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A STRUCTURAL AND PRAGMATIC INVESTIGATION OF QUESTION FORMS IN NORMAL AND LANGUAGE DISORDERED CHILDREN

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A STRUCTURAL AND PRAGMATIC INVESTIGATION OF QUESTION FORMS IN NORMAL AND LANGUAGE DISORDERED CHILDREN

by

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CHAPTER I

THE PROBLEM

1.1 - Introduction

Early in the process of language development, children begin asking questions. Their questions seem to serve different purposes. These include asking for information, for explanation, or for permission. Often the forms of these questions are distinguishable as either a wh or yes/no question, but they are immature and do not contain all the syntactic transformations and structures of adult question forms. An example of this is the question, "where is my book?", which a young child might produce as "where my book is?", or "where book?", not having developed the competence to perform the auxiliary transformation or, at an even earlier stage, to supply the verb.

To date, there has been some examination of the development of question forms in normal children (Brown, 1968; Ervin-Tripp, 1970; Tyack & Ingram, 1977). The data collected have shown that during a child's second year, he learns to use yes/no questions and what and where question forms. After that, with increases in age, children begin to use why, how, who, and when question forms. Tyack and Ingram (1977) suggest that the later development of these

four wh question forms is due to the "conceptual" development necessary to produce these types of questions. According to Piaget (1955), after age three, children begin to ask wh type questions extensively.

It has frequently been reported by speech-language clinicians, and mentioned in a few research studies (see below), that language disordered children seldom ask questions. The initiation of this current project resulted from observations of language disordered children undergoing clinical assessment. Many of these children, despite having some productive language, did not ask questions, either of their mothers or of this examiner. Much of their productive language failed to engage their listeners in conversation even after they appeared at ease with the environment. One of the major problems that concern clinicians who evaluate these type of children is the limitations of diagnostic tools available for assessing language skills. The assessment normally performed omits detailed analysis of a child's ability to communicate his intentions through his expressive language. It is becoming more obvious from the trend of current research that this area of investigation must be explored for a more comprehensive understanding of the nature of language disorders and the basis for effective diagnosis and treatment.

Limited study of the syntactic forms of questions that language disordered children develop suggests that

these children exhibit similar stages of question form acquisition when compared to normal children, but that their development is at a much slower rate and that their questions are produced more infrequently (Ingram, 1972; Morehead & Ingram, 1976). The pragmatic aspects of question usage have not been studied in language disordered populations (or in normal language populations). Specifically, the speech acts (Searle, 1969; Dore, 1973, 1978) framework has not been applied to the study of questioning in children. A major question to be addressed by this investigation is what communicative intentions are associated with children's question forms.

Although grammatical development and pragmatic development appear to be two separate areas for investigation, they are in fact two aspects of one linguistic behavior, in this case, that of asking questions. By studying them in relationship to one another, more comprehensive knowledge of children's developing linguistic systems is obtained than would be gained by isolating the component parts of the system and analyzing them separately. Slobin (1973) points out that,

> . . . language is used to express the child's cognitions of his environment--physical and social--and so a child cannot begin to use a given linguistic form meaningfully, until he is able to express what it means (p. 180).

Bloom and Lahey (1978) clearly indicate the interrelationship between form and function in emerging languages:

> Languages exist because of the functions they serve; therefore, how children learn to use language for such different purposes as to get and give to others is a major aspect of their development . . . (p. 201). Children must acquire specifically linguistic abilities for producing and interpreting grammatical sentences (the coding relations between content and form) for making reference to objects and events in the world. But children also must acquire specifically social and cognitive abilities to become competent members of the linguistic community . . . (p. 234).

Investigators of language disordered children have admitted having limited understanding of the nature of disordered language (Lee, 1974; Leonard, 1979). Snyder (1975) summarizes this state of affairs as follows:

> . . . the need for more efficient methods to use in characterizing and describing disabled verbal output has been voiced. If the speech pathologist is to be expected to assess the language disabled child's communicative performance, then the child's whole communicative performance must be assessed, not just his comprehension and expression of linguistic forms (p. 38).

The purpose of this project is to provide an empirical study of question forms and their associated pragmatic speech acts and to characterize a particular aspect of conversational performance, questioning (based on Dore's (1978) expansion of Speech Act Theory), in a language disordered population in comparison to a normal population matched for level of language development. The language samples have been collected from unstructured situations in which the children interact with different partners.

1.2 - Definition of Terms

As noted above, this investigation examined question forms produced by language disordered and normal

children using a structural and pragmatic analysis. The following are definitions of basic terms used throughout this paper.

> Language Development: Language is the result of interactions among content-form-use. Normal language development is described as the successful interaction among these three components (Bloom & Lahey, 1978).
>
> Language Disorder: May involve difficulty in formulating ideas or conceptualizing information; learning a code which represents knowledge of the world; learning a code which does not match a conventional system, or using a code in speaking or understanding in specific contexts or for specific purposes (Bloom & Lahey, 1978).
>
> Pragmatics: Rules governing the use of language in context (Bates, 1976). More narrowly, this study is concerned with the functions that speech acts or speech events serve in meeting the needs of individuals (Bloom & Lahey, 1978).
>
> Question Form: A form of a sentence or clause that is identified by its interrogative grammatical structure or rising intonation pattern.

1.3 - Theoretical Framework

The development of the pragmatic analysis for this study was adapted from the theory of speech acts (Searle, 1971), The Development of Speech Acts (Dore, 1973), a study by Greenfield and Smith (1976), and from an expansion of speech act theory into a technique for analyzing the conversations of pre-school youngsters that has been constructed by Dore (1978).

A speech act may be analyzed into two parts: (1) information in the form of a proposition; and (2) a speaker's intention or the "indication of illocutionary force" (Searle, 1971) represented by a function indicating

device. This device

> . . . shows how the proposition is to be taken, or what illocutionary force the utterance is to have; that is, what illocutionary act the speaker is performing in the utterance of the sentence. Function-indicating devices include word order, stress, intonation contour, punctuation, the mood of the verbs, and a set of performative verbs (p. 42).

When performing a speech act, a speaker intends to produce a specific effect by getting his listener to recognize his intention through his message. Dore (1973) recognized that very young children perform primitive speech acts; they often are able to produce a clear intention without producing a clear proposition. For example, nonconventional, suprasegmental features were, at times, all that carried the "speech act."

Dore was able to identify primitive speech acts by observing the child's utterance, his nonlinguistic behavior, his mother's response, and the contextual situation. Greenfield and Smith (1976) found it possible to discover a child's intention through adult expansion of the youngster's utterance. The expansion is based on cues that the youngster provides, such as gestures, orientation, and intonation, as well as the relationship between the child's utterance and the context in which it is uttered.[1]

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[1]The Dore (1973) study and the Greenfield and Smith (1976) study are briefly discussed from the point of view of theoretical development of the speech act analysis of children's speech. Both studies report findings for much younger children at the one word utterance level. The present study deals with children who are older and whose speech is more advanced.

As an outgrowth of speech act theory and related conversational maxims (as discussed by Grice, 1969), Dore (1978) developed a method of coding the utterances of conversations held by nursery school children. He proposed a model of conversation claiming "that the essential contents of the speaking turn are illocutionary phenomena and that the processes for generating conversation operate with grammatical structures and pragmatic functions" (p. 360). Dore argues that the basic unit of conversation is the illocutionary act which includes the proposition as well as the "social frame" for creation and maintenance of the conversation.

> We propose that each illocutionary act (IA) has both an intended illocutionary effect (IE), that is the recognition of which act is being performed, and an intended perlocutionary effect (IPE), the performance of a response by a listener. If I ask a genuine question, you must recognize the interrogative form and questioning function of my utterance (IE) and that I expect you to fulfill my expectation of an answer (IPE) . . . (p. 362).

Dore's coding system is a series of "Conversational Acts" (C-acts) which are defined on the basis of conventional illocutionary force of forms, i.e., requestives, assertives, etc., but which may often be identified by their grammatical forms.

C-acts have three primary functions: (1) conveying content, (2) regulating conversations, and (3) conveying attitudes; and each act falls under one of six classes: requesting, asserting, performing acts (i.e., making a joke, claim, protest, etc.), responding, regulating, and

expressing. The present study utilized a modified version of Dore's system for the pragmatic analysis of question forms (see Chapter III, Section 3.3 for detailed description and use of Dore's (1978) classification system).

In the present study, all questions identified were extrapolated from the text and noted, using the format set forth by Tyack and Gottsleben in their handbook Language Sampling, Analysis and Training (1974). The handbook was developed to "synthesize research in several fields and to apply that research to teaching children with language disorders" (p. 3). Their procedures incorporate linguistic (transformational grammar) as well as behavioral principles which have been applied to psycholinguistic research. The method involves collecting a language sample from a child, providing examples of sentences he typically uses. From the sample, grammatical rules a child uses to formulate sentences can be discovered. Analysis of these rules provides data which assist in developing appropriate training programs for children who exhibit language disorders.

Tyack and Gottsleben's format affords an orderly procedure to organize masses of data so that the grammatical forms of sentences may be readily examined. Because comparative analysis of grammatical forms of questions is one of the component parts of this study, the Tyack and Gottsleben format was appropriate.

