LSHSS

Clinical Forum

Caregiver–Child Interactions and Their Impact on Children's Fluency: Implications for Treatment

Nan Bernstein Ratner
The University of Maryland, College Park

An article on the role of caregiver interaction may seem peripheral to the theme of a clinical forum that examines links between child language research and fluency. However, both child language research and fluency share a relatively long-lived and extensive fascination with the role of parents in both fostering language and fostering fluency. This article will address some of the relevant research in both of these areas that has implications for fluency therapy and counseling. Additionally, it will identify potential differences between the emphases and findings of caregiver research in language acquisition and fluency, and note some aspects of therapeutic advisement for young children's fluency disorders that do not appear fully defended by available research. Finally, it will offer ways in which one's understanding of the role of parents in modifying early stuttering behaviors might be strengthened.

ABSTRACT: There is a relatively strong focus in the stuttering literature on the desirability of selected alterations in parental speech and language style in the management of early stuttering. In this article, the existing research support for such recommendations is evaluated, together with relevant research from the normal language acquisition literature that bears on the potential consequences of changing parental interaction style. Recommendations with relatively stronger and weaker support are discussed. Ways in which children's communication styles and fluency may be altered through newer fluency treatment protocols are contrasted with older, more general parent advisements. Finally, directions for future research into the efficacy of recommendations made to the parents of children who stutter (CWS) are offered.

KEY WORDS: fluency, stuttering, parents, counseling, language

In some respects, the bodies of research that have examined caregiver–child interactions in the child language acquisition literature and in fluency have been driven by very different underlying assumptions. In child language research, the considerable debate over the relative impacts of input and interaction on children's development and behavior was greatly spurred by Chomsky's (1965) contention that language acquisition was relatively impervious to the effects of parental input—that adults contributed little to children's mastery of language skills. This led to a dynamic dispute between the so-called nativists and those who attempted to show that aspects of adult and, particularly, parental language input and interaction style exerted a measurable influence on the rate and direction of children's language learning. Although the debate continues to this day, it has produced some interesting and therapeutically relevant findings regarding potential contributions of adult language models to the pace of child language development that will be addressed later in this article.

Conversely, there was a relatively long-lived assumption that parental input has *something* to do with children's fluency. As in the case of Chomsky's influence on linguistics, major figureheads in the history of speech-language pathology, such as Johnson and Van Riper, offered perspectives on the roles of input and interaction in the development of stuttering that left lasting legacies. One such legacy was Johnson's diagnosogenic theory (1942). The

0161–1461/04/3501–0046

theory held that parental attention to normal developmental disfluencies had the potential to convert normal fluency breakdown to clinical stuttering. As recent coverage of Johnson and student Mary Tudor's "monster study" designed to test this hypothesis reminds us (Ambrose & Yairi, 2002), findings did not support a role of adult input in the etiology of stuttering. Despite clearly unethical and problematic design, differential types of adult reaction to children's speech did not systematically affect their fluency. However, results of the study were not publicly available, and the diagnosogenic model continued (and continues) to receive coverage in major textbooks on stuttering. Some years later, Van Riper (1961, p. 51) made the following observation:

> Consider for a moment what choices are open to a child whose parents set for him speech models which are too fast and too complex. He can either imitate the fast flow and talk jabberingly or else he can speak…correctly and falter hesitantly. If he takes one path, he may stutter; if he takes the other, he may have a disorder of articulation. If only parents would blaze the third trail of easy simplified speech, we speech therapists would pretty well be put out of business.

Such comments differ in premise from the diagnosogenic model in important ways, and are more frequently found in the current literature (e.g., Starkweather, Gottwald, & Halfond, 1990). They do not presume that parents shape fluent speech into abnormally disfluent speech by responses to children's speech attempts. Rather, they imply that it is children's attempts to mimic adult speech and language models that lead to failed fluency.

Having drawn parallels between the history of parent interaction research in linguistics and speech-language pathology, it is also interesting to compare how the fields have progressed in their attempts to refine initial theories. In the years since Chomsky's dismissal of the role of parents in language acquisition, researchers have undertaken quite a large number of carefully designed and ambitious studies meant to evaluate his claim. One fast way to appreciate this is to simply run a literature search on the topics "parents" and "language." A relatively powerful academic database vendor, such as EBSCO host (Academic Search), or a quick PubMed search can pull out hundreds of experimental and observational tests of the relationships between parental input and children's linguistic tendencies or abilities that have been carried out within the past 20 years. The same type of search, using either "fluency" or "stuttering" rather than "language," yields a much sparser set of references, many of which are not, in fact, empirical studies, but rather tutorial advice to clinicians, parents, and educators.

The fact that investigation of the role of parental input in children's communicative development has had different research trajectories in different fields has implications for the clinical practice of speech-language pathologists (SLPs). In particular, this article will attempt to highlight the existing research support for relatively commonplace advisement to the parents of children who stutter (CWS), as it has been developed primarily in the speech-pathology literature. Its relative strengths and weaknesses will be discussed and compared to relevant work done in other fields, such as linguistics, psychology, and education, to highlight gaps in our current knowledge base and the critical need for further studies.

ADVISEMENT TO THE PARENTS OF CWS: THE STATE OF THE PRACTICE

One potential starting point for discussion is to examine some basic beliefs held by practicing clinicians with respect to parental roles in the etiology and treatment of early stuttering. Cooper and Cooper (1996) reported the results of two large surveys of practicing SLPs, carried out from 1973–1983 and again in 1991. During that time frame, the diagnosogenic theory, one interpretation of the notion that "parents are the primary factor in causing stuttering in their children" (p. 122), declined markedly in popularity. In 1983, approximately 18% of practicing clinicians agreed with this concept; another 22% were uncertain of its relevance. By 1991, fewer than 10% of clinicians endorsed this notion, whereas 75% disagreed with it mildly or strongly. However, reported beliefs concerning the influential role of parents in determining the course of very early stuttering did not change very much at all during this wide time frame. Approximately 92% of SLPs endorsed the notion that "parent counseling is the critical factor in helping the preschool stutterer" across 2 decades of sampling. Thus, it is not surprising that approximately 95% of clinicians across the two sampling periods moderately or strongly disagreed with the statement that "we know so little about the cause of stuttering and the treatment of stuttering that counseling parents is something we should avoid" (p. 128). When viewed as a whole, the data suggest that currently, practicing clinicians do not believe that parents cause stuttering to emerge or become persistent in children, but feel instead that parental attitudes and actions are important in determining the outcomes of treatment. Moreover, practicing clinicians appear to feel that the knowledge base in stuttering is of sufficient quality and quantity that parent counseling is an appropriate component in the treatment of early stuttering.

