT), researchers typically chose outcome measures related to the structures/words targeted (e.g., target vocabulary use). Because of these inherent differences in outcome measuring and the wide variety of skills that could potentially be measured to show improvement in the developing communication skills of young children, it is not surprising that over 12 different child outcomes measures were reported in the eight selected studies.

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Conclusion

When Claire considered her options, she realized that either intervention model, home-based parent-implemented or center-based clinician-directed intervention, was likely to be effective in improving Henry's expressive language skills. However, the parent-implemented intervention may actually be more effective than clinician-directed service provision, particularly if the early-intervention SLP trained Claire for at least three months and that training included components such as structured lectures/workshops, strategy demonstrations, role-play, coaching, and feedback. Claire decided to pursue the parent-implemented intervention provided by her local public school district and was confident she selected an appropriate intervention model for Henry.

Authors' Note

Shari L. DeVeney, PhD, CCC-SLP, is an assistant professor in the Department of Special Education and Communication Disorders at the University of Nebraska at Omaha. Dr. DeVeney currently conducts research on intervention, assessment, and characteristics of late talkers in order to improve the effectiveness of clinical care for this young population. Prior to earning her doctorate degree, Dr. DeVeney worked in early intervention and public school settings.

Jessica L. Hagaman, PhD, is an assistant professor in the Department of Special Education and Communication Disorders at the University of Nebraska at Omaha. Dr. Hagaman specializes in the education of students with learning disabilities, behavior disorders, and at-risk students. Prior to completing her PhD, Dr. Hagaman taught at the early childhood and elementary levels. Her research interests include early intervention for at-risk students, reading instruction and literacy interventions, strategy instruction, and academic interventions.

Shari L. DeVeney
Department of Special Education and
Communication Disorders
University of Nebraska at Omaha
6005 Dodge Street
512E Roskens Hall
Omaha, NE 68182
sdeveney@unomaha.edu

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Table 1. Coding Protocol Used for Selection of Intervention Studies

Participants	Studies that included participants ages 18 to 42 months with a mean age of 36 months or less, and who were identified as late-talking or as having a language delay, vocabulary delay, expressive language delay, or delays in language acquisition. Studies that included children with hearing loss, developmental delays, cognitive delays, autism, pervasive developmental disorder (PDD), or other neurological disorders were excluded. All participants were monolingual and spoke English in the home.
Study design	Research designs included treatment-comparison group designs, single-group designs, and single-subject studies. Case studies that did not incorporate single-subject research design, in which a subject serves as his/her control, were not included. If the author(s) reported measurement design, it was categorized as pre/posttesting, posttest only, pretest/posttest/follow-up, or other.
Dependent variable	Only studies that reported dependent measures of child participants' receptive language, expressive language, or both, were included.
Independent variable	Independent variables included any treatment designed to increase the expressive language abilities of the participants.
Intervention provider	Intervention provider was categorized as provided by the person who provided the intervention and included parent and/or clinician.
Characteristics of parent training	For interventions that were provided by parents or a combination, the type of training was categorized as using a manual, supervision/consultation with a clinician, audio/videotapes, informal or formal training with a clinician, or other.
Intervention setting	The setting in which the intervention took place was categorized as home-based, clinic-/center-based, combination, or not specified.
Level of intervention	The level of intervention was coded as group sessions, individual sessions, or a combination.
Duration of intervention	The duration was categorized (per group) as number of weeks, sessions per week, minutes per session, or total number of sessions.
Intervention focus	The focus was categorized as target word acquisition, expressive vocabulary, mean length of utterance, other, or any combination of these listed categories.
Type of treatment	The type of treatment provided was categorized as general language stimulation, focused language stimulation, milieu teaching, enhanced milieu teaching, or other.
Child participant demographics	Demographic information included total number of participants, number of males/females in a group, mean age in months at the start of the intervention, socioeconomic status, population density, race/ethnicity, languages spoken by child participants, and maternal education level.
Specific therapy methods and major findings	These were described in narrative format.

