Child Language Disorders: A Twenty-Five Year Retrospective

Les troubles de langage chez l'enfant : rétrospective des vingt-cinq dernières années

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Abstract

There may be as many accounts of the last twenty-five years in child language disorders as there are researchers and clinicians, for these have been turbulent years. This version, then, is hindsight from my particular perspective, as a psychologist working on children's language development who joined the field twenty years ago. What strikes me, looking back, is the great flow of ideas from different disciplines that has poured in over that period, and the struggle to integrate and use these many different frameworks in the context of working with children (Chapman, 1991).

Résumé

Dans le domaine des troubles de langage chez l'enfant, il peut y avoir autant d'explications sur les vingt-cinq dernières années qu'il y a de chercheurs et de médecins, car ces années ont été tumultueuses. Le présent compte rendu s'inspire donc de mon propre point de vue, à titre de psychologue oeuvrant dans le domaine de l'évolution de la langue chez l'enfant qui a fait ses premières armes dans ce domaine il y a vingt ans. En rétrospective, ce qui me frappe le plus ce sont les nombreux échanges d'idées provenant de diverses disciplines qui ont été émises durant cette période et la lutte en vue d'intégrer et utiliser lesdites idées dans le contexte du travail avec l'enfant. (Chapman, 1991)

Twenty-five Years Ago

Twenty-five years ago the field of child language disorders was just emerging, and few worried much about children who were slow to learn to talk. Pediatricians, including Dr. Spock, advised parents to wait until school years—the child might catch up. The "speech teacher," as she was called then, worked with school aged children on speech sounds or fluency or voice problems, but rarely language. Behavioral therapies were popular. Language development was not a topic in the curriculum. Delayed speech and language was certainly discussed in texts of the time (notably, Myklebust, 1954, who characterized their similarity to adult aphasics; Wood, 1964; Berry, 1969). Students learned to give the Illinois Test of Psycholinguistic Abilities (Kirk & McCarthy, 1968) and use M & Ms to reinforce good talking, if they worked on language at all.

At the same time, researchers working with children with delayed speech met at Stanford to agree on a definition of child language disorders (childhood aphasia, congenital aphasia, specific language impairment, linguistically deviant children, language disabled, developmentally dysphasic are other terms that have been used more or less interchangeably) (West, 1962). The Stanford definition excluded language problems associated with mental retardation, hearing impairment, central nervous system damage affecting the peripheral speech mechanism, emotional disturbance, and lack of opportunity for language learning or social experience. The language disorder was presumed to arise from maldevelopment or injury to the central nervous system prior to the emergence of first words and could be associated with other cerebral or neurological pathology. Here we see the use of the exclusionary criteria that persist, to this day, as the central defining feature of language impairment; and the adherence to an adult aphasic framework.

Linguistic Influences on Child Language Research

The first major influence on work in child language disorders came from the emerging, interdisciplinary field of psycholinguistics. Radical developments in linguistics, particularly Noam Chomsky's publication of *Syntactic Structures* (1957) and *Aspects of the Theory of Syntax* (1965), challenged behavioral accounts of language development. Chomsky's work focused on the linguistic competence of the ideal speaker-listener. He argued that the central linguistic task was that of accounting for how this ideal speaker-listener could distinguish well-formed from ill-formed sentences and generate indefinitely many, indefinitely long well-formed utterances. The solution that he proposed was a generative transformational grammar, in which a finite set of syntactic rules generated a deep structure description of a sentence that could be mapped onto

semantic interpretations, and in which a set of transformational rules acted upon those structures to provide a surface structure description that could be mapped onto phonology.

In the psychology seminar on psycholinguistics that I took in 1964 in Berkeley, we focused on children's capacity to create their own language rules and scoffed at the idea of language disorders in so fundamental a human endowment: All children, everywhere, acquired language almost instantaneously—between 2 and 3 years, despite the ragged examples and ill-formed talk around them (or rather, around us). We were excited to learn what the Chomskian account of transformational grammar might reveal about the nature of the child's innate endowment and the adult's linguistic competence. Most importantly, the Chomskian account convinced us that children learned *rules* of language construction.

Further, exposure to the methods of linguistics suggested that these methods could be applied to the study of children's developing language in much the same way that they were applied to the speakers of other languages. Roger Brown, Susan Ervin-Tripp, Wick Miller, and Martin Braine were independently pursuing intensive longitudinal studies of young children in which they attempted to write child grammars (Bellugi & Brown, 1964).