The Nature of Current Recommendations to Parents

Next, one can consider current counseling recommendations made to parents when young children who have recently begun to stutter are seen by professionals. Graduate texts in fluency disorders provide one starting place for determining expert opinion and clinical training trends. A cursory survey of the typical advice offered to the parents of young CWS reveals some common themes:

- "The second track [of stuttering] is found in the child whose communicative environment is characterized by a high level of verbalization" (p. 55). "It seems unlikely that the complexity of the parents' language influences the complexity of the child's, but it IS likely that the AMOUNT of talking that the parents

do can accelerate the child's language development…well beyond the child's motoric capacity to produce long, rapid utterances…. Language overstimulation…is one of the ways stuttering can develop" (p. 95). "Children whose language development is being overstimulated can be helped to become more fluent by a reduction in the amount of language they hear" (p. 119) (Starkweather & Givens-Ackerman, 1997).

- "[There are] several ways a parent could be mismatched with his or her child—for example, speaking at a rate well beyond the child's ability to emulate, using utterances well beyond the child's ability to formulate, or responding to the child much faster than the child's system can readily tolerate" (Conture, 2001, p. 46).
- "If parental conversation is highly sophisticated, and they habitually talk beyond the semantic–syntactic level of the child, we request that they simplify their conversation" (Wall & Myers, 1995, p. 250).
- "Stressful adult speech models [include] rapid speech rate, polysyllabic vocabulary, complex syntax [and the] use of two languages in [the] home (Guitar, 1998, p. 68).
- "Simplify, soften and slow the daily speech model to which the child is exposed…. There are many potential fluency disruptors…[some] include…the following: inappropriate speech and language models or expectations" (Shapiro, 1999, p. 264–270).

When taken as a group, these recommendations appear to be quite consistent with the themes voiced by Van Riper a number of years ago, and reflect the belief that children's fluency may be mediated by their attempts to match adult input models. The breadth and scope of the recommendations vary, and so it is appropriate to identify some common premises. Across authors, these advisements center around the following lists of common threads. For each, the relative strength of empirical support will be evaluated.

Speech rate, turn-taking, and stuttering. This appears to be the oldest advisement and the component of parent counseling for early stuttering that has the deepest research base, in both the fluency and the child language literatures. Among the researchers to examine these variables in parent–child interaction have been Guitar and Marchinkoski (2001); Guitar, Schaefer, Donahue-Kilburg, and Bond (1992); Jones and Ryan (2001); Kelly and Conture (1992); Meyers and Freeman (1985b); Stephenson-Opsal and Bernstein Ratner (1988); Street and Cappella (1989); Welkowitz, Bond, Feldman, and Tota (1990); and Zebrowski, Weiss, Savelkoul, and Hammer (1996).

A first theme of the available research has been to see if parents of CWS impose undue speech rate models on their children, perhaps inducing the children to match an unreasonably fast articulatory pattern. In other words, do children stutter because their parents model too rapid a speech rate, which the child attempts to emulate but cannot while maintaining fluency? Virtually all research now suggests that this assumption is *not* generally true. Mothers and fathers of CWS appear to use virtually the same speech rate in speech to their children as do parents of children who do not stutter (CWNS), both in the period of time before stuttering onset occurs (Kloth, Janssen, Kraaimaat, & Brutten, 1998), as well as after its symptoms appear (Jones & Ryan, 2001; Kelly & Conture, 1992; Meyers & Freeman, 1985b). The Kloth et al. study is particularly interesting because it employed a prospective design of families who were genetically at risk for stuttering, and thus could actually examine parenting interactions before the emergence of stuttering in young children.

However, stuttering may elicit changes in speech rate from parents. Meyers and Freeman (1985b) noted that parents of both CWS and CWNS adopted a faster rate when conversing with CWS than with CWNS, perhaps because the stuttering discomforted them. Thus, the notion that rapid adult speech rate might be a *response* to young children's stuttering may have important clinical ramifications given data to be discussed later in this article. Even if parental speech rate does not determine if a child will begin to stutter, it may be true that alterations in parental (and clinicians') speech rates may impact the frequency of disfluency early in the course of the disorder.

This is because changes in adult speech rate have been associated fairly consistently with reduction of stuttering frequency in a number of parent–child dyads, although the effect is not uniformly observed. When parents are counseled to adopt a slower rate, children's stuttering may diminish significantly (Stephenson-Opsal & Bernstein Ratner, 1988; Guitar & Marchinkoski, 2001; Guitar et al., 1992; Zebrowski et al., 1996). Further, severity of children's stuttering has been associated in some studies with differences between parent–child dyadic speech rate. In these analyses, differences between individual children and their parents are compared rather than group performance/behavior patterns. It has been noted in such studies that when parents' rates are much faster than that of their own children, or characterized by interruptions or simultalk (parallel or cross-talk among participants), fluency breakdown may be statistically more frequent (Kelly & Conture, 1992; Ryan, 2000). Thus, counseling in the area of parental speech rate may be motivated by research and may yield therapeutically valuable results.

The notion that the parents of CWS do not have a generally excessive speech rate, but differences between their rate and their children's may be correlated with fluency failure, may rest in another poorly researched area, that of the speech rate of children close to stuttering onset. For example, some but not all research suggests that CWS close to the onset of symptoms may have slower than typical speech or articulatory rates (Bernstein Ratner, 2001a; Hall, Amir, & Yairi, 1999). The published literature on this topic is somewhat sparse; however, it is a possibility that any noted correlations between children's fluency and the relative distance between their speech rate and that of their parents may reflect inherent relationships between children's speech rate and their fluency that do not bear on parental rate at all.

This is because the truly puzzling aspect of the relationship between parental speech rate modification and children's stuttering is that parental speech rate changes

may result in child fluency changes without concomitant mirroring of the speech rate change by the child. In other words, in cases where children's speech becomes more fluent, child speech rate usually is not observed to entrain to the parents' slowing (Stephenson-Opsal & Bernstein Ratner, 1988). Children do not seem to copy changes in their parents' speech rates. Both stuttering and normal language development literature have noted that most children do not systematically entrain their speech rate to that of their conversational partners (Bernstein Ratner, 1992; Guitar & Marchinkoski, 2001; Welkowitz et al., 1990), although some children have been shown to do so (Street & Cappella, 1989; Zebrowski et al., 1996).

If children do not copy changes in parental speech rate, this raises the reasonable question of how parental speech rate changes enhance children's fluency if not by inducing parallel slowing of the child's rate. A strong suspect is that there are overflow changes in other speech and language domains when parents change speech rate. A conscious decision to change speech rate may elicit other behaviors in parents that were not specifically intended but can be observed in research studies. Some of these observed changes include turn-taking latency, or the time between speakers' utterances during conversational interaction. Lengthening of adult turn-taking latency has been independently linked to reductions in children's stuttering frequency (Newman & Smit, 1989) and appears to be a natural consequence following instructions to slow parental speech rate (Bernstein Ratner, 1992). When parents wait longer to respond to their child's utterance, children appear to mirror this behavior, which can be fluency enhancing.