1.4 - Statement of the Problem

Research results indicate that language disordered children develop the same syntactic structures as do normal children (Leonard, 1979). They develop these structures at a significant delay in onset time and tend to use some of them less frequently. Therefore, this study makes the assumption that there will be no differences in the syntactic forms of questions used by the two groups. Both the language disordered group and the normal group will produce standard question forms primarily. However, the language disordered group will demonstrate delay in control of the syntax of questions. Much of the earlier data on the topic has been collected by eliciting responses in an examination environment. In contrast, the present study samples children's language in naturalistic settings and in interaction with different partners, all of whom are familiar to them. According to a recent study, situation and task can produce startling differences in the language output of young children (Cole, Dore, Hall & Dowley, 1978). In this study, the children's speech samples were collected in home and school environments.

The first two hypotheses of this study are:

Hypothesis 1: There will be a significant difference in the total number of question forms used by the two groups. The normal group will produce significantly more questions than the language disordered group.

Hypothesis 2: There will be a significant difference in the number of question forms produced within groups as a function of conversational partner. Specifically, within the normal group significantly more question forms will be produced with mothers than with peers; and within the language disordered group, significantly more question forms will be produced with mothers than with peers and with clinician.

To date, some evidence has been acquired about the linguistic structures used by language disordered children. However, we know very little about how this child is able to use his language as a communicative tool. Until now, the language clinician has had little basis for analyzing the communicative uses of language in this population. The current research on the pragmatics of child language development makes it possible to begin to characterize this aspect of language in a language disordered population.

Clinical impressions suggest that some language disordered children do not necessarily use those linguistic structures that they have acquired to communicate effectively. Synder (1975) submitted evidence that language disordered children exhibit more than delayed comprehension and production of linguistic structures. Her subjects also had difficulty with the pragmatic aspects of communicative development. The language disordered child's use of linguistic structures in communicative contexts may be especially restricted. In the present study, a language disordered group is compared to a normal group on a number of

function categories represented by question forms. It is proposed that analysis of the function categories of the two groups' question forms will produce significant differences. Therefore, the following hypotheses are made:

Hypothesis 3: There will be significant differences between the two groups in the use of each of the function categories. The normal group will use each function category significantly more than the language disordered group.

Hypothesis 4: There will be significant differences in the use of each of the function categories within groups as a reflection of each situational condition (conversational partner).

CHAPTER II

REVIEW OF THE LITERATURE

This chapter reviews previous research and theoretical investigations in the areas of question development in normal and language disordered children, covering grammatical as well as pragmatic factors. The need for research integrating these viewpoints is emphasized.

2.1 - Research on Grammatical Development

Some investigators (Brown, 1968; Ervin-Tripp, 1970; and Tyack & Ingram, 1977) found a general order of acquisition of the use of questions and of the various types of wh questions in the normal development of comprehension and production. Brown (1968) studied the development of the use of the wh question form in three children who were part of a longitudinal study of grammatical development. Using transformational theory as developed by Chomsky (1965), Brown concluded that a two-step transformation is necessary in the development of adult-type question forms. The first step is preposing the wh word from the final position to the initial position; the second is transposing the subject and the auxiliary verb. He found that from the point of linguistic development of Level III (MLU=2.75) and Level V

(MLU=4.0) his three subjects evidenced both of these transformations. At a first stage, they preposed the wh word by producing such questions as "what he wants?" and "why you can't open it?" and at a later stage transposed the subject and the auxiliary verb, producing "why can't you open it?"

Ervin-Tripp (1970) studied related matters. She was concerned with how children answered wh questions, the order of acquisition of wh words in comprehension, and the strategies children used to answer wh questions. She found that her subjects acquired the various wh words in an orderly sequence. The children learned to respond to what, where, and what-do questions earliest. Before the children were able to identify other question words in order to search for an appropriate answer, they would frequently reply to these forms as though they were question forms that they had already acquired. Ervin-Tripp's investigation laid the foundation for a detailed analysis of a child's production and comprehension of questions by Tyack and Ingram (1977). Their findings also showed that the child's acquisition of questions follows a predictable order. They related children's question form acquisition to their conceptual development, and found that what and where questions, which are learned earliest, were closely tied to the immediate environment. What questions were often used to find out new names for objects and where questions were used to locate toys that were misplaced. As children

mature and develop the concepts of cause, manner, and time, their vocabulary was found to contain the applicable question words. Tyack and Ingram noted that when questions appeared infrequently, probably because of the child's late development of time concepts. In studying children's comprehension of questions, they also noted the strategies the children used in order to answer questions they did not seem to fully comprehend. The strategies included: "If you have not acquired the question word, respond on the basis of the semantic features of the verb," and "If you have acquired the particular question word, give an appropriate subject."

Summarizing these three major studies of question development in normal children, learning to produce wh questions has been said to require a two-step transformation. Children appear to learn to produce various wh questions in a consistent order, possibly related to the conceptual development needed for understanding the meaning of wh words, and they develop predictable comprehension strategies in order to cope with answering these questions before they fully understand them.

Research on language of disordered children followed the pattern of studies of normal language development. Early studies focused on syntax. These were followed by studies which examined other aspects of language development. The studies that have been concerned with syntax

showed that language disordered children differ from normal speakers primarily in the rate of acquisition of syntactic structures. In a study of the use of grammatical morphemes, Johnston and Schery (1976) found that their language deficient subjects did not seem to differ from normal children in the structural aspects of grammatical morphology. "They learned the same forms, in much the same order, and with the same general relationships to overall language development as indexed by sentence length." The language deficient children differed mainly in the rate at which they moved from the first use of a morphological rule to its consistent general application. They were substantially older than the normal children with whom they were compared, having a mean difference in age of 4.5 years.

Menyuk and Looney (1976) found that language disordered children had greater difficulty in repeating sentence types as they increased in grammatical complexity. Question forms were among the difficult-to-repeat sentences. These authors used a repetition task to test the differential effect of syntactic structure and length of utterance. Sentence length did not appear to be a significant factor in their investigation. The authors interpreted their findings to mean that language disordered children retain the meaning of only the simplest sentences, and the ability to express them, but not much more. Their repetition skill breaks down as more complex syntactical analysis is demanded

of them.

The subject of the present study, question forms used by language disordered children, was reported on only once. In Ingram's (1972) pilot study, linguistically disordered children exhibited the same stages of question form acquisition as did the normal children, but produced these question forms less frequently and at a much slower rate of development. Ingram concluded that these children did not suffer from a linguistic deficit (referring to their syntactic development) but "from a cognitive deficiency in those features of cognition that are prerequisites for language" (p. 7). Ingram had expected that these linguistically disordered children, being considerably older than the normal children, would have received much higher ratings on the Guttman scale. However, they did not demonstrate more advanced conceptual development. Ingram concluded that their disorder was cognitively, not linguistically, based.

It is not clear exactly what Ingram means when he says that language disordered children appear to have a cognitive impairment. Built into the definition of the language disordered child is the necessity of having average intellectual ability, usually referring to nonverbal task achievement. However, most of the research cited here assumes that language disorder entails more than a pure linguistic impairment. Some authors suggest that these youngsters exhibit representational difficulties. Morehead

and Ingram (1976), in a study of the development of base syntax in normal and linguistically deviant children, found that the linguistically deviant youngsters might have more than a purely linguistic deficit, their disorder affecting aspects of representational behavior going beyond language. They found general differences in onset, acquisition time, and in the variation of utterances produced by these children. Specifically, regarding their use of questions they noted that:

> The relative absence of questions in the language samples of our deviant group could reflect either a general sampling problem inherent to children with productive liabilities or a general sociolinguistic posture which is antithetical to seeking information by linguistic code. It would be difficult to assume that question transformations are psychologically more difficult than many of the transformations acquired by the deviant group (p. 225).

One of the purposes for undertaking this present investigation was to identify the nature of the difficulty that language disordered children have in asking questions. Is the difficulty in structuring the question form, inability to represent an intention through the structure, or lack of experience in questioning perhaps due to their long arduous difficulty in developing a linguistic system. Morehead and Ingram allude to the latter sociolinguistic posture in the above quote.

In a general overview of the literature of the speech and related behaviors of language disordered children, Leonard (1979) also found that the language of these

youngsters resembles that of normal, but younger, children. Even when their language output is matched on the basis of MLU (mean length of utterance), these language disordered youngsters show lower frequency of usage of syntactic forms as well as a significant delay in age of onset. The research he reviewed also points toward these children exhibiting an earlier level of development in representational abilities which involve both linguistic and nonlinguistic skills. Leonard concludes that:

> . . . language impairment should no longer be viewed as strictly linguistic deficit, but rather as a deficit associated with a delay in the development of a number of representational abilities. It would seem important for future research to be directed toward uncovering the precise nature of this association. Through such efforts some necessary steps can be taken toward an explanatory account of the condition of language impairment and an understanding of the processes underlying the linguistic development of children in general (p. 35).

2.2 - Research Related to Pragmatic Aspects of Language Development

To better understand the nature of a childhood language disorder, whether it is described as a representational deficit or a sociolinguistic one, it seems imperative to examine the communicative aspects of the language of these children. This would enable researchers to expand their perspective from what language structures these children use to what communication acts these children perform with the structures they have acquired. The following sections review theoretical issues and current research of some communicative (or pragmatic) aspects of normal and disordered

language development.