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Table 2. Parent-Implemented and/or Clinician-Directed Intervention Studies for Late Talkers

Author(s)	Participants[1]	Intervention provider(s)	Parent training summary	Child intervention setting(s)	Intervention approach	Outcome measure(s)	Results
DeVeney, Cress, & Reid (2014)	*n* = 3; 29.7 months (range = 25–33 months)	Clinician-directed	N/A	Home-based	Focused language stimulation and milieu teaching	Expressive vocabulary (target word use)	Both treatment approaches were effective for all participants and showed advantage over untreated control word use; no consistent advantage of one approach over the other
Ellis Weismer, Murray-Branch, & Miller (1993)	*n* = 3; 25.3 months (range = 25–26 months)	Clinician-directed	N/A	Clinic	Focused language stimulation and milieu teaching	Expressive vocabulary (target word use)	One participant responded with better performance to focused language stimulation, one responded better to milieu teaching, and one did not respond effectively to either treatment condition
Gibbard, Coglan, & MacDonald (2004)	*n* = 22; 24.1 months (range = 22–30 months)	Both parent-implemented and clinician-directed conditions	Eleven 90-minute group sessions over six months; structured teaching, demonstrations, and practice activities	Home-based and clinic	General language stimulation	Receptive and expressive language skills; estimated expressive vocabulary, estimated phrase length; mean length of utterance (MLU)	Child participants had significantly better language skills in parent-implemented than clinician-directed on all measures except estimated expressive vocabulary
Girolametto, Pearce, & Weitzman (1996; 1997)	*n* = 25; 28.7 months (range = 23–33 months)	Parent-implemented	Eight sessions over 11 weeks; lectures, role-plays, discussions, and individualized feedback and coaching	Home-based	Focused language stimulation (modified Hanen Parent Programme)	Expressive vocabulary (general and target word use); expressive language skills; "talkativeness;" multiword utterances; parent language measures (1996); phonological diversity and accuracy (1997)	Child participants used more target words, more words in general, and reportedly had larger vocabularies in intervention condition than in delayed-treatment group; parent language input slowed, was less complex, and more focused than that of delayed-treatment group (1996); increased phonological diversity, but not accuracy in intervention condition (1997)
Roberts & Kaiser (2015)	*n* = 97; 30.5 months (range = 24–42 months)	Both parent/caregiver-implemented and clinician- directed conditions	28 sessions over three months; teach-model-coach-review method	Home-based and clinic	Enhanced milieu teaching (EMT)	Receptive and expressive language skills; receptive and expressive vocabulary; caregiver use of strategies; caregiver stress	Child participants had significantly better receptive language skills in caregiver-implemented condition, but not expressive; caregiver interactions improved across language facilitation strategies

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Table 2. Parent-Implemented and/or Clinician-Directed Intervention Studies for Late Talkers (continued)

Author(s)	Participants[1]	Intervention provider(s)	Parent training summary	Child intervention setting(s)	Intervention approach	Outcome measure(s)	Results
Roberts, Kaiser, Wolfe, Bryant, & Spidalieri (2014)	*n* = 4; 30.8 months (range = 25–38 months)	Caregiver-implemented	24 individualized sessions over 12 weeks; teach-model-coach-review method	Clinic	General language stimulation and EMT	Receptive and expressive language skills; MLU; expressive vocabulary use; caregiver use of strategies	Three of four child participants indicated gains across all language measures; caregivers demonstrated increased use of language strategies after instruction
Robertson & Ellis Weismer (1999)	*n* = 21; 25.1 months (range = 21–30 months)	Clinician-directed	N/A	Clinic	General language stimulation	Expressive vocabulary; MLU; % intelligible utterances; socialization; parental stress	Significant differences were noted across the experimental condition compared with the delayed-treatment group for all outcome measures (increases for vocabulary, MLU, intelligible utterances, and socialization; decrease in parental stress)

[1] Sample size; age at intake in months; age range at intake in months

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