An inverse conversational pattern, interrupting behavior, has been linked to fluency breakdown in children (Meyers & Freeman, 1985a). Such findings strengthen our assumption that turn-taking latency may impact fluency close to the onset of stuttering. Moreover, children appear to entrain to changes in latency patterns more readily than to speech rate changes (Bernstein Ratner, 1992; Welkowitz et al., 1990). Although children may not mimic parental speech rate, they appear to respond readily to changes in parental turn-taking latency. Intriguing case studies of the fluency-enhancing consequences of home programs that deliberately target longer turn-taking latencies through conversational turn-taking management (Winslow & Guitar, 1994) pinpoint turn-taking as one of the potentially more beneficial areas of manipulation in early fluency treatment. Both rate and turn-taking are clearly topics deserving of further systematic research, particularly of the type that moves from simple contrasts of speech rate in parents of fluent children and CWS to actual intervention research in which parental rate is systematically adjusted, with subsequent observation of both concomitant, uninstructed changes in parental behavior as well as broad changes in children's rate, fluency, and other conversational variables that might impact their ability to be fluent.

Language input and stuttering. A second strong theme in advisement to parents is that they reduce the length and complexity of language directed to CWS. A major premise of advisement to the parents of young CWS is that longer, more complex language in children provokes disfluency and stuttering. This seems to be rather uncontrovertibly true, with some caveats (Yaruss, 1999), as a number of research studies have shown (Bernstein Ratner & Sih, 1987; Gaines, Runyan, & Meyers, 1991; Logan & Conture, 1995, 1997; Weiss & Zebrowski, 1992; Yaruss, 1999). More ambitious child language attempts are statistically more likely to be accompanied by fluency failure. This is an important premise in designing graduated targets in fluency therapy for young children. Thus, the fact that more ambitious conversational bids by young CWS places them at greater statistical risk to stutter is not greatly disputed, although the research support for this premise was much longer in coming than was the advisement to clinicians (e.g., Van Riper, 1973). More recent studies show that children tend to stutter more on utterances that reveal other types of demand, such as those containing formulation errors (e.g., Bernstein Ratner, 1998). Such relationships between language demand and fluency can be seen in normally fluent children as well as children with language disorders.

Extrapolation from children's language to parents' language. If longer, more complex language in children elicits stuttering, an obvious question is how to guide children to less ambitious, and presumably more fluent, language attempts. The common advisement that adults use slower speech and sentences with reduced syntactic and lexical complexity appears premised on the notion that more rapid, longer, and more complex language in adults provokes disfluency/stuttering in children, either independently or through a modeling effect that stresses children's attempts to match the input level.

There is not much research support to buttress the hypothesis that parental language has a tangible effect on children's fluency (see Nippold, 1995, for additional commentary). As noted earlier, slowing parental speech rate and altering turn-taking patterns *do* appear fluency facilitating, although their mechanisms are still poorly understood. However, the efficacy of changing parents' language has not been well explored.

How might this type of research be conducted? There are a number of options: One might compare the language used by parents of CWS and those of CWNS to see if group differences were evident. One could also examine the "goodness of fit" or fine-tuning between individual children's language and that of their parents. Finally, one could examine the actual effects of instructions on modification of parental speech models. The resulting outcomes could then be used to judge whether changes in parental speech and language were indeed fluency enhancing.

The first potential outcome might be that the child's language varies when input models change in their characteristics. This concept has been broadly explored in the language acquisition literature to see if parent language profiles predict particular behavioral outcomes in children. However, this has been done only on a "lagged" basis (i.e., over extended periods of observation), rather than within interactions, in the child language literature. The concept has not been explored at all in the stuttering literature. There is some assumption in the child language literature that parents can readily "fine-tune" their language and style to the child's changing language abilities, but very little

assumption that children quickly mirror any parental characteristics within a single session or short time frame. Input–output relationships in the child language literature are usually assessed over periods of months or even years rather than minutes or days. A presumption appears to be that adult input serves as raw material for the language acquisition system that is mediated over time and the child's development, yielding long-term, rather than short-term, effects. As noted later in this article, there appear to be long-term effects of some patterns of parental language use, but few immediate outcomes of parental language changes have been demonstrated. In contrast, virtually all fluency-based investigations of parental input changes have been carried out over very limited time frames (e.g., within a session, in the next session, within a few weeks). In general, more research is needed to examine the ongoing synchrony between aspects of parental language style and children's language, as well as fluency.

A second possible outcome of input studies would be that the child makes more errors, or evidences other formulation difficulty, when using language under conditions when parental language appears to be more challenging or sophisticated. This would imply that "unreasonable" parental language models induce children to "overreach" in attempts to match the relative sophistication of parental language. However, this concept has not been investigated in the published literature on normal child language acquisition, and has not yet been studied extensively in the fluency literature. One study (Sanders & Weiss, 1999) suggested that parental language models (as measured by the mean length of utterance [MLU] of their conversational turns) were not related to children's disfluency, whereas the children's own utterance complexity was a strong predictor of their disfluency levels. Notably, overreaching or excessively complex language input has not been documented in speech to delayed language learners; rather, there has been some consensus that parents of children with expressive language problems are more directive and use simpler language than parents of normally expressive children (Whitehurst et al., 1988). In the child language literature, there is rarely concern that parental language can be too sophisticated; in fact, studies of fathers, who have consistently been shown to be more advanced in their language styles with children than are mothers, credit them with being at the "cutting edge" of their children's language development (e.g., Bernstein Ratner, 1988; Tomasello, Conti-Ramsden, & Ewert, 1990). In other words, in studies of both normal and disordered child language function, a rich level of parental language input is generally construed to be a positive attribute because it potentially facilitates children's language mastery. In fact, there has been continued scrutiny of the language-learning environment of at-risk children (e.g., Conti-Ramsden, Hutcheson, & Grove, 1995). An overstimulating environment has not been evident in such studies. Whitehurst et al. (1988) noted that a general problem in parent–child interaction when the child is known to be communicatively impaired is that, "by unconsciously and naturally talking to the child on the basis of what the child says rather than what the child understands, they might be restricting language and conceptual development in general" (p. 698).