Language has many uses. The question appears to be one of the tools used for the verbal interaction between a child and his animate environment. According to Halliday (1970), "we use language to represent our experiences of the processes, persons, objects, abstractions, qualities, states and relations of the world around us and inside us" (p. 145). Halliday's theoretical work concerning the development of language (Halliday, 1975) describes language development as a functional process. He suggests that the very young child develops language by employing a set of functions in order "to set up a system for making meanings." It is through language that these functional meanings are realized. In essence, they provide the youngster with a useful framework for learning how to express his intended meanings through the language to which he is exposed.

> . . . learning the mother tongue consists of mastering certain basic functions of language and in developing a meaning potential in respect of each. The hypothesis was that these functions, namely the instrumental, the regulatory, the interactional, the personal, the heuristic and the imaginative represented the developmental functions of language, those in respect of which the child first created a system of meanings; and that some ability to mean in these functions . . . was a necessary and sufficient condition for the learning of the adult language. It is presumed that these functions are universals of human culture and it is not unreasonable to think of them as the starting point not only for linguistic ontogeny but also for the evolution of the linguistic system (p. 33).

Halliday noted that the ability to respond to <u>wh</u> questions is significant, in terms of his theory, because

it means that a child (i.e., his observations of his son, Nigel) had mastered the principle of the purely communicative functions of language and was beginning to take on roles that were defined by language itself. "This is the first step towards the informative use of language, which is late in appearing precisely because it is language in a function that is solely defined by language" (p. 50). Questioning involves asking for information that is not already known and he believes this to be a complex and difficult notion for a child. For Halliday, the development of language must be viewed within the wider context of the social system, as a "progressive mastery of a communicative competence, the use of language in different social contexts." However, he also states that this view does not explain how and why a child learns the system and finds that communicative competence is only one essential element in the total picture. He calls for the need to set up a framework which does not separate the linguistic system from its use, or "meaning from social context."

Recently, the focus of research on child language has been on the pragmatic functions of language. Researchers have taken the language children produce and looked at the data from a new perspective. For example, Keenan (1977) wanted to know why some children repeat so many of the utterances they hear. She noted that previous research concentrated on the forms of repetition, and not on the

communicative functions they might serve. Keenan concluded from the analysis of the speech corpus of her twin boys at age 2.9 in early morning play together that their frequent repetitions had primitive communicative functions. Specifically, repetitions were used to make attitudinal comments, to agree with a conversational partner, to self inform, to query, and to imitate (imitation only one of several uses for repetition). She also noted that repetition created new topics for conversation by transforming new information into old information, which yield topic candidates which can be used by either conversational partner for future discourse.

Studies such as this one, and several to be noted below, assist students of language disorders in developing a new framework from which to direct their research. Many of these investigations, although not directly related to the nature of children's questions, were instrumental in the design and focus of the present study. They illustrate the dynamics of the play situation, the variability of language output as a function of task, situation and conversational partner, and the different perspectives one may take in understanding why children say what they do. The next few studies cited deal with children interacting with other children.

Keenan (1974) wanted to know how effective young children are in communicating with each other. She

collected language samples of her twin boys beginning at age 2.9 years in early morning play together, and found two types of conversations. One type involved verbal contributions with referential meaning. The other type involved utterances which could not be assigned a referential meaning but were exchanges of nonsense, or "sound play." Upon examination of their conversations, Keenan found that a few formal operations applied to one another's utterances accounted for their coherency. These operations she called the functions of focus and substitution. "Focus functions take an initial conversational turn, focus on a constituent of it, and repeat it in a subsequent turn . . . . Substitution functions take an utterance within a conversational turn and replace a constituent within it with a constituent of the same grammatical category" (p. 179). Keenan noted definitive formal means by which children were able to cooperate in talking with each other. She concluded that effective interaction requires not only a mutual linguistic code but also a "code of conduct." Co-conversationalists must establish certain expectations of each other (i.e., turn-taking, points of interruption, audibility, etc.).

Garvey (1975) examined the request for action speech act in young children interacting with each other, to observe how a child conveys interpersonal meanings by speaking and how he interprets the intentions of others, and more generally the nature of connected discourse. She

observed children of various ages and found that all the children were able to make direct requests equally well, achieving their intended effects. When Garvey looked at the contexts of these direct requests, she found that both speaker and addressee had an understanding of the "interpersonal meaning factors relevant to requesting." These factors were invoked in justifying, refusing, repeating, or paraphrasing a request and they also provided a basis for communicating indirect requests (these were far less frequent in general, but increased in frequency with an increase in age).

In another study, Garvey (1977) isolated and examined a particular feature of conversation called the contingent query in order to examine another aspect of a child's communicative competence. The query "What?" is posed to a statement for the purpose of clarification. It can be viewed as a dependent speech act (in some way related to the independent speech act, request for action) since it requests a verbal response. Garvey feels that it "serves a vital function in the regulation of verbal interaction." It is useful to the child in that he can both check on the understanding of the message given to him or receive immediate feedback on the intelligibility of his own message from having a query posed to him. By three or three and a half years, this feature appears to be well learned and probably begins to be used by the child at a younger age as

an important technique for language learning.

This type of verbal feature was also noted (Garvey, 1974) when two young children were left alone in a playroom. They engaged in social play instead of playing alone. Garvey concluded that they engaged in social play because they obtained satisfaction from controlling each other's behavior. She identified three necessary abilities: (1) to be able to know the difference between play and nonplay; (2) to be able to abstract the organizing principle of the play from the play sequence itself; and (3) to be able to identify the theme of the interaction and contribute to its development. In the present study, the social and linguistic interactions were compared by observing all of the children who participated in a play situation interacting with another child with whom they were familiar. A play situation was chosen because it allows for full spontaneity in linguistic output and provides children the opportunity to use their own social and linguistic structures.

Some studies have focused on children's language when interacting with adults. Lewis (1938) noted, in observing one child interacting with a parent, that the growth of a child's questions is determined by social cooperation in helping the child satisfy his vital needs as well as in developing his sense of play. By utilizing question-answer routines, the child was able to gain satisfaction in controlling and manipulating his environment.

The present study also utilizes an adult-child dyad, specifically mother and child. In addition, with the language disordered group, a clinician and child dyad was also used.

Dore (1977) analyzed the spontaneous responses three year olds made to questions posed by their teacher or another child. He did so by coding their responses with their pragmatic communicative intentions as contrasted with looking only for grammatical matching or "canonical" responses. Questions were identified on the basis of form but the children's responses were examined for the following factors: (1) utterances that provided requested information; (2) utterances which maintained common topic or were identified as being related to the question; and (3) utterances that followed the question and were directed to the person who uttered the question and based on the addressee's attentional focus. Examining the data from this perspective, Dore found that less than half the responses were grammatical (canonical) matches. He found that many of the responses were deliberate, intentional utterances which served the function of regulating the discourse, such as the use of a clarification response, even though the response was non-canonical. Dore concluded that it seems that "children know much more about question-response routines (and about conducting conversations in general) than 'surfaces' in their speech" (p. 163).

Bloom, Rocissano and Hood (1976), in their

examination of adult-child discourse, found that in response to adult questions children used linguistically contingent responses more frequently than they used imitative responses or no responses at all. There was a progressive decrease in imitative responses and no responses particularly in response to adult questions. The authors noted that changes in both the children's and adult's speech occurred as the children became more sensitive to engaging in discourse. It appeared that more questions were asked of the children as their responses became more linguistically contingent. There was also a decrease in repeating the child's utterance and an increase in asking wh questions as the children imitated less and expanded more. Essentially, Bloom et al. noticed a pattern of mutual reciprocity in the development toward more sophisticated discourse stemming from the individual feedback each participant received.

Keenan and Schiefflin (1976) analyzed the means by which a discourse topic is initiated in the interaction between adult and children. They found that in order to determine a discourse topic the hearer must be able to: (1) establish reference; (2) attend to the speaker's utterance; (3) comprehend the speaker's utterance; (4) identify those objects, persons, ideas, events, etc. that play a role in the discourse topic; and (5) identify the semantic relations that pertain between the referents in the discourse topic. Very young children, from the one-word stage

on, begin to rely on verbal means and contextual means to identify referents. They found that gestures such as reaching and pointing are accompanied by verbal expressions. Before the age of three, children experience difficulty in getting "real world non-situated events, individuals, objects, etc." established as a discourse topic. The child appears to have difficulty communicating past experiences. The authors noticed, too, that before age three children do not initiate verbal repairs such as the request for clarification (e.g., the contingent query, what?). The clearest example of topic collaboration was the question-answer routine because to answer a question the child must locate the discourse topic of the question and use this discourse topic in his response. They found that asking questions was more characteristic of adults speaking to children than children speaking to adults or to other children. A consequence of this phenomenon was that a child often collaborated on a discourse topic initiated by an adult.