We were seeking a description of the child's linguistic competence. Each performance studied—talking, complying with a request, answering a question, judging the grammaticality of a sentence, verifying its truth value, acting it out, repeating or recalling it— was of interest primarily for what it reflected of the child's underlying linguistic knowledge. We thought that there was a single system of rules underlying these diverse performances, together with some task-specific variables affecting performance that were uninteresting. We asserted the existence of a single, universal linguistic competence, rather than proposing it for test. The competence to be discovered might be more or less clearly discernible through the different task windows—but we assumed it to be the same competence, however blurred the image; and its description was the critical role in child language research. We thought that linguistic competence was abstract, rule-based, and divorced from knowledge of the world or factors governing its use. Current knowledge leads me to say that we were wrong on every count; but these were the assumptions that fueled the work on child language development and disorders at the time.

Syntax

The linguistics influence, then, led to a focus on syntax—productive syntax, in particular. Because it was believed that the same competence participated in any linguistic performance, the choice of task could be made on the basis of ease, and children's talk was much easier to investigate than children's comprehension.

Our first developmental psycholinguistic accounts (Brown, 1973; Bloom, 1970) traced the emergence of syntactic rules and the developmental sequence of grammatical morpheme acquisition in intensive longitudinal study of a handful of children. Adam, Eve, and Sarah (Brown, 1973) made radically different progress in learning to talk. Eve at 27 months sounded as advanced as Adam and Sarah at 42 months. Summarizing their data by age made little sense. When transcripts were compared according to mean length of utterance measured in morphemes, however, similar syntactic structures and grammatical morphemes emerged in the language of all three children.

Early reports from these studies gave rise to the stimulus materials for the next generations of assessment instruments and interventions (e.g., Lee, 1970, 1974) . Assumptions of the competence model were quickly challenged, however, as investigators demonstrated that some performances—for example, the sentence repetition tasks used to screen expressive language in the Northwestern Syntax Screening Test—did not predict the occurrence, or nonoccurrence, of similar forms in spontaneous speech (Prutting, Gallagher, & Mulac, 1975).

Investigation of which rules the child had failed to learn was the critical focus of the early work in child language disorders. These rules proved different from chronological age peers. Menyuk (1964) was the first to apply the Chomskian framework to the study of language disordered children. Matching groups by age, IQ, and socioeconomic class, she found that the utterances of the disordered group exemplified fewer transformations and contained more restricted or ungrammatical forms than those of the control children. More omissions were also observed in sentence constructions. Lee (1966) constructed a developmental ordering of sentence types on the basis of McNeill's (1966) review of early syntactic development that could be used to assess language level. Using it to evaluate one language-disordered child, she too concluded that the child's language was deviant.

Thus the stage was set, in research on child language disorders, for the questions that preoccupied the next wave of researchers: Is the child's language really deviant, or simply delayed? Do the child's errors and constructions resemble those of a younger normal child? In a very important study, Morehead and Ingram (1973) carried out the first analyses of syntax in which the grammars of language disordered children were compared with normal children of a similar linguistic level. Matching was carried out by mean length of utterance in morphemes, indexing Brown's (1973) linguistic stages. The grammars of the two groups proved similar in major respects, although the deviant group used infrequent

transformations less frequently than the normal group. Today we would understand this finding as illustrating that language acquisition proceeds similarly in the language disordered child; but that the slowed rate of acquisition is revealed in less frequent use for any structure currently being acquired.

Semantic accounts

Work in child language development revealed that children's early rules for sentence formation were more restricted than the early transformational accounts allowed (see Chapman, 1988, for a review). Children's rules appeared to be limited to combinations of particular semantic relations (for example, action on an object, or agent acting) (Bloom, 1970; Bowerman, 1973; Brown, 1973). The same proved true of language-disordered children matched in linguistic level to normal children (Leonard, Bolders, & Miller, 1976). This finding was important because appropriate choice of intervention targets depends on understanding the limitations of the child's rule. To teach any two word combination is one thing—one might start, as clinicians frequently did, with adjective + noun, trying to get young children to name colored objects. To teach noun + verb is another—one might work on descriptions of pictures such as "window breaks." But to teach action + object is to restrict targets even further—to work, for example, on "kick ball" and "eat cookie" (e.g., MacDonald & Blott, 1974). If semantic relations, or lexically-limited combinations, are the basis of children's early sentences, then earlier syntactic targets were developmentally inappropriate.