Studies of parental language and stuttering. Some degree of attention has been paid to contrasting the language styles of parents of stuttering and of fluent children. For the most part, no readily apparent differences emerge. Parents of CWS do not appear to use longer utterances in speaking to their children than do parents of fluent children (Kloth, Janssen, Kraaimaat, & Brutten, 1995; Yaruss & Conture, 1995). In fact, in an interesting prospective study of high-risk families, Kloth et al. (1995) found that before symptom onset, mothers of CWS had lower MLU values than did mothers of children who did not progress to stuttering. This implies that maternal language demand was not a risk factor in developing stuttering, even in genetically high-risk families. Data on the language characteristics of mothers of CWS and mothers of CWNS (Miles & Bernstein Ratner, 2001) showed similar trends. In a study of 12 pairs of mothers and children near onset of stuttering and matched comparison dyads, there were no statistically or clinically significant differences between mothers of CWS and mothers of CWNS on a large number of variables. These variables included not only MLU, but an additional measure of syntactic complexity and two measures of lexical complexity. Further, there were no differences in level of relative demand (difference between a specific child's level of language complexity and his/her mother's values). Relative demand can be considered to be a better measure for making therapeutic inferences because demand is inherently a function of the specific distance in style between a given child and his or her parents, rather than population trends. The rationale for using relative, rather than absolute, measurements of parent–child language patterns is that demand operates on individuals, not on groups. More simply put, it may not be appropriate to generalize from group data to individuals.

Research has also explored whether parents of CWS have reasonable expectations of their children's language abilities. In extending either the diagnosogenic theory or related theories that relate parent behavior to children's fluency, it is conceivable that parents who do not accurately understand their children's linguistic proficiency might somehow stress their children's language attempts. However, in a recent study, Bernstein Ratner and Silverman (2000) found that parents of CWS are very good judges of their children's linguistic development. In fact, their parent report scores correlated highly (significantly more highly than those of parents of fluent children) with their children's actual test results. More specifically, it was found that mothers and fathers of CWS rated their children as relatively less advanced in a number of areas of communication development, including grammar, vocabulary, and articulation. Although not evidencing concern about their children's language ability, parents of CWS actually felt that their children were at a relative level of ability that was less advanced than that reported by parents of a matched group of CWNS from the same communities. If their children had, in fact, scored highly on measures of these skill areas, one might say that the parents were too demanding of them. However, the CWS were in fact less proficient in each of these areas than their comparison peers, and their

parents accurately captured this fact. In comparison, parents of CWNS peers made judgments of their children's abilities that correlated quite poorly with the children's actual performance. Thus, the parents of CWS were accurate in reporting some aspects of language development weakness, and were aware of their children's levels of communicative competence, whereas parents of fluent children were often quite inaccurate in their judgments of their children's current stage of linguistic development. There is no evidence from these studies that CWS are "overstimulated" in their language development or were expected to have better speech and language skills than they actually demonstrate.

Before leaving this topic, it is crucial to note that, in most studies, including those done in this author's laboratories, fathers' language and expectations are more advanced than mothers' (Kelly, 1995). In general, fathers have demonstrated more complex language and more sophisticated vocabulary, and tended to correct children more than mothers did (see summary of this literature in Gleason & Perlman, 1993, and Conti-Ramsden et al., 1995). Fathers will speak about "compasses" and "domesticated" and "wild" animals and name all types of workbench tools, given the opportunity (Bernstein Ratner, 1988), whereas mothers will name "clocks," "kitties" (*tigers*), and "bangers" given the same 2-year-old addressees and the same toy stimuli. In terms of their contributions to language input, fathers are broadly viewed as the "bridge" between community language expectations and maternal language tendencies, a view first advanced by Gleason (1975). Although the specific reasons for fathers' more sophisticated language to their children are not clear, this general pattern has been observed across a wide variety of studies, including typically developing populations as well as child populations with disorders. Thus, clinicians should be cautioned specifically not to view the relatively sophisticated language used by many fathers as unusual (Bernstein Ratner, 1988) and necessarily needing adjustment after baseline observation.

In support of the notion that parents should simplify language style to CWS, one study suggests a small linkage between outcomes and parents' language. Kloth, Kraaimaat, Janssen, and Brutten (1999) found that intake MLU for mothers of persistent CWS was .8 higher than that of mothers of recovered CWS; however, the relative difference between child and mother across groups was .7 MLU, less than a full morpheme or word per utterance. Additionally, analysis of the same parents' speech had found no predictive value of maternal utterance length on the onset of stuttering (Kloth et al., 1995).

The notion that small differences in maternal length of utterance affect the outcome in very early stuttering is difficult to interpret clinically because the absolute value of the difference that Kloth and colleagues noticed is less than one word per maternal utterance, and no analysis of sentence structure or other aspects of interactional style accompanies the report. Whitehurst et al. (1988), after extensive review of data on input to children of varying levels of language ability, specifically noted that maternal MLU may be relatively insensitive to subtle differences in children's language ability, a problem noted in the more extensive design of Miles and Bernstein Ratner (2001). To follow up this line of analysis, although the data reported in Miles and Bernstein Ratner were not designed to investigate persistence, they allowed comparison of values on a number of variables (including MLU, syntactic complexity, and lexical complexity) for the mothers of 3 children who were still stuttering 1 year post evaluation and 9 who were fluent with fluent comparison dyads. This analysis found no patterns of adult "demand" that would predict persistent stuttering.

Parental Questioning Behavior

Questions have been investigated as one specific area of proposed challenge in the stuttering literature. Parental questioning has long been proposed as a potential trigger for children's fluency breakdown (Van Riper, 1961). In some respects, this is logical, as parents' questions require children to formulate responses to maintain conversational participation, and could conceivably stress language formulation abilities. However, three relatively recent studies (Bernstein Ratner, 2001b; Weiss & Zebrowksi, 1992; Wilkenfeld & Curlee, 1997) suggest that children are more likely to stutter while *asking* questions than answering them, thus casting doubt on advisements to avoid asking children questions. It makes good sense that very young children at stuttering onset would show this pattern, because question formation is a relatively late acquisition in the realm of syntactic skills. In fact, recent data (Bernstein Ratner, 2001b) suggest that the particular words stuttered in conversational speech close to the onset of stuttering are likely to be *wh-* words that initiate questions.

In contrast, it is interesting to note that frequency of parental questioning behavior has long been seen as a positive influence on child language development. The more parents question, the more advanced their children's language appears to be on follow-up, specifically in the area of mastery of auxiliary and copular verb structures (Newport, Gleitman & Gleitman, 1977). This is presumably because questions highlight structures that otherwise might be difficult to identify in running conversation (such as normally contracted copula and auxiliary structures), and tend to maintain verbal interaction between adults and children in conversation. Thus, there is a striking contrast between the literatures on the value or limitations of parental questioning behavior. The stuttering literature has historically urged parents to refrain from asking disfluent children too many questions, despite recent evidence to suggest that parental questioning is not a strong determinant of stutter events. At the same time, questioning behavior is seen as language facilitating in the acquisition literature, which implies that unmotivated changes in parental questioning behavior could have deleterious effects on communicative development.