Ervin-Tripp and Miller (1977) investigated the questions that adults ask children. They believe that "answering questions is among the first clearly discourse-bound obligations to which children are sensitive" (p. 14). Often questions are posed to children in order to engage them in conversation when the information contained in the question is not necessary to the situational context. In general, they found that the types of questions adults asked

depended on what they felt the child would be able to answer. There was some increase in the frequency of past tense questions with an increase in the children's age. The authors observed that adults question children in order to: (1) give directions; (2) request repetition and clarification; (3) to confirm some information; and (4) to ask for permission. These are some of the major intentions produced by the questions of the children of this study.

2.3 - Research on Linguistic Variability

The present study concerns children's question forms as the children interact with different partners: their mothers, another child, and, for those youngsters in the language disordered group, their clinician. The rationale for the design of this focus on partner variation stems from the findings of several studies which note qualitative, and sometimes quantitative, differences in children's language which may be reflected in the contexts of different interactors, tasks or situations.

Ervin-Tripp (1977) found wide social variation in the use of different forms of directives that was strongly influenced by the ongoing task and/or the addressee. She found that the more familiar the child was with the addressee, the more frequently he used hints which identified an obstacle, need or desire (e.g., I feel hot, I can't do it). In contrast, the less familiar the child was with the addressee the more he used "polite modifiers" (e.g., Do you

think you could help me?). She found evidence that the use of request forms by young children are affected by such factors as age, dominance, task and familiarity.

Gelman and Shatz (1977) reported that the syntactic constructions used by normal four year olds depended on with whom they were talking and on the nature of the interaction. Their speech to two year olds was generally short and syntactically simple, but not always. The nature of the four-year-olds' constructions was related more closely to discourse functions than to the listener's presumed syntactic sophistication.

> A speaker's understanding of the context-sensitive constraints operating on conversational interactions governs his or her speech adjustments. The ways in which these constraints influence the speaker's output depend on the specific communicative demands of a given situation as well as the cognitive-social status of the given participants in an interaction (Shatz & Gelman, 1976, p. 1).

Dore (1973) found that the early speech styles of the two youngsters he observed were distinctly different, possibly as a result of the way each mother interacted with her youngster. One mother was observed to set up, and dominate, very structured routines which involved mostly naming behavior. This youngster developed a large working vocabulary although she expressed relatively few primitive speech acts. The other mother was not as actively involved in developing her child's language skills and allowed him to initiate a large amount of the linguistic interaction between them. This youngster had a relatively small

working vocabulary but was able to use it to perform many more primitive speech acts.

Nelson (1973), too, pointed out that some social environmental factors may be significantly associated with the rate and individual styles of early language learning. The amount of talking a child is able to engage in affects his development. Various environmental situations appear to have either positive or negative effect on the rate and style of talk. These include the number of varied activities/outings a child is exposed to (positive effect), the number of adults the child is concerned with (positive effect), and the mother's high use of commands in interacting with her child (negative effect).

A recent report by Cole, Dore, Hall, and Dowley (1978) explored the effect of sociolinguistic factors on children's linguistic output. They wished to find out

> . . . if there are techniques more accessible to teacher and evaluator for producing variety in children's cognitive performance, both linguistic and nonlinguistic. Thus we need some way to determine performance change when there are changes in setting, participants or task . . . . This is a necessary theoretical prerequisite for understanding situational variability in intellectual behavior and for constructing valid language assessment techniques (p. 122).

They utilized a Speech Act system based upon the propositional content, grammatical structure and illocutionary function of utterances, and applied this system to an analysis of the discourse of nursery school children in two different settings: the classroom and going to the

supermarket. The authors were able to identify several sociolinguistic factors which influenced the children's linguistic performance: (1) the status of the participants; (2) the number of participants; (3) the setting; and (4) the task.

Cole et al. asked questions of varying complexity of the children in the two different settings and found that the children's responses depended on the cognitive demands made by the particular question. For example, a choice question only requires a child to select one from an array of alternatives (which are usually in the immediate environment) whereas a process question requires a child to integrate several facts or establish a relationship between them. The latter type of question places far greater cognitive stress on a youngster. The types of questions posed to the children were situation-dependent and therefore seemed to change the frequency and variety of their responses.

> . . . when we produced situational variability in the children's talk, we did so by changing the relative frequency with which certain speech acts occurred in the corpus (p. 172).

More specifically, they found that 98 percent of all questions asked in the supermarket were of the simple variety and those questions asked in the classroom were of the complex varieties. Further insights were obtained in the second half of the Cole et al. study which attempted to produce similar variability to that found in the first study by changing the "conversational situation." The

groups became dyads and besides going to the supermarket and being interviewed in a formal classroom situation, the children were also observed with an adult in an informal classroom situation. They found that there were negligible overall differences between the MLU's for the three different dyad situations as well as failure to decrease the frequency of adult questions in the supermarket and casual situations. The children produced somewhat longer MLU's in response to wh questions in the casual situation which the authors explain on the basis of two factors: (1) a more equal distribution of simple and complex grammatical questions to which the latter seems to elicit longer, more complex responses; and (2) the nature of the topics. They attributed the longer MLU responses to the nature of the questions asked. When a question is complex, the child must utilize his memory since the information is not immediately available and his answer is considerably longer than when the information is available in the immediate environment. During the casual situation, the adults asked equal numbers of questions but only half as many exam type questions. This afforded the children more freedom to initiate sequences on various topics.

The authors also observed that when only one child is used, as opposed to two, there are many consequences for the conversational interaction which affects variability. Talk in a dyadic system required greater concentration from

both adult and child than when there were two children present. The one who was not speaking was the recipient of the dialogue and pressure was always on both parties involved in the dialogue. Also, the adults in study II were under much more pressure to initiate dialogue which is usually performed by asking questions. This factor the authors feel may have accounted for the equal number of questions asked in all situations.

From another perspective, Mishler (1975) found variability in the use of questions when he examined question-sustained discourse in the classroom to determine how it might affect role relationships between speakers, using a dimension of authority/power. He examined the discourse of first grade children in their classroom. Mishler identified three primary ways in which questions may serve to connect dialogue: (1) Chaining, in which the confirmation utterance by the questioner is a question; (2) Arching, in which the questioner's response is a question; and (3) Embedding, in which there are two responses to the initial question. He found strong support for his main hypothesis that differences in authority between speakers are "realized" linguistically through different uses of questioning to control conversation. The adults "chained" dialogues together by successive questions after the children's responses and recaptured control of a conversation from a child (who might have initiated an exchange) with a

question. The children questioned each other in a more "balanced" way demonstrating less of a authority/power factor.

2.4 - Status of Research on Communicative Competence of Language Disordered Children

Research reports on the subject of social and communicative factors in the language of language disordered children are, as yet, limited. Synder (1975) investigated the pragmatic abilities of language disordered children at the one-word utterance stage by examining "their sensorimotor and holophrastic performatives and presuppositions and various cognitive abilities hypothesized to be related to pragmatic performance" (p. 159). She found that the language disordered children performed qualitatively more poorly than her normal control subjects. The language disordered subjects selected less informative elements in the context almost as often as the more informative ones in tasks designed to elicit performative and presuppositional performance. Snyder concluded that difficulty appeared "when the language disabled child has to represent his response to a situation internally with a symbol" (p. 149). She found that her evidence supported the conclusion that the language disordered child has a representational deficit "that is specifically linked to the dynamic aspects of cognition (e.g., the development of tool use as a means to an end) rather than the static aspects of representation such

as object permanence . . . " (p. 158).

After reviewing some recent studies which focus on the communicative competence of language disordered youngsters, Rees (1978) stated that "some children . . . may be more deficient in the use of language for communication than even their limited mastery of vocabulary and syntactic structures would allow" (p. 258). A major focus of this project has been to assess how well language disordered children use a specific grammatical structure (question forms) to communicate their intentions in comparison to normal children at similar linguistic levels.

CHAPTER III

DESIGN OF THE STUDY

This chapter describes the subjects in the samples studied. It outlines the standardized measures used to screen the subjects and reviews the procedures for collecting the language samples. The final section is a discussion of the experimental measures used in the analysis.

3.1 - The Subjects

Twelve subjects were used for this study. They were divided into two groups of six: the normal group and the language disordered group. The members of the normal group ranged in age from 3.5 years through 4.9 years with a mean age of 3.7 years. The members of the language disordered group ranged in age from 5.6 years through 8.10 years with a mean age of 7.2 years. The normal group contained five females and one male. The language disordered group contained five males and one female.

All the subjects were matched for mean length of utterance and socio-economic status and were screened for normal mental development and hearing acuity using standardized measures. Mean length of utterance was chosen as a principal matching criterion because research (Brown, 1973) has

indicated that the rate of language development is significantly affected by individual differences. Therefore, matching subjects by chronological age or sex in no way insures that they are matched for language development. Because language disordered children acquire language significantly more slowly than normal children (Morehead & Ingram, 1973; Leonard, 1979), matching by chronological age would be inappropriate. Normal subjects of the same chronological age would have significantly higher levels of linguistic skills. Therefore, the subjects were matched on the basis of mean length of utterance rather than chronological age.

The mean length of utterance (MLU) was determined according to the procedures developed by Tyack and Gottsleben (1974). All subjects were at level IV at the time the study was conducted, having attained a mean word/morpheme index of 4.0-5.0 (word/morphemes per sentence). The word/morpheme indices for each group ranged from 4.2 to 5.2 with a mean index of 4.7.