In an important and influential text, Bloom and Lahey (1978) summarized developmental work—much of it Bloom's—as a basis for assessment and intervention, not only for specifically language disordered children, but also for children from a range of populations with associated language deficit*: hearing impairment, mental retardation, autism, learning disabilities, and central nervous system dysfunction. They advocated evaluating form, content, and use (syntax, semantics, and pragmatics) of children's language and focusing intervention accordingly.

The view of language disordered children as simply delayed was challenged again when researchers turned to multiple measures. Grammatical morphemes appeared to be acquired by language disordered children in the same developmental order as in normal children but, when compared to other aspects of their syntax acquisition, appeared to lag behind (Johnston & Schery, 1976). This asynchrony between two different developmental progressions was viewed as evidence of deviant language development in some accounts (Leonard, 1979) and evidence of the applicability of the developmental viewpoint in others (Bloom & Lahey, 1978). The work was important—and exceptional—in comparing developmental rates across dimensions.

Johnston and Kamhi (1984) demonstrated that language impaired children tended to use constructions requiring the use of more grammatical morphology, but then omitted more of these forms. Leonard and colleagues (1988), in cross-linguistic work, demonstrated that phonological factors may make grammatical morphemes difficult to acquire for language impaired children. Here we begin to see how the interaction of age-appropriate communicative intent and limited language skill might lead to "deviant" performance. A similar interaction of age-appropriate goal and limited linguistic means was demonstrated by MacLachlan and Chapman (1988), who showed that language disordered children matched for conversational linguistic level attempted longer utterances in narration than their linguistic controls. Dysfluencies increased with the increased utterance length; as a result, the language disordered children appeared more dysfluent.

By 1979, the psycholinguistic work on children's syntax had moved away from its Chomskian origins—as had Chomsky himself—to a concern with the general cognitive principals that appeared to operate in acquisition (Slobin, 1979). These operating principles included, for example, "pay attention to the ends of words." Cognitive constraints—sometimes described in terms of Piaget's stage theory of cognitive development—were shown to play a role in the emergence of semantic content. This work led researchers to see the need for yet another control group in evaluating language delay: a group matched in non-verbal mental age. With this change, evidence for specific cognitive or auditory processing impairments could be sought (Johnston, 1988; Tallal, 1988).

In the early 1980s, interest in semantic development spread from the semantic basis of sentence formation to vocabulary acquisition (e.g., Leonard et al., 1982; Schwartz & Leonard, 1985). These studies were consistent in their findings that language disordered children appear to acquire lexical items in a normal manner. Very recent work has demonstrated some differences. Dollaghan (1987) investigated language disordered children's ability to learn something of a word's meaning and form incidentally, in one or two occurrences in a naturalistic context. (This is called the "fast-mapping" of word meaning). She found that they were as good as age-matched controls in remembering where they put a novel object, in inferring its name from context, and in recognizing the object given the name; but were substantially poorer in ability to produce the novel name.

Kail and Leonard (1986) failed to find word-retrieval problems in language disordered children, but did find evidence that their word knowledge was less elaborated semanti-

* Citing evidence from a number of these domains (Lahey, 1978).

cally than controls. Limitations of the semantic network for word access were cited as a potential source of word-finding difficulties. Provision of a richer, more elaborated knowledge base was recommended for intervention.

Pragmatics: Influences from Philosophy, Sociology and Anthropology

A rather different view of language was emerging twenty-five years ago from sociology and anthropology. These scholars (e.g., Hymes, 1972) focused on the use of language in context: language as a communication system. The communicative event was taken as the unit of investigation, and people's reasons for talking were of interest. Utterances were viewed not just as instances of well-formed or ill-formed sentences, but as speech acts (Searle, 1969) attempting to accomplish certain goals. Bates (1976) brought this view to the work on child language; Rees (1978) to the work on disorders. The focus on pragmatics highlighted the importance of speech addressed to children and the reasons for which children talked (see, e.g., Chapman, 1981a and 1981b for reviews). Language input, we discovered, was well-formed, simple, and responsive to the child's language, goals, and actions. The child's communicative goals, we learned, changed developmentally, as did her/his means for achieving them.

Investigations of the language learning environment of children with delayed language demonstrated the association of delay with lower socioeconomic level in some cases. Wulbert, Inglis, Kriegsmann, and Mills (1975), studied language delayed and mental age matched children using Caldwell's HOME inventory to assess mother-child interactions. They showed the strong influence of the language learning environment on the delayed children. These children's mothers were less emotionally and verbally responsive, more likely to restrict and punish the children, less likely to provide appropriate play materials, far less likely to be involved with the child, and less likely to create opportunities for variety in daily activity. These differences in interaction pattern were more strongly associated with delay than SES itself. Language impairment is not caused by such differences, given its definition; but in practice such conditions will contribute to the group of children identified.