LIMITATIONS OF CURRENT RESEARCH

It is difficult to do a meta-analysis of the limited available research and come up with clear motivation for

some current recommendations to parents. The studies discussed above are observational in nature rather than interventional. Few of them have asked parents to change an input behavior and then assessed the results. The typical pattern of family-oriented programs for early intervention in stuttering tend to be multifaceted and target numerous adjustments in the parent–child interaction. At this point in time, there are basically no controlled studies that examine the impact of recommendations to alter specific and constrained attributes of parental speech on CWS's language or fluency, such as changes in language level or frequency of stutter events. Although a number of texts and chapters offer examples of successful counseling of parents, the literature can offer only clinical anecdotes, or clinical studies that asked parents to make a multiplicity of adjustments in behavior, usually in compliance with the types of recommendations quoted earlier. In other words, parents are often given a long list of suggestions to reduce language complexity and length, slow speech, and change conversational patterning, although none of these recommendations have received independent in-depth investigation to investigate their efficacy.

Similarly, no known studies in child language acquisition have examined "on-line" (within observed sessions) changes to child speech or language behavior as a result of alterations in parental input style. As noted earlier, the child language literature typically is characterized by a more ambitious research design that assumes that changes in parental behaviors take a certain amount of time to exert effects and are subject to a number of complex assumptions (Schwartz & Camarata, 1985). This wide difference in philosophy is interesting and raises the real question of how quickly some changes in parental speech style might be reflected in children's behaviors. If some relatively immediate results of parental conversational adjustments could be found, they could have significant impact not only on counseling in fluency disorders, but on other domains as well, such as the management of child language disorders.

Results from the one published study that attempted to measure within-session effects of instructions to mothers on children's language and fluency did not suggest that simplified parental language either simplifies child language or was fluency inducing (Bernstein Ratner, 1992). In this study, parents and children were studied in play interaction together to establish baseline levels of speech and language use. Following baseline, 10 pairs of mothers and children were randomly assigned to a condition in which mothers were asked to slow speech rate to see what impact this change might have on "play behavior." A second group of 10 mothers was asked to slow and simplify input language to assess effects on play. The results were rather surprising given extant advisement to parents of young CWS. First, there were *no* observable differences in the behaviors of mothers in the two conditions. Mothers who were asked to simplify language did, but so did mothers who were simply asked to slow their speech rate. Children did not change rate or language in *either condition,* and disfluency rates were *actually higher* for children whose mothers were directed to simplify. We also observed that direct instructions to simplify speech are not trivial. In fact, parents are often uncomfortable with the task of reducing language complexity. They often resort to repetition of the child's preceding utterance and have turn-taking latencies or mid-utterance pauses that become long enough to encourage child interruption of the mother. The one pre-onset observational study that looked at maternal language style and stuttering onset found simpler language directed at those who developed stuttering (Kloth et al., 1995). Thus, there does not appear to be strong support for advisement that parents of CWS alter their language input to them. Differing language styles exhibited by parents do not appear to be a risk factor for stuttering. No studies have suggested that alterations in parental language style are fluency enhancing.

Advisement to Parents: First Do No Harm

Parental advisement that is ineffective might be innocuous if it did not impede either remission from stuttering or other aspects of the child's communicative development. However, there is reason to question the results if parents are asked to reduce the complexity and amount of language input to CWS. What the accumulated child language literature shows is that the length and complexity of parental language is highly associated with child language gains; the inverse is also true. When parental language input is simpler, children show slower and diminished language growth (Huttenlocher, 1998; Newport et al., 1977). These relationships are apparent for some domains of syntax, and are very strongly evident for patterns of vocabulary development (e.g., Hoff & Naigles, 2002; Huttenlocher, Haight, Bryk, Seltzer, & Lyons, 1991; Huttenlocher, Levine, & Vevea, 1998; Lacroix, Pomerleau, & Malcuit, 2002; Naigles & Hoff-Ginsburg, 1998; Weizman & Snow, 2001, to name a few recent studies). Relative depression in expressive vocabulary is in fact quite specifically targeted as an area of weakness in recent studies of very young CWS (Anderson & Conture, 2000; Silverman & Bernstein Ratner, 2002). Thus, there is a paucity of information on the long-term effects of limiting adult input on enhancing children's fluency, but a strong and ever-growing literature on input and language acquisition suggests that limiting adult input may conceivably stress CWS's already fragile language skills (Bernstein Ratner & Silverman, 2000). That is, a concurrent accumulating literature suggests sublinguistic weaknesses in some children's lexical and syntactic development for which gating or limiting parental input could be considered quite counterintuitive.

Taken together, the existing literature on language complexity and children's fluency suggests that it may be beneficial for children to talk less, but not to hear less. If children attempt less ambitious language, they are likely to stutter less, but clinicians may not want to accomplish this by hoping that they will mimic simplified adult models. How might children be encouraged to use simpler language patterns? In a study that sheds some light on one way this might be achieved, Bonelli, Dixon, Bernstein Ratner, and Onslow (2000) analyzed the operant-based Lidcombe program (Onslow, Menzies, & Packman, 2001) for

behaviors that distinguished pre- and post-therapy language use by parents and successfully treated children who gained fluency during the program.

Because not all readers will be familiar with the Lidcombe program, some background will be provided. This program asks parents to praise fluent utterances (which are statistically likely to be shorter and less ambitious than stuttered utterances), while requesting correction or repetition of stuttered utterances, on a set contingency schedule. The program requires extensive training of parents to set up interactions in which such fluency contingencies will be implemented. Samples of the program can be viewed at http://www3.fhs.usyd.edu.au/asrcwww/treatment/lidcombe.htm.

In Bonelli et al. (2000), mechanisms for improvement in the children's fluency were sought in analysis of the children's and parents' language during participation in the program. The primary finding was that study children who gained fluency following this type of program began treatment with relatively high expressive language scores that plateaued (did not meet growth expectations, but were still comfortably at age level) post-therapy. In other words, before therapy, the children tended to speak in long, complex utterances, but used simpler, yet age-appropriate language in conversation by the end of therapy. The children seemed to intuit that parents were happy with shorter, simpler speech turns. These were praised, while longer efforts were likely to be met with requests for repetition; the shorter turns were less likely to stress the developing fluency system. Similar findings were recently presented by Watkins et al. (2003). In their study, the profiles of the language growth of CWS were contrasted with profiles of children who spontaneously recovered from early stuttering. Children who recovered showed conversational language profiles with a slower growth curve for a number of linguistic variables than did children who continued to stutter. It appears as though either guided or self-intuited temporary changes in children's use of complex syntax and vocabulary can help them achieve fluency, but these patterns do not appear to be moderated by parental language per se. Whatever the mechanism, it is clearly more complex than a simple parent–child match to style.