Each language disordered child was identified by the Director of the Institute for Child Development at Hackensack Hospital. All six of these children attended a full-time educational program for communication disorders at the Institute. They had two licensed special education teachers, one of whom was also a certified speech-language pathologist who gave individual speech and language therapy

to each of the children as part of their educational curriculum. All the subjects had recent diagnostic evaluations including psychological, hearing, and language assessment. Each child had normal hearing acuity and had no evidence of major physical or emotional handicaps or of oral or verbal apraxia. Five of the youngsters had received the WISC R psychometric test (Wechsler, 1974) and found to function within the average range of intelligence on the Performance Scale (falling within one standard deviation of the mean). The sixth child, because he was younger, was given the WIPPSI psychometric test (Wechsler, 1967). His Performance Scale score also fell with the average range of intelligence. All six of these children were found to have significant language disorders as diagnosed by a certified speech-language pathologist during extensive evaluative testing at the Institute. Each subject had been given a primary diagnosis of language disorder. He/she did not exhibit characteristics of any of the other diagnostic entities (i.e., mental retardation, emotional disturbance, neurological impairment, etc.) often associated with language disorder. Language disorders associated with these diagnostic entities are not addressed in this study.

All six subjects had a history of at least a three year delay in the onset of their language development, but at the time this study began, had reached the level of verbal ability noted above. However, their present level was still significantly below that of their chronological peers.

Each normal child was identified by the Director of a child care collective in Brooklyn, New York servicing a varied socio-economic area. Each child was screened at the collective at the time of entry into the program for normal intelligence using subtests from the Stanford-Binet Intelligence Scale, Form L-M (Merrill, 1972). All subjects fell within the average range of intelligence. For the purpose of this study, each subject was screened for normal hearing acuity using a Belltone Audiometer, Model 12D. None of the children evidenced any major physical disturbances.

All subjects came from monolingual English-speaking homes. Socio-economic status was measured by parents' educational levels. In each group there were three sets of parents who were college graduates and three sets of parents who were high school graduates. In all family units at least one parent was working. None of the families were on public assistance. All subjects came from the New York-New Jersey metropolitan area.

3.2 - Procedures

Initially, each subject was observed in his/her school program and a natural language sample of fifty utterances was obtained in order to determine the youngster's mean word/morpheme index as well as to determine whether his/her speech could be transcribed. Two of the six language disordered children had articulation disorders but their speech was adequately intelligible for the purposes

of this study. Each subject was seen in his/her home on one or two occasions over a one week time span. Each subject was observed during school hours over a one month time span. During each visit to the home, and during each session during the school day, the subjects' language was tape recorded on a Panasonic RQ-2727 cassette tape recorder. Before the examiner went to any of the children's homes she spent days in their respective schools interacting with the children and the teachers in order to have the children become familiar with her. The children were told that the examiner was going to spend time with them and the teachers in order to learn more about what they did and to help them in any way she could. Time was spent talking with the subjects and participating in many of their routine activities. The examiner was present in the children's classes two days each week for four to five week periods. During these periods each subject's discourse was tape recorded while playing with one of his/her school mates. The discourse of each subject in the language impaired group was also tape recorded during individual speech and language therapy sessions. One to three sessions were needed to obtain the prescribed number of utterances for each dyad in the normal group, but often many sessions were needed for each dyad in the language disordered group. Two hundred utterances were collected from each subject for each dyad group to insure obtaining an adequate number of question forms from each

sample. For the language disordered group each subject was part of three dyads: child/child, child/clinician and child/mother. A total of six hundred utterances was obtained from each language disordered subject. For the normal group, each subject was part of two dyads: child/child and child/mother. A total of four hundred utterances was obtained from each normal subject.

After the examiner established rapport with the subjects, she began to accompany each child to his/her home in order to observe and record the subject interacting with his/her mother. Prior to the initial home visit the examiner familiarized each mother with the procedure by telephone. Each mother was also sent printed "Guidelines for Obtaining a Good Sample of Your Child's Speech" (adapted from Kramer et al., 1979). (See Appendix) This was done to help the mothers relax about the project as it became evident during a pilot study of this project that the two mothers were very anxious and not relaxed in the interactions with their children.

During the visits each mother was again asked to pursue their normal activities. The sessions lasted from forty-five minutes to two hours although the taping was often interrupted because of various distractions.

The research design involved varying both situation and partner in order to insure representative sampling (Labov, 1970; Gelman & Shatz, 1977). The study was designed

to achieve the most spontaneous language samples possible. As defined by Kramer et al. (1979)

> A spontaneous language sample should represent the way your child uses language in his everyday natural and spontaneous conversations with others. The sample is usually tape recorded and can be studied for information concerning average sentence length, presence or absence of grammatical constructions, vocabulary, etc. . . . (p. 330).

The Kramer et al. study compared home-gathered language samples with clinic-gathered samples using children referred to a Speech and Hearing Clinic. Their samples indicated that significantly longer MLUs were obtained from the home-gathered samples but the syntactic complexity remained the same for both settings.

All tape recordings were made during unstructured, spontaneous interactions with each subject by playing games with which the child was familiar or using materials from the Reynell Development Language Scales (1967) which are used to elicit spontaneous language samples. The examiner was present at all taping sessions, seated on the periphery of the ongoing activity but close enough to record contextual information necessary for the analysis of the data. The children were told that the examiner was there to watch the children play and work and to help them if they needed some assistance. At the beginning of each recording session the examiner encouraged the children to continue or begin their activity and that the examiner would simply watch what they were doing and would be doing some other things while

they were playing. There were several sessions in which the examiner directly interacted with the children, either in a group or individually. These sessions were not used in the study but rather were planned to enable the children to feel more comfortable in the examiner's presence. Because the study took place in January and February, five and six months after the start of the school year, the subjects were familiar with their partners. The setting therefore promoted relaxed and informal use of language.

3.3 - Experimental Measures

The data base results from analyses of transcriptions made from tape recordings of all of the children interacting with their respective partners. All transcriptions were made from a Crownscriber/Autodial System CDM-10 machine by a certified speech-language pathologist. To determine examiner reliability, a second certified speech-language pathologist was asked to transcribe five tapes randomly picked from the sample. The percentage of perfect agreement was 92.7%, indicating high inter-judge reliability.

All question forms were identified by the grammatical structure, the use of a wh word, or a rising intonation pattern which accompanies yes/no questions. Questions that could not be identified by these criteria were not considered for analysis in this study. Those questions which could only be identified by their intentions, utterances

that did not meet any of the above criteria were not used in this study because of the ambiguity involved in the selection process. In order to determine which utterances would be appropriate more stringent procedures and elaborate equipment would have to be used which were beyond the scope of this study. Such a study would involve the use of video-tape equipment in order to capture the non-verbal interactions necessary for such a selection procedure. The question forms were extrapolated from the text and noted, adapted from the format set forth by Tyack and Gottsleben in their handbook Language Sampling, Analysis and Training (1974). Using the three-line system they developed, each utterance was transcribed on the middle line using conventional English spelling. The top line was reserved for notation of type of question form used (i.e., wh-what question), and the bottom line was used to note adult grammatical form of the utterance only when the child's utterance was not a standard grammatical question form. This format permitted the data from the two subject groups to be compared according to the following analyses: (1) the various conversational acts; (2) the frequency of each conversational act; (3) the question forms used by each group; (4) the frequency of each form; and (5) the comparative use of mature, grammatically standard forms versus use of more immature, less grammatically complex forms (see Appendix for examples). It has been noted (Brown, 1968 and Lee, 1966) that children

in the preschool years often ask questions which reflect various levels of syntactic complexity and their questions do not necessarily appear in the form of adult questions. Therefore, all question forms were examined on a maturity/immaturity basis. These terms (mature and immature) are used to note degrees of grammatical complexity.

The questions were classified into conversational acts according to a modified version of Dore's (1978) coding system. Dore's Conversation Act (hereafter identified as C-act) system provides a pragmatic analysis of children's utterances. In this system an utterance is defined through intention(s) conveyed by the utterance and is usually associated with a specific grammatical form. For example, question forms are often associated with the act of requesting (requestives are one of the classes of C-acts Dore developed).

> The conversational acts (C-acts) . . . are formulated at a level close to grammatical form, although they are not defined by form but rather by the conventional illocutionary force of forms. That is, each has associated with it a canonical grammatical form (a mood, predicate type or semantic class) or is conventionally marked by some other illocutionary device . . . (p. 370).

Each C-act falls under one of three primary functions of utterances in conversations: (1) conveying content; (2) regulating the conversation; and (3) expressing attitudes. Dore has identified six 'classes of acts' comprising the C-acts: requestives, assertives, performatives, responsives, regulatives and expressives. All question forms in the data

examined in this study fell into one of seven C-act categories, as follows:

Under function I, conveying content, the class of requestives (RQ) seek to solicit information or actions. Five C-acts are associated with grammatical question forms (or, for purposes of this study, a nonstandard grammatical question form):

1. RQCH - Choice Questions seek either-or judgments relative to propositions: e.g., Does the man go in there?

2. RQPR - Product Questions seek information relative to most wh interrogative pronouns: e.g., What is that?

3. RQPC - Process Questions seek extended descriptions or explanations: e.g., How do you do it?

4. RQPM - Permission Requests seek permission to perform an action: e.g., Can I go out?

5. RQSU - Suggestions recommend the performance of an action by hearer or speaker or both: e.g., Can you bring that doll here?