Investigations of pragmatic skills in the talk of language disordered children followed input research in the early 1980s. Children were reported to be equally as skilled in conversation as linguistically matched controls (Fey, Leonard, & Wilcox, 1981; van Kleeck & Frankel, 1981.) They were also reported to be as skilled in story recall and inferencing as language-matched controls (e.g., Crais & Chapman, 1987) but not age-matched controls. Language disordered children may respond to requests for clarification with revision as frequently as normals (Gallagher & Darnton, 1978), or otherwise improve the communicative effectiveness of the message (Meline & Meline, 1983). In general, the pragmatic research has failed to demonstrate communicative impairment; but relatively much work remains to be done (see Gallagher, 1989; Johnston, 1988; and van Kleeck & Richardson, 1988).

Heterogeneity in Language Disorder

A problem in all the foregoing research is that language disordered children are more variable in their language skills than the accounts suggest. Children can be identified who are delayed in comprehension and production; but other children appear delayed only in production, and yet others seem to have poorer comprehension than their productive syntax would warrant (Tallal, 1988). Some of these children have associated phonological problems; others do not (Rapin, 1988). All these children have been included, to usually unknown degrees, in the groups studied.

Other factors contribute to problems of interpretation as well. Linguistic matches have ordinarily been made on productive syntax; comprehension control groups have yet to be used routinely in studies. In addition, our assessment instruments have shifted with age in the language process that they typically evaluate: In very young children, language production is the basis for identifying delay. By school age, most assessment tests evaluate language comprehension; few include spontaneous language samples. Only longitudinal study can sort this out (Aram, 1988). In addition, we lack standardized assessments of pragmatics or discourse level production and comprehension. The focus on competence in the research of twenty-five years ago has served us ill in the characterization of language disorders; we need to describe the children we study far more fully (Miller, 1991).

Searches for the causes of child language disorder have been similarly marred by selection of potentially heterogenous subject groups. Despite the limitations in our subject identification, studies suggest a number of potential causes of language disorder. Associated problems in cognition are well-documented in Johnston's (1988) review of work, including limitations in symbolic representation, mental imagery, inferencing, and symbolic play. Associated etiologies are considered in detail in Tallal's (1988) review, including genetic factors, inborn errors of metabolism, hormones, teratogens, prenatal and postnatal infections (prominently, otitis media), and brain damage. Her own work has linked problems in the processing of temporally brief events to language impairment (Tallal & Piercy, 1975; Tallal, Stark & Mellits, 1985).

If we can more fully describe our subjects and the many potential associated causes of language disorder, our next

decade of work may yield new insights. Studies of language processing may augment our rule-based inquiries into the children's systems (Chapman, in press). Intervention studies might reveal which patterns of language disorder, and which associated etiologies, yielded to which therapies (see, e.g., Ellis-Weismer, 1991, for a review). Studies of cause might show which factors are associated with which patterns of language deficit. Developmental models have served us well in understanding the extent to which language disordered children were delayed in their acquisition and in framing our therapies (Lahey, 1988); but we need to go beyond them to learn the causes of delay.

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References

Aram, D. (1988). Discussion. In J.F. Kavanagh & T.J. Truss (Eds.) *Learning disabilities: Proceedings of the national conference*, pp. 285-289. Parkton, MD: York Press. Pp. 285-289.

Bates, E. (1976). *Language and context: The acquisition of pragmatics*. New York, NY: Academic Press.

Bellugi, U., & Brown, R. (1964). The acquisition of language. *Society for Research in Child Development Monographs, 29*, 92.

Berry, M. (1969). *Language disorders of children: The bases and diagnoses*. New York: Appleton-Century-Crofts.

Bishop, D.V.M., & Edmundson, A. (1987). Language-impaired 4-year-olds: Distinguishing transient from persistent impairment. *Journal of Speech and Hearing Disorders, 52*, 156-173.

Bloom, L. (1970). *Language development: Form and function in emerging grammars*. Cambridge, MA: MIT Press.

Bloom, L., & Lahey, M. (1978). *Language development and language disorders*. New York: John Wiley & Sons.