Another important facet of the Lidcombe program is mirrored in some other family-centered programs of early stuttering intervention. This is acknowledgment of the child's problem. One common reaction to children's early stuttering is to conspicuously ignore it, lest it make the problem worse. A number of respectable web resources continue to make this recommendation: "Try to ignore stuttering when it occurs" (http://www.thechildrenscompany.com/stuttering.htm; Children's Company, n.d.); "ignore the stuttering, and show love and acceptance" (http://mercksource.com/pp/index.jsp; MerkSource, 2002); and finally, from the American Academy of Pediatrics (http://www.medem.com; Medem, 2002–2003), "Thus, the best approach for parents is simply to ignore the stuttering. Listen when he speaks, but don't correct him. At the same time, you can set a good example by talking calmly and correctly and using simple language when addressing the child." Such advisement appears to be a lay remnant of the diagnosogenic legacy, which warns that labeling any behavior as stuttering can make it chronic. It is critical for clinicians to remember that research on the diagnosogenic theory found it to be baseless; moreover, programs such as Lidcombe, which acknowledge and respond to children's early disfluencies on a contingent basis, clearly contradict the notion that appropriately oriented reactions to children's early stuttering behaviors will worsen them. The task for future generations is to see whether programmed contingent responses to early stuttering diminish them at a rate higher than that provided by natural recovery—it has already been demonstrated that responding to early stuttering does not aggravate it.

Whether or not one implements the Lidcombe program, it is instructive to discuss reactions to the stuttering moment with parents. Along with many other programs, the authors conventionally, as an early approach to recently diagnosed stuttering in toddlers, urge parents to respond to obvious moments of speech frustration in their children with acknowledgment such as, "That looked hard to say. That's OK; sometimes I have trouble talking, too." Although no systematic changes in the frequency of early stuttering after making such recommendations have been noted, parents almost always report that reactive symptoms of stuttering, such as tension, struggle, or frustrated comments about speech, are reduced once parents make stuttering an allowable subject for discussion. The role of acknowledgment in changing struggle patterns in early stuttering is receiving continued investigation.

CONCLUSION

This article does not wish to imply that parental reactions to, and input to, a child who has started to stutter are not important in helping the child to achieve a positive outcome. Some parental responses to stuttering are troublesome regardless of presenting symptoms, such as, "I cannot stand to hear him stutter one more time" or "Please make him stop (stuttering)." But these examples are rare. Most parents of the children the author has observed at stuttering onset seemed to be reasonably concerned about their child's speech patterns. However, continuing to focus on certain parental input variables as a treatment plan may falsely aggravate parental guilt over the child's disorder, while not having a basis in strong basic or clinical research findings. Some components of common clinical advisement seem to reflect strong faith in an approach to stuttering that has relatively poor documentation of rationale or efficacy.

One recommendation that appears safe to make at this point is that clinicians proceed with caution, understanding that rate and turn-taking modification may have a small impact but cannot in and of themselves resolve stuttering. In other words, some components of indirect therapy can palliate stuttering symptoms. Parents have often reported to the author that their use appears to modify the frequency of stuttering behaviors somewhat. Clinicians might also be advised to admit that we do not know why such modifications work, and to distinguish between things that may help

a child's condition rather than potential causes of the child's problem. As noted elsewhere, it is very helpful to use analogies from other disorders in discussing this with parents. Parents understand that feeding children sugared foods or raising them in dusty houses causes neither diabetes nor asthma. However, both conditions are helped by changes in the child's diet or home environment. It is useful to help parents problem-solve their own personal environments for fluency-enhancing and aggravating conditions, perhaps by suggesting rate and turn-taking modifications, subject to efficacy reporting by the parents. Diary records of daily and situational aspects of the child's fluency profile are very helpful in this regard. A daily record of general fluency behavior (in terms of both frequency and severity of symptoms) is urged, as well as a record of whether a small set-aside period of parent–child interaction that specifically targets rate and turn-taking appears to be beneficial to the child's fluency. If it does, then extend on these principles. If it does not, we turn to other potential therapy approaches.

In working with young children exhibiting very early stuttering, it is extremely important to remember the volatile recovery rate of toddlers who are referred for onset of stuttering symptoms. It is now clear, thanks to Yairi, Ambrose, Paden, and Throneburg (1996), that up to 80% of children who begin to stutter stop in roughly the first 18–24 months after onset for reasons that are not presently understood. Thus, much of this advice is likely to be followed by remission from stuttering, regardless of whether or not the advice was the actual mechanism for positive change. The "stakes" for claiming responsibility for curing or effectively treating early stuttering are extremely high, and should show a remission rate significantly in excess of 80%, while making no potentially harmful recommendations (Bernstein Ratner, 1997).

While continuing to bolster the limited research support for parental speech and language modifications as an approach to fluency enhancement in children, researchers and clinicians may also wish to think about other potential factors in the successful treatment of early fluency problems, such as parental acknowledgment and openness in dealing with stuttering and reduction of opportunities for stuttering to serve as its own stimulus. Even when parental speech adjustments do not reduce children's stuttering moments completely, reductions in frequency and tension are a very beneficial adjunct to other forms of therapy. Thus, even techniques that reduce, but do not eliminate, early stuttering can be very helpful.

One component factor in the success of the Lidcombe program may be its open parent–child discussion of the child's fluency and reassuring reward for fluent moments. Although it has not been investigated as a unitary concept in early stuttering treatment, the support provided to children when parents help the child to "problem-solve" behavioral or developmental problems should not be disregarded and deserves deeper research attention.

There are ways of viewing the research cup as half empty and half full. For all that is not currently known about the very specific mechanisms by which children's speech, language, and fluency are shaped by patterns of parental interaction, there is a long list of potential research studies waiting to be done by students and researchers who often feel that all questions have been asked and answered. For clinicians and parents, it can be very reinforcing to review information that we do have, and what we do not know, in conducting parent counseling sessions. As in many areas of medical practice, admitting what we do not yet know is not necessarily a failure, but simple honesty, and allows us to work with parents to do personal problem-solving to determine conditions under which their child's fluency is enhanced or depressed. It is important that such sessions not place blame on parents for the onset or continuance of stuttering, because no data support such a belief or claim.

However, in closing, it is time for additional research and some changes in the way the parent–child interaction in stuttering treatment and counseling is conceptualized. This type of research should not be conducted in a vacuum. Parents and CWS should not be viewed as completely distinct and unrelated to families in which children are fluent. That is, potential ways to create interactions with fluency-enhancing properties should be examined in many adult–child populations, as well as potential outcomes, positive and negative, of historical parent counseling recommendations in fluency disorders. If clinicians believe that some parent–child modifications make it easier for children to talk, they should look for such outcomes in typical development and language delay/disorder as well as fluency profiles in young children. Parent–child research in early stuttering should be grounded in what is known about normal parent–child verbal interaction, and the effects of adjustments seen in normal development and other clinical domains. That is, potential parental strategies to manage stuttering should be evaluated against known effects of input on children's speech and language development, and should be validated by work with fluent children and CWS to show their efficacy in changing the frequency of disfluent events. Finally, although parental advisement appears to be considered benign, if not efficient, in managing a particular child's fluency profile, caution should be exercised in making recommendations that have the potential to negatively affect language growth in young children.