Under function II, regulating conversations, the class of regulatives (OD) seek to control personal contact and conversational flow. Two C-acts are associated with grammatical question forms (or, non-standard grammatical question forms):

6. ODRQ - Rhetorical Questions seek acknowledgement to continue a topic or begin a new topic: e.g., Do you know what?

7. ODCQ - Clarification Questions seek clarification of prior remark: e.g., What?

The latter two C-acts do not necessarily contribute to the propositional content of the conversation but are useful primarily to help continue the flow of the talk. They do convey illocutionary intentions through grammatical question forms and therefore should be included in an analysis of children's question forms.

The following procedure was used to code all identified question forms:

1. The standard grammatical structure of the question form was noted if it differed from the utterance because each question form was examined for its degree of grammatical complexity (i.e., mature vs. immature).

2. The type of question form was noted (i.e., a wh question, specifying wh word, or yes/no question).

3. Each question form was assigned an appropriate C-act determined by the following:

a - its grammatical form

b - its primary semantic proposition

c - the situational (non-linguistic) context in which it was uttered (based on the text and ancillary notes taken by the examiner during each taping session)

d - the linguistic context (examining the preceding and consecutive utterances in the dialogue).

To determine which of two (or more) C-acts is the correct one, such as the case, "Can you bring that doll here?" (i.e., it can be taken as a choice question asking about one's ability, or, as an indirect request, as it was given in the above example), Dore developed a decision procedure involving the following criteria:

1. Grammatical form.

2. The literal semantic reading of its primary proposition.

3. Conventional illocutionary force of its form.

4. Relation to speaker's own and other's utterance in the same conversational sequence.

5. Marked illocutionary devices, such as marked word order, intonation patterns and other prosodic features which convey values beyond the canonical force.

6. Task Relatedness.

7. Other contextual factors such as gestures, on-going activity, timing of utterance, objectives and people present, etc.

In this study numbers 4, 6, and 7 helped to eliminate some of the ambiguity of intention in determining which of two or more intentions was meant to be conveyed by an utterance. If the ambiguity could not be eliminated the utterance was not used in the analysis. To determine examiner reliability, another speech-language pathologist was asked to identify and code question forms from five

transcripts randomly picked. The percentage of perfect agreement was 88.19%, indicating high inter-examiner reliability.

3.4 - Summary

This study examined the question forms of six normal and six language disordered subjects, all of whom had attained a mean sentence length of 4.2-5.2 words per utterance. The subjects were matched for mean length of utterance and socio-economic levels and screened for average mental development and normal hearing acuity. Transcriptions were made of their language samples as they interacted with different partners in familiar settings. The normal children interacted with their mothers and another child. The language disordered children interacted with their mothers, another child, and their speech-language clinician. All question forms identified from the texts were analyzed according to question type, degree of grammatical complexity (mature versus immature), and pragmatic intentions. The results of these analyses are reported and discussed in the following two chapters.

CHAPTER IV

ANALYSIS OF THE RESULTS

Preliminary analyses were done to determine whether comparisons between groups and within groups could be appropriately performed using parametric statistics such as the analysis of variance. On the basis of the examination of the frequency distributions, and on the basis of the F_{MAX} tests for homogeneity of variance (Winer, 1962) between the two groups, it was determined that it would be more appropriate to use non-parametric statistics. One exception occurred: in analyzing the total number of questions of each group, T-tests were applied. The results section is structured as follows: first, the chapter considers the between-groups differences, that is the differences between normal subjects and language disordered subjects with respect to the question forms used by the two groups in those conditions pertinent to both groups. These comparisons have been done by means of T-test and the Mann-Whitney U-Tests (Twaite & Monroe, 1979) the latter being a non-parametric technique for comparing two independent groups on data which are at least ordinal in scale. The only assumption underlying use of this statistical analysis is

the independence of the groups, an assumption which is met by the data in this study.

Next, the chapter considers within-groups differences between the various conditions for all of the measures. Normal subjects were exposed to only two conditions: (1) interacting with their mothers, and (2) interacting with their peers. To compare the number of question forms produced and categories used for each measure, Wilcoxon Tests compare two related dependent samples (Twaite & Monroe, 1979). The Wilcoxon Test, like the Mann-Whitney U-Tests, is also a non parametric procedure and has no assumptions regarding normality or homogeneity of variance of the distributions being compared.

Finally the within-group comparisons are given for the language disordered group. Because this group was exposed to three conditions, with mother, with peer, and with clinician, three sets of pair wise comparisons were made: mother/peer, mother/clinician and peer/clinician. These comparisons were also performed using the Wilcoxon Matched-Pairs Signed Ranks Tests.

4.1 - Between-Groups Comparisons

The T-test, a parametric procedure designed to determine the significance of differences between two independent samples on an interval scale measure, was used to compare the total number of questions produced by the

normal group to the number produced by the language disordered group. This was done for each of the two conditions, with mother and with peers. The results are presented in Table 1.

TABLE 1

COMPARISON OF 6 NORMAL TO 6 LANGUAGE DISORDERED SUBJECTS ON TOTAL NUMBER OF QUESTIONS PRODUCED WITH MOTHER AND WITH PEER USING A T-TEST

Condition	Group	Mean	S.D.	T	P
With Mother	Normal	44.50	12.37	1.21	.26
	L.D.	37.50	6.89		
With Peer	Normal	32.50	8.09	2.08	.06
	L.D.	22.17	9.07		

The reader will note from this table that although there is a substantial difference in the mean number of questions produced by each group in each condition, neither difference reaches the .05 level of significance. This finding does not support Hypothesis 1 (that significant differences would be found between the two groups for the total number of questions produced) but it does demonstrate that the normal group did ask more questions than did the language disordered group.

The Mann-Whitney U-Tests, designed to determine the significance of differences between the normal and language disordered groups with respect to the grammatical forms produced, are presented in Table 2.

TABLE 2

MANN-WHITNEY U-TEST DETERMINING DIFFERENCES BETWEEN NORMAL SUBJECTS (GROUP 1) AND LANGUAGE DISORDERED SUBJECTS (GROUP 2) WITH RESPECT TO GRAMMATICAL QUESTION FORMS

Variable	Group 1 Mean Rank	Group 2 Mean Rank	Exact P
Mature-Y/N-Mother	7.92	5.08	.180
Immature-Y/N-Mother	5.33	7.67	.310
Mature-What-Mother	8.50	4.50	.065
Immature-What-Mother	6.00	7.00	.699
Mature-Where-Mother	8.17	4.83	.132
Immature-Where-Mother	4.75	8.25	.093
Mature-Who-Mother	7.50	5.50	.394
Immature-Who-Mother	5.00	8.00	.180
Mature-Why-Mother	6.75	6.25	.818
Immature-Why-Mother	6.17	6.83	.818
Mature-When-Mother	6.50	6.50	1.000
Immature-When-Mother	6.58	6.42	.937
Mature-How-Mother	8.00	5.00	.180
Immature-How-Mother	5.42	7.58	.310
Mature-Y/N-Child	7.42	5.58	.394
Immature-Y/N-Child	5.58	7.42	.394

TABLE 2 (Cont'd)

Variable	Group 1 Mean Rank	Group 2 Mean Rank	Exact P
Mature-What-Child	6.92	6.08	.699
Immature-What-Child	4.50	8.50	.065
Mature-Where-Child	8.33	4.67	.093
Immature-Where-Child	6.50	6.50	1.000
Mature-Who-Child	7.58	5.42	.310
Immature-Who-Child	5.00	8.00	.180
Mature-Why-Child	8.58	4.42	.041*
Immature-Why-Child	7.50	5.50	.394
Mature-When-Child	6.50	6.50	1.000
Immature-When-C ild	6.50	6.50	1.000
Mature-How-Child	7.67	5.33	.310
Immature-How-Child	5.33	7.67	.310

*Reaches Level of Significance.

This table illustrates the different grammatical question types that the groups used. The reader will note that of these 28 comparisons, only one was significant. Mature why questions yielded in the child/peer condition a significant difference between the two groups at the P = .041 level of significance. We note from the Table, however, that the normal group produced a higher mean number of questions for twelve of the fourteen "mature" variables measured than did the language disordered group. We note also that the

language disordered group's means were higher than those of the normal group with respect to "immature" questions on ten of the fourteen question forms. This finding suggests that the normal group produced more mature type questions than did the language disordered group and the language disordered group produced more immature type questions than did the normal group. There appears to be no difference between the two groups in the cases of mature and immature why questions produced in child/mother situation, and mature and immature when questions produced in both the child/mother and child/peer conditions.

The Mann-Whitney U-Tests were also used to determine the significance of differences between the normal and language disordered groups with respect to the function categories of questions produced. These tests are presented in Table 3.