Bowerman, M. (1973). Structural relationships in children's utterances: Syntactic or semantic? In T. Moore (Ed.), *Cognitive development and the acquisition of language*. New York: Academic Press.

Brown, R. (1973). *A first language*. Cambridge, MA: Harvard University Press.

Chapman, R.S. (1981a). Mother-child interaction in the second year of life: Its role in language development. In R. Schiefelbusch & D. Bricker (Eds.), *Early language: Acquisition and intervention*. Baltimore, MD: University Park Press.

Chapman, R.S. (1981b). Exploring children's communicative intents. In J.F. Miller, *Assessing children's language production: Experimental procedures* (pp. 111-136). Austin, TX: Pro-Ed.

Chapman, R.S. (1988). Language acquisition in the child. In N.J. Lass, L.V. McReynolds, J.L. Northern, & D.E. Yoder. *Handbook of speech-language pathology and audiology* (pp 309-353). Burlington, Ontario: B.C. Decker Inc.

Chapman, R.S. (1991). Models of language disorder. In J.F. Miller (Ed.), *Research on child language disorders: A decade of progress* (pp. 287-298). Austin, TX: Pro-Ed.

Chapman, R.S. (Ed.) (in press). *Child talk: Processes in language acquisition and disorder*. Chicago: Mosby-Year Book.

Chomsky, N. (1957). *Syntactic structures*. The Hague: Mouton.

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

Crais, E., & Chapman, R.S. Story recall and inferencing skills in language/learning-disabled and nondisabled children. *Journal of Speech and Hearing Disorders, 52*, 50-55.

Dollaghan, C. (1987). Fast mapping in normal and language-impaired children. *Journal of Speech and Hearing Disorders, 52*, 218-222.

Ellis-Weismer, S. (1991). Child language intervention: Research issues on the horizon. In J.F. Miller (ed.), *Research on child language disorders: A decade of progress* (233-241). Austin, TX: Pro-Ed.

Fey, M., Leonard, L., & Wilcox, K. (1981). Speech style modifications of language-impaired children. *Journal of Speech and Language Disorders, 46*, 91-97.

Gallagher, T. (1989). Clinical pragmatics: Expectations and realizations. *Journal of Speech-Language Pathology and Audiology, 14* (1), 3-6.

Gallagher, T., & Darnton, B. (1978). Conversational aspects of the speech of language disordered children: Revision behaviors. *Journal of Speech and Hearing Research, 21*, 118-135.

Hymes, D. (1972). Models of the interaction of language and social life. In J.J. Gumperz & D. Hymes, (Eds.), *Directions in sociolinguistics* (pp. 35-71). New York: Holt, Rinehart, & Winston, Inc.

Johnston, J.R. (1988). Specific language disorders in the child. In N.J. Lass, L.V. McReynolds, J.L. Northern, & D.E. Yoder. *Handbook of speech-language pathology and audiology* (pp. 685-715). Burlington, Ontario: B.C. Decker Inc.

Johnston, J.R., & Kamhi, A. (1984). The same can be less: Syntactic and semantic aspects of the utterances of language impaired children. *Merrill-Palmer Quarterly, 30*, 65-85.

Johnston, J.R., & Schery, T.K. (1976). The use of grammatical morphemes by children with communication disorders. In D. Morehead & A. Morehead (Eds.), *Normal and deficient child language* (pp. 239-258). Baltimore: University Park Press.

Kail, R., & Leonard, L. (1986). Word-finding abilities in language-impaired children. *ASHA Monographs No. 25*. Rockville, MD: American Speech-Language-Hearing Association.

Kirk, S., & McCarthy, J. (1968) The Illinois Test of Psycholinguistic Abilities. Urbana, IL: University of Illinois Press.

Lahey, M. (1978). *Readings in childhood language disorders.* New York: John Wiley & Sons.

Lahey, M. (1988). *Language disorders and language development.* New York: Macmillan.

Lee, L. (1966). Developmental sentence types: A method for comparing normal and deviant syntactic development. *Journal of Speech and Hearing Disorders, 31*, 311-330.

Lee, L. (1970). A screening test for syntax development. *Journal of Speech and Hearing Disorders, 35*, 103-112.

Lee, L. (1974). *Developmental sentence analysis.* Evanston, IL: Northwestern University Press.

Leonard, L. (1979). Language impairment in children. *Merrill-Palmer Quarterly, 25*, 205-232.