REFERENCES

Ambrose, N., & Yairi, E. (2002). The Tudor study: Data and ethics. *American Journal of Speech-Language Pathology*, *11*, 190–204.

Anderson, J., & Conture, E. (2000). Language abilities of children who stutter: A preliminary study. *Journal of Fluency Disorders, 25*, 283–304.

Bernstein Ratner, N. (1988). Patterns of parental vocabulary selection in speech to young children. *Journal of Child Language*, *15*, 481–492.

Bernstein Ratner, N. (1992). Measurable outcomes of instructions to modify normal parent–child verbal interactions: Implications for indirect stuttering therapy. *Journal of Speech and Hearing Research*, *35*, 14–20.

Bernstein Ratner, N. (1997). Leaving Las Vegas: Clinical odds and individual outcomes. *American Journal of Speech-Language Pathology, 6*(2), 29–33.

Bernstein Ratner, N. (1998). Linguistic and perceptual characteristics of children at stuttering onset. In E. C. Healey & H. F. M. Peters (Eds.), *Proceedings of the 2nd World Congress on Fluency Disorders* (pp. 3–6). Nijmegen, The Netherlands: International Fluency Association/Nijmegen University Press.

Bernstein Ratner, N. (2001a, June). *Linkages among linguistic, articulatory and fluency development in early development*. Fourth International Speech Motor Conference, Nijmegen, The Netherlands.

Bernstein Ratner, N. (2001b). The phonology of early stuttering: Some reasons why there isn't one. In H. Bosshardt, J. S. Yaruss, & H. F. M. Peters (Eds.), *Fluency disorders: Theory, research, treatment and self-help* (pp. 203–205). Nijmegen, The Netherlands: Nijmegen University Press.

Bernstein Ratner, N., & Sih, C. C. (1987). The effects of gradual increases in sentence length and complexity on children's dysfluency. *Journal of Speech and Hearing Disorders*, *52*, 278–287.

Bernstein Ratner, N., & Silverman, S. (2000). Parental perceptions of children's communicative development at stuttering onset. *Journal of Speech, Language, and Hearing Research*, *43*, 1252–1263.

Bonelli, P., Dixon, M., Bernstein Ratner, N., & Onslow, M. (2000). Child and parent speech and language following the Lidcombe programme of early stuttering intervention. *Clinical Linguistics and Phonetics, 14*, 427–446.

Children's Company. (n.d.). *Parenting tips: Q & A*. Retrieved April 20, 2003, from http://www.thechildrenscompany.com/stuttering.htm

Chomsky, N. (1965). *Aspects of a theory of syntax*. Cambridge, MA: MIT Press.

Conti-Ramsden, G., Hutcheson, G., & Grove, J. (1995). Contingency and breakdown: Children with SLI and their conversations with mothers and fathers. *Journal of Speech and Hearing Research*, *38,* 1290–1303.

Conture, E. (2001). *Stuttering: Its nature, diagnosis and treatment*. Boston: Allyn & Bacon.

Cooper, E., & Cooper, C. (1996). Clinician attitudes towards stuttering: Two decades of change. *Journal of Fluency Disorders*, *21*, 119–135.

Gaines, N., Runyan, C., & Meyers, S. (1991). A comparison of young stutterers' fluent versus stuttered utterances on measures of length and complexity. *Journal of Speech and Hearing Research*, *34*, 37–42.

Gleason, J. B. (1975). Father and other strangers: Men's speech to young children. In D. Dato (Ed.), *Developmental psycholinguistics: Theory and applications* (pp. 289–297). Washington, DC: Georgetown University Press.

Gleason, J. B., & Perlman, R. (1993). The neglected role of fathers in children's communicative development. *Seminars in Speech and Language, 14,* 314–324.

Guitar, B. (1998). *Stuttering: an integrated approach to its nature and treatment*. Baltimore: Williams & Wilkins.

Guitar, B., & Marchinkoski, L. (2001). Influence of mothers' slower speech on their children's speech rate. *Journal of Speech, Language, and Hearing Research*, *44*, 853–861.

Guitar B., Schaefer, H., Donahue-Kilburg, G., & Bond, L. (1992). Parent verbal interactions and speech rate: A case study in stuttering. *Journal of Speech and Hearing Research*, *35*, 742–754.

Hall, K., Amir, O., & Yairi, E. (1999). A longitudinal investigation of speaking rate in preschool children who stutter. *Journal of Speech, Language, and Hearing Research*, *42*, 1367–1377.

Hoff, E., & Naigles, L. (2002). How children use input to acquire a lexicon. *Child Development*, *73*, 418–433.

Huttenlocher, J. (1998). Language input and language growth. *Preventive Medicine*, *27*, 195–199.

Huttenlocher, J., Haight, W., Bryk, A., Seltzer, M., & Lyons, T. (1991). Early vocabulary growth: Relation to language input and gender. *Developmental Psychology*, *27*, 236–244.

Huttenlocher, J., Levine, S., & Vevea, J. (1998). Environmental input and cognitive growth: A study using time-period comparisons. *Child Development*, *69*, 1012–1029.

Johnson, W. (1942). A study of the onset and development of stuttering. *Journal of Speech and Hearing Disorders*, *7,* 251–257.

Jones, P., & Ryan, B. (2001). Experimental analysis of the relationship between speaking rate and stuttering during mother–child conversation**.** *Journal of Developmental & Physical Disabilities*, *13*, 279–305.

Kelly, E. (1995). Parents as partners: Including mothers and fathers in the treatment of children who stutter. *Journal of Communication Disorders*, *38*, 1025–1037.

Kelly, E., & Conture, E. (1992). Speaking rates, response time latencies, and interrupting behaviors of young stutterers, nonstutterers, and their mothers. *Journal of Speech and Hearing Research, 35*, 1256–1267.

Kloth, S. A. M., Janssen, P., Kraaimaat, F. W., & Brutten, G. (1995) Communicative behavior of mothers of stuttering and nonstuttering high-risk children prior to the onset of stuttering. *Journal of Fluency Disorders*, *20*, 365–377.

Kloth, S. A. M., Janssen, P., Kraaimaat, F. W., & Brutten, G. (1998). Child and mother variables in the development of stuttering among high-risk children: A longitudinal study. *Journal of Fluency Disorders*, *23*, 217–230.

Kloth, S., Kraaimaat, F., Janssen, P., & Brutten, G. (1999). Persistence and remission of incipient stuttering among high-risk children. *Journal of Fluency Disorders*, *24*, 253–265.

Lacroix, V., Pomerleau, A., & Malcuit, G. (2002). Properties of adult and adolescent mothers' speech, children's verbal performance and cognitive development in different socioeconomic groups: A longitudinal study. *First Language*, *22*, 173–196.