TABLE 3

MANN-WHITNEY U-TEST DETERMINING DIFFERENCES BETWEEN NORMAL SUBJECTS (GROUP 1) AND LANGUAGE DISORDERED SUBJECTS (GROUP 2) WITH RESPECT TO FUNCTION CATEGORIES OF QUESTIONS

Variable	Group	Mean Rank	Exact P
RQCH - Mother	1	7.00	.699
	2	6.00	
RQPR - Mother	1	7.58	.310
	2	5.42	
RQPC - Mother	1	8.08	.132
	2	4.92	

TABLE 3 (Cont'd)

Variable	Group	Mean Rank	Exact P
RQPM - Mother	1	8.25	.093
	2	4.75	
RQSU - Mother	1	6.50	1.000
	2	6.50	
ODRQ - Mother	1	8.42	.065
	2	4.58	
ODCQ - Mother	1	4.33	.041*
	2	8.67	
RQCH - Child	1	6.67	.937
	2	6.33	
RQPR - Child	1	7.67	.310
	2	5.33	
RQPC - Child	1	7.58	.310
	2	5.42	
RQPM - Child	1	5.00	.180
	2	8.00	
RQSU - Child	1	7.33	.485
	2	5.67	
ODRQ - Child	1	8.83	.026*
	2	4.17	
ODCQ - Child	1	9.00	.015*
	2	4.00	

*Reaches Level of Significance.

This table notes the differences between groups for each of the conditions upon which they can be compared. For the child/mother condition, the table indicates a significant difference between the groups with respect to the ODCQ category at the .041 level of significance. The language

disordered group used the ODCQ category significantly more than the normal group. The difference between groups on the ODRQ category (p = .065) indicating that the normal group used this category more than the language disordered group was not significant at the .05 level of significance. With respect to the RQSU category, there were no significant differences between the groups. With respect to the remaining categories the data show that the normal group used these categories more than the language disordered group, although not significantly more. These findings only partially supoprt Hypothesis 3. Moreover, it should be noted that the significant result found for the ODCQ category is in direct opposition to the prediction made in Hypothesis 3 (that the normal group will use each function category significantly more than the language disordered group).

With respect to the child/peer condition the Table indicates significant differences between the groups for the ODRQ category (p = .026 level of significance) and for the ODCQ category (p = .015 level of significance). For both categories the normal group used these functions significantly more than the language disordered group. For the RQPM category, the language disordered group used this category more than the normal group, although the difference was not significant. The normal group utilized the remaining categories more often than the language disordered group. These findings for the child/peer condition

lend partial support to Hypothesis 3, that the normal group will use the categories (ODRQ and ODCQ) significantly more than the language disordered group. Hypothesis 3 was supported except for the findings of the RQPM category which delivered an opposite result, which, however, was not significant.

4.2 - Within-Group Comparisons

The Wilcoxon Matched-Pairs Signed-Ranks Tests were used for all within-group comparisons. This test compares two related dependent samples. It makes no assumptions regarding normality or homogeneity of variance of the distributions being compared.

The results of the Wilcoxon Tests comparing total performance of each group on each condition they were exposed to is presented in Table 4.

TABLE 4

WILCOXON MATCHED-PAIRS SIGNED RANKS TEST COMPARING THE TOTAL PERFORMANCE OF 6 NORMAL SUBJECTS (GROUP 1) WITH MOTHERS/ PEERS AND 6 LANGUAGE DISORDERED SUBJECTS (GROUP 2) WITH MOTHERS/PEERS/CLINICIAN

Group	Condition	Mean #Q	Mean #Q	Z	P
Group 1	Mother/Peer	44.5	/ 32.5	-1.992	.046*
Group 2	Mother/Peer	37.5	/ 22.167	-2.201	.028*
Group 2	Mother/Clinician	37.5	/ 19.333	-2.201	.028*
Group 2	Peer/Clinician	22.167	/ 19.333	-0.943	.345

*Reaches Level of Significance.

These findings indicate that there were significant differences between the mean number of questions produced under each condition. For the normal group (Group 1) the difference between the mother and peer condition was significant at the .046 level. For the language disordered group, differences between the means for the mother and peer conditions reached significance at the .028 level. The differences between the means for the mother and clinician conditions reached significance also at the .028 level. When the peer and clinician conditions were compared, however, there was no significant difference between the mean number of questions produced by the language disordered group.

Both groups produced significantly more questions under the condition child/mother than under the condition child/peer and, in the case of the language disordered group, child/clinician. There also appeared to be relatively little difference in the mean number of questions produced by this group between the peer condition and the clinician condition. These findings clearly support Hypothesis 2, that there will be a significant difference in the number of question forms produced within groups as a reflection of each condition.

Each of the measures examined were then compared for differences within each group for each condition. Results of the Wilcoxon Tests comparing the performance of the normal group with mothers and with peers with respect to grammatical question forms are presented in Table 5.

TABLE 5

WILCOXON MATCHED-PAIRS SIGNED-RANKS TEST COMPARING THE PERFORMANCE OF 6 NORMAL SUBJECTS WITH MOTHERS/PEERS WITH RESPECT TO GRAMMATICAL QUESTION FORMS

Variable	Mean #Q Mothers	Mean #Q Peers	Z	(2-Tailed) P
Mature-Y/N	9.5	5.667	-1.468	.142
Immature-Y/N	6.0	5.667	-0.314	.753
Mature-What	6.833	2.333	-2.023	.043*
Immature-What	1.8333	.333	-1.278	.201
Mature-Where	1.8333	2.167	-0.802	.423
Immature-Where	.0500	.000	-1.604	.109
Mature-Who	.333	.833	-1.342	.180
Immature-Who	.000	.000	0.000	1.000
Mature-Why	2.667	1.667	-0.943	.345
Immature-Why	.833	.667	-0.365	.715
Mature-When	.167	.000	-1.000	.317
Immature-When	.333	.000	-1.000	.317
Mature-How	1.8333	1.167	-0.913	.361
Immature-How	.167	.167	-0.000	1.000

*Reaches Level of Significance.

These findings indicate that a significant difference in mean number of questions was reached for the measure mature-<u>what</u> questions at the .043 level of significance. The subjects produced significantly more mature-<u>what</u>

questions with mothers than with peers.

Table 6 presents results of the Wilcoxon Tests comparing the performance of the normal group with their mothers and their peers with respect to the use of the function categories.

TABLE 6

WILCOXON MATCHED-PAIRS SIGNED-RANKS TEST COMPARING THE PERFORMANCE OF 6 NORMAL SUBJECTS WITH MOTHERS/PEERS WITH RESPECT TO FUNCTION CATEGORIES

Variable	Mean #Q Mothers	Mean #Q Peers	Z	(2-Tailed) P
RQCH	14.167	10.667	-0.943	.345
RQPR	12.167	6.500	-2.201	.028*
RQPC	5.333	3.000	-1.1782	.075
RQPM	3.333	.333	-2.023	.043*
RQSU	2.500	2.167	-0.405	.686
ODRQ	4.333	3.333	-0.674	.500
ODCQ	2.667	6.333	-2.023	.043*

*Reaches Level of Significance.

The reader will note from this Table that there were several significant findings. The RQPR category performance yielded a difference significant at .028 level of significance. The subjects utilized this category significantly more with mothers than with peers. The RQPM category performance yielded a significant difference at the .043 level

of significance. Subjects utilized this category significantly more with their mothers than with peers. The ODCQ category performance yielded a difference significant at the 0.43 level of significance. In this case, however, the subjects utilized this category significantly more with peers than with mothers. It should also be noted that the results for the RQPC category indicating, that the subjects utilized this category more with mothers than with peers, was not significant. Findings for the performance of the group with respect to the RQPR and RQPM categories lend support to Hypothesis 4. However, the significant finding for the performance of the group with respect to the ODCQ category indicates that the normal group used each function category differently with mothers and with peers.

The Wilcoxon Tests were also used to assess the differences between conditions for the language disordered group. Results of these tests, comparing the performance of this group with mothers, peers and clinician with respect to grammatical question forms, are presented in Table 7.

The reader will note that the following measures produced significant differences: For immature-<u>where</u> questions a significant difference was found between the mother/peer conditions at the .043 level of significance; for immature-<u>yes/no</u> questions a significant difference was found between the mother/clinician conditions at the .028

TABLE 7

WILCOXON MATCHED-PAIRS SIGNED-RANKS TEST COMPARING THE PERFORMANCE OF 6 LANGUAGE DISORDERED SUBJECTS WITH MOTHERS/PEERS, MOTHERS/CLINICIAN, AND PEERS/CLINICIAN WITH RESPECT TO GRAMMATICAL QUESTION FORMS

Variable	Mean #Q			Mother/Peer		Mother/Clinician		Peer/Clinician	
	Mother	Peer	Clinician	Z	P	Z	P	Z	P
Mature Y/N	4.833	4.667	3.833	- .674	.500	-0.839	.402	-0.405	.686
Immature Y/N	10.000	7.833	3.667	- .943	.345	-2.201	.028*	-1.214	.225
Mature What	3.000	2.000	3.333	-1.278	.201	-0.419	.675	-0.405	.686
Immature What	2.500	1.000	2.000	-1.363	.173	-0.674	.500	-0.405	.686
Mature Where	.667	.667	.167	-0.000	1.000	-1.604	.109	-1.604	.109
Immature Where	1.5	.000	.167	-2.023	.043*	-2.023	.043*	-1.000	.317
Mature Who	.000	.167	.500	-1.000	.317	-1.000	.317	-1.000	.317
Immature Who	.667	.500	.167	-0.535	.593	-1.342	.180	-1.342	.180
Mature Why	1.833	.333	.833	-1.483	.138	-1.604	.109	-0.802	.423
Immature Why	.667	.000	.000	-0.913	.361	-1.826	.068	-1.342	.180
Mature When	.167	.000	.000	-1.000	.317	-1.000	.317	-0.000	1.000
Immature When	.167	.000	.000	-1.000	.317	-1.000	.317	-0.000	1.000
Mature How	.000	.167	.167	-1.000	.317	-1.000	.317	-0.000	1.000
Immature How	.833	.833	.333	-0.000	1.000	-0.730	.465	-1.069	.285

*Reaches Level of Significance.