Leonard, L., Bolders, J.G., & Miller, J.A. (1976). An examination of the semantic relations reflected in the language usage of normal and language-disordered children. *Journal of Speech and Hearing Research, 19*, 371-392.

Leonard, L., Sabbadini, L., Volterra, V., & Leonard, J. (1988). Some influences on the grammar of English-and Italian-speaking children with specific language impairment. *Applied Psycholinguistics, 9*, 39-57.

Leonard, L., Schwartz, R., Chapman, K., Rowan, L., Prelock, P., Terrell, B., Weiss, A., Merrick, C. (1982). Early lexical acquisition in children with specific language impairment. *Journal of Speech and Hearing Research, 25*, 554-564.

MacDonald, J.D., & Blott, J.P. (1974). Environmental language intervention: The rationale for a diagnostic and training strategy through rules, context, and generalization. *Journal of Speech and Hearing Disorders, 39*, 244-256.

MacLachlan, B., & Chapman, R. Communication breakdowns in normal and language learning-disabled children's conversation and narration. *Journal of Speech and Hearing Disorders, 53*, 2-7.

McNeill, D. (1966). Developmental psycholinguistics. In F. Smith and G.A. Miller (Eds.), *The genesis of language: A psycholinguistic approach.* Cambridge, MA: MIT Press.

Meline, T., & Meline, N. (1983). Facing a communicative obstacle: Pragmatics of language impaired children. *Perceptual Motor Skills, 56*, 469-470.

Menyuk, P. (1964). Comparison of grammar of children with functionally deviant and normal speech. *Journal of Speech and Hearing Research, 7*, 109-121.

Miller, J.F. (1991). Research on language disorders in children: a progress report. In J.F. Miller (ed.), *Research on child language disorders: A decade of progress* (pp. 3-22). Austin, TX: Pro-Ed.

Morehead, D.M., & Ingram, D. (1973). The development of base syntax in normal and linguistically deviant children. *Journal of Speech and Hearing Research, 16*, 330-352.

Myklebust, H. (1954). Auditory disorders in children. New York: Grune & Stratton.

Prutting, C.A., Gallagher, T.M., & Mulac, A. (1975) The expressive portion of the NSST compared to a spontaneous language sample. *Journal of Speech and Hearing Disorders, 40*, 40-48.

Rapin, I. (1988). Discussion. In J.F. Kavanagh & T.J. Truss (Eds.) *Learning disabilities: Proceedings of the national conference* (pp. 273-280). Parkton, MD: York Press.

Rees, N. (1978). Pragmatics of language: Applications to normal and disordered language development. In R. Schiefelbusch (Ed.), *Bases of language intervention.* (pp. 191-268). Baltimore, MD: University Park Press.

Schwartz, R., & Leonard, L. (1985). Lexical imitation and acquisition in language-impaired children. *Journal of Speech and Hearing Disorders, 50*, 31-39.

Searle, J. (1969). *Speech acts.* Cambridge: Cambridge University Press.

Slobin, D. (1979). *Psycholinguistics.* Oakland, NJ: Scott, Foresman, and Company.

Tallal, P. (1988). Developmental language disorders. In J.F. Kavanagh & T.J. Truss, Jr. (Eds.), *Learning disabilities: Proceedings of the National Conference* (pp. 181-272). Parkton, MD: York Press.

Tallal, P., & Piercy, M. Developmental aphasia: The perception of brief vowels and extended stop consonants. *Neuropsychologia, 13*, 69-74.

Tallal, P., Stark, R., & Mellits, D. (1985). Identification of language-impaired children on the basis of rapid perception and production skills. *Brain and Language, 25*, 314-322.

van Kleeck, A., & Frankel, D. (1981). Discourse devices used by language-disordered children: A preliminary investigation. *Journal of Speech and Hearing Disorders, 46*, 250-257.

van Kleeck, A., & Richardson, A. (1988). Language delay in the child. In J.F. Kavanagh & T.J. Truss, Jr. (eds.), *Learning disabilities: Proceedings of the National Conference* (pp. 655-684). Parkton, MD: York Press.

West, R. (Ed.). (1962). *Childhood aphasia: Proceedings of the Institute on Childhood Aphasia.* San Francisco: California Society of Crippled Children and Adults.

Wood, N. (1964). *Delayed speech and language development.* Englewood Cliffs, NJ: Prentice-Hall.

Wulbert, M., Inglis, S., Kriegsmann, E., & Mills, B. (1975). Language delay and associated mother-child interactions. *Developmental Psychology, 11*, 61-70.