Logan, K., & Conture, E. (1995). Length, grammatical complexity and rate differences in stuttered and fluent conversational utterances of children who stutter. *Journal of Fluency Disorders, 20*, 35–61.

Logan, K., & Conture, E. (1997). Selected temporal, grammatical, and phonological characteristics of conversational utterances produced by children who stutter. *Journal of Speech, Language, and Hearing Research*, *40*, 107–120.

Medem. (2002–2003). *Connecting physicians and patients online*. Retrieved April 20, 2003, from http://www.medem.com

MerkSource. (2002). *Your online health partner*. Retrieved April 20, 2003, from http://mercksource.com/pp/index.jsp

Meyers, S. C., & Freeman, F. (1985a). Interruptions as a variable in stuttering and disfluency. *Journal of Speech and Hearing Disorders*, *28*(3), 428–435.

Meyers, S. C., & Freeman, F. (1985b). Mother and child speech

rates as a variable in stuttering and disfluency. *Journal of Speech and Hearing Research*, *28*, 436–444.

Miles, S., & Bernstein Ratner, N. (2001). Parental language input to children at stuttering onset. *Journal of Speech, Language, and Hearing Research*, *44*, 1116–1130.

Naigles, L., & Hoff-Ginsburg, E. (1998). Why are some verbs learned before other verbs? Effects of input frequency and structure on children's early verb use. *Journal of Child Language*, *5*, 95–120.

Newman, L., & Smit, A. (1989). Some effects of variations in response time latency on speech rate, interruptions, and fluency in children's speech. *Journal of Speech and Hearing Research*, *2*, 635–644.

Newport, E., Gleitman, H., & Gleitman, L. (1977). Mother, I'd rather do it myself: Some effects and noneffects of maternal speech style. In C. Snow & C. Ferguson (Eds.), *Talking to children: Language input and acquisition* (pp. 109–150). Cambridge, MA: Cambridge University Press.

Nippold, M. (1995). Parents' speech and children's stuttering: A critique of the literature. *Journal of Speech and Hearing Research*, *38*, 978–989.

Onslow, M., Menzies, R., & Packman, A. (2001). An operant intervention for early stuttering: The development of the Lidcombe program. *Behavior Modification*, *25*, 116–139.

Ryan, B. (2000). Speaking rate, conversational speech acts, interruption, and linguistic complexity of 20 pre-school stuttering and non-stuttering children and their mothers. *Clinical Linguistics & Phonetics*, *14*, 25–51.

Sanders, K., & Weiss, A. (1999, November). *Adults' language use in conversations with children who stutter.* Poster session presented at the annual convention of the American Speech-Language-Hearing Association, San Francisco.

Schwartz, R., & Camarata, S. (1985). Examining relationships between input and language development: Some statistical issues. *Journal of Child Language*, *12*, 199–207.

Shapiro, D. (1999). *Stuttering intervention: A collaborative journey to fluency freedom*. Austin, TX: Pro-Ed.

Silverman, S., & Bernstein Ratner, N. (2002). Measuring lexical diversity in children who stutter: Application of *vocd*. *Journal of Fluency Disorders, 27*, 289–304.

Starkweather, C. W., & Givens-Ackerman, J. (1997). *Stuttering*. Austin, TX: Pro-Ed.

Starkweather, C. W., Gottwald, S., & Halfond, M. (1990). *Stuttering prevention: A clinical method*. Englewood Cliffs, NJ: Prentice-Hall.

Stephenson-Opsal, D., & Bernstein Ratner, N. (1988). Maternal speech rate modification and childhood stuttering. *Journal of Fluency Disorders*, *13*, 49–56.

Street, R., & Cappella, J. (1989). Social and linguistic factors influencing adaptation in children's speech. *Journal of Psycholinguistic Research*, *18*, 497–519.

Tomasello, M., Conti-Ramsden, G., & Ewert, B. (1990). Young children's conversations with their mothers and fathers: Differences in breakdown and repair. *Journal of Child Language*, *17*, 115–130.

Van Riper, C. (1961). *Your child's speech problems*. New York: Harper & Row.

Van Riper, C. (1973). *The treatment of stuttering* (2nd ed.). Englewood Cliffs, NJ: Prentice-Hall.

Wall, M., & Myers, F. (1995). *Clinical management of childhood stuttering* (2nd ed.). Austin, TX: Pro-Ed.

Watkins, R., Ambrose, N., DeThorne, L., Evans, K., Poegel, C., Yairi, E., et al. (2003). *Trends in expressive language associated with persistent and recovered stuttering I: Group data*. Manuscript submitted for publication.

Weiss, A., & Zebrowski, P. (1992). Disfluencies in the conversations of young children who stutter: Some answers about questions. *Journal of Speech and Hearing Research*, *35*, 1230–1238.

Weizman, Z., & Snow, C. (2001). Lexical input as related to children's vocabulary acquisition: Effects of sophisticated exposure and support for meaning. *Developmental Psychology*, *37*, 265–279.

Welkowitz, J., Bond, R., Feldman, L., & Tota, M. (1990). Conversational time patterns and mutual influence in parent–child interactions: A time series approach. *Journal of Psycholinguistic Research*, *19*, 221–243.

Whitehurst, G., Fischel, J., Lonigan, C., Valdez-Menchaca, M., DeBaryshe, B., & Caulfield, M. (1988). Verbal interaction in families of normal and expressive-language-delayed children. *Developmental Psychology*, *24*, 690–699.

Wilkenfeld, J., & Curlee, R. (1997). The relative effects of questions and comments on children's stuttering. *American Journal of Speech-Language Pathology*, *6*, 79–89.

Winslow, M., & Guitar, B. (1994). The effects of structured turn-taking on disfluencies: A case study. *Language, Speech, and Hearing Services in Schools*, *25*, 251–258.

Yairi, E., Ambrose, N., Paden, E., & Throneburg, R. (1996). Predictive factors of persistence and recovery: Pathways of childhood stuttering. *Journal of Communication Disorders*, *29*, 51–77.

Yaruss, J. S. (1999). Utterance length, syntactic complexity, and childhood stuttering. *Journal of Speech, Language, and Hearing Research, 42*, 329–344.

Yaruss, J. S., & Conture, E. G. (1995). Mother and child speaking rates and utterance lengths in adjacent fluent utterances: Preliminary observations. *Journal of Fluency Disorders*, *20*, 257–278.

Zebrowski, P., Weiss, A., Savelkoul, E., & Hammer, C. (1996). The effect of maternal rate reduction on the stuttering, speech rates and linguistic productions of children who stutter: Evidence from individual dyads. *Clinical Linguistics and Phonetics*, *10*, 189–206.

Received October 1, 2002
Accepted June 2, 2003
DOI: 10.1044/0161-1461(2004/006)

Contact author: Nan Bernstein Ratner, 0100 Lefrak Hall, University of Maryland, College Park, MD 20742. E-mail: nratner@hesp.umd.edu