TABLE 8

WILCOXON MATCHED-PAIRS SIGNED-RANKS TEST COMPARING THE PERFORMANCE OF 6 LANGUAGE DISORDERED SUBJECTS WITH MOTHERS/PEERS, MOTHERS/CLINICIAN, AND PEERS/CLINICIAN WITH RESPECT TO FUNCTION CATEGORIES

Variable	Mean #Q			Mother/Peer		Mother/Clinician		Peer/Clinician	
	Mother	Peer	Clinician	Z	P	Z	P	Z	P
RQCH	12.500	11.000	6.167	-0.314	.753	-1.677	.093	-0.944	.345
RQPR	9.167	4.000	6.333	-2.201	.028*	-0.734	.463	-0.524	.600
RQPC	3.000	2.000	1.500	-0.730	.465	-1.348	.178	-1.069	.285
RQPM	1.500	1.667	1.167	-0.210	.834	-0.524	.600	-1.095	.275
RQSU	2.000	1.333	.167	-0.809	.418	-1.604	.109	-1.618	.106
ODRQ	.667	.167	.200	-1.604	.109	-1.000	.317	-1.000	.317
ODCQ	7.333	2.000	3.833	-1.992	.046*	-2.201	.028*	-1.363	.173

*Reaches Level of Significance.

level of significance; and for immature-where questions a significant difference was found between the mother/clinician conditions at the .043 level of significance. For all three findings, the subjects produced more questions in the child/mother condition than in the other conditions.

Table 8 presents results of the Wilcoxon Tests comparing the performance of the language disordered group with mothers, peers, and clinician with respect to function categories.

These findings indicate the following significant results: The RQPR category yielded a difference between the mother/peer conditions significant at the .028 level; the ODCQ category yielded a difference between the mother/peer conditions significant at the .046 level; and the ODCQ category yielded a difference between the mother/clinician significant at the .028 level of significance. For all three categories the subjects produced more questions serving these functions in the child/mother condition than in the other conditions. There were no significant differences in the use of each category between peer and clinician. These findings lend support to Hypothesis 4 (that there will be significant differences in the use of the function categories within groups as a reflection of each situational condition).

The next chapter presents conclusions and discussion of the results of the analysis.

CHAPTER V

DISCUSSION

A motivating factor in undertaking this project was frequent observations by speech-language clinicians that language disordered children seldom ask questions. This study proposed to examine the question forms produced by a language disordered population with those produced by a normal population at a comparable linguistic level. The question forms obtained from the two groups were selected from language samples of the children interacting in a number of situations with different partners, mothers, peers, and clinician (the latter for the language disordered group only). The data were categorized according to grammatical form and conversation acts and the results analyzed statistically. The following discussion offers interpretation of these results in the light of previous research and theoretical frameworks previously offered. It also presents some of the limitations of the design of the study as well as implications for future research.

It should be noted at the outset of this discussion that all findings pertain only to a language disordered population having attained a mean length of utterance of 4.0-5.0, as discussed in Chapter III. Generalizations can be made, with caution, to those children who fall within the parameters defined by this study.

5.1 - Comparisons of Groups

Based on previous research findings (Leonard, 1979; Ingram, 1972) the study made the assumption that the language disordered group would produce question forms having the same syntactic structure as the normal group, although the language disordered group would demonstrate delay in their control of the syntax of questions. The findings indicate this assumption is valid. In general, the language disordered group produced more "immature" question forms than did the normal group but the types of syntactical omissions were similar for both groups. Frequently found were incomplete yes/no questions with omission of the copula verb as in "That off?" and "That your sheet?" found in the texts of a member of the language disordered group and the normal group respectively. Other incomplete grammatical forms consisted of omission of verbs, most often of the copula or, when present, non-transposition of the auxiliary verb, and omission of articles and/or pronouns. Occasionally, both groups substituted the objective pronoun me for the subject I as in "Me go back there?"

Significant differences in the number of questions produced by the two populations were also expected. Morehead and Ingram (1973) noted that language disordered children produced similar syntactic structures to normal children but produced them at a much slower rate and with less frequency. The findings of this study revealed no significant

differences between the two groups in their total performance, although the normal group had a greater mean number of questions than did the language disordered group when compared in interaction with mothers and with peers. In the child/mother dyad condition there was a seven point spread between the means of the two groups in comparison to a twelve point spread between the means for the child/peer dyad condition. The data presented by the language disordered group most closely resembled the data presented by the normal group in the child/mother dyad condition. When each of the grammatical sub-types was examined, similar patterns were found for both groups. The majority of questions produced by each group were yes/no and what questions and each produced very few how and when questions. The largest number of questions were sub-types described by Tyack and Ingram (1977) as those learned earliest, namely yes/no, what and why questions. The fewest number of questions were those learned latest (according to that study); namely, how and when questions. The use of the when sub-type was the same for both groups in both dyad conditions.

When the data from both groups were compared for functional use (for which each question form was coded for a specific conversation act) there were some significant distinctions between the groups. Coding of functional use was based on a modification of a code developed in the Dore, Gearhart, and Newman study (1978). The data for this study

fell into seven of the categories identified by Dore, et al. Five of these categories conveyed content by means of seeking choice or judgment, concrete information, manner or process, permission, and suggestion of an action. The two remaining categories regulated the flow of conversation by means of asking rhetorical questions and clarification questions. The five categories which conveyed content did not produce significant differences between the two groups and the patterns of functional use were similar. The majority of question forms used by each group in each dyad condition reflected functional intent of seeking choice or judgment (RQCH) and seeking specific information (RQPR). For the child/mother condition there were no differences between the groups in the number of suggestions (RQSU) made through question forms (the mean number of questions for the RQSU category was 2.5/normal group and 2.0/language disordered group). Seeking understanding of process (RQPC) and permission (RQPM) was encountered almost twice as often in the normal group's questions as in the language disordered group's questions, the means for RQPC being 5.3/3.0 and for RQPM being 3.3/1.5. However, these results did not reach statistical significance. The patterns and mean differences were similar for the groups in the child/peer dyad for these five categories with one exception. The language disordered group asked for permission of their peers five times as frequently as did the normal group, although this

finding did not reach statistical significance. This finding may be reflective of a general uneasiness in the interaction between all child/peer dyads of the language disordered group. The following is a sequence between Adam and Andy illustrating the above finding:

ADAM: Okay. This a dog. No, no. This is a sheep.
ANDY: I don't know. I don't know.
ADAM: Can I have some too?
ANDY: No. No.
ADAM: Is there anything else to do? Can I help?
ANDY: Don't touch it. You use your own. No Adam. You messed up baby.
ADAM: The kids. The mommy and the daddy. You can use those.
ANDY: I don't want to use that. Oh, no.

The samples from these children interacting with each other took several taping sessions in order to obtain two hundred utterances per child, probably because of the brevity of each period in which the children were able to interact (no more than 15 minutes). In sharp contrast, number of taping sessions needed for the child/mother and child/clinician dyad conditions was small because the children were able to interact with these partners from forty-five minutes to one hour at a time. For the normal children, taping sessions for the child/peer dyad condition were no less than one hour in duration.

The two categories of functional intent for the purpose of regulating the flow of conversation, rhetorical and clarification questions, produced significant differences between the two groups. Within the child/mother dyad

condition rhetorical questions, which seek an acknowledgement response, were used to regulate the conversation by changing the topic. Questions such as "Do you know what?" were found in the samples of the normal group six to twenty times as often as in the samples of the language disordered group for both the child/mother and child/peer dyad conditions even though the language disordered group demonstrated competence to use this question form in other instances. The use of these questions were quite frequent among the normal group and noticeably absent from the samples of the language disordered group. The use of clarification questions (seeking clarification of a prior utterance) produced another pattern of significant differences between the groups. In the child/mother condition, the language disordered group produced another pattern of significant differences between the groups. In the child/mother condition, the language disordered group produced questions of this kind almost three times as often as did the normal group, but in the child/peer condition the normal children used these kinds of questions three times as often as the language disordered group.

5.2 - Comparisons Within Groups

In a recent study introducing situational variability, Cole, Dore, Hall, and Dowley (1978) reported that the types of questions posed to children depended on the situation and that these questions produced changes in the

frequency and variety of the children's responses to these questions. The present study also attempted to look at sociolinguistic variables which may effect differences in aspects of children's language. Language samples of the normal group were taken in two environments with two partners. Each child was tape recorded at home with his mother and in his day care center with a peer. There was a significant difference between the total number of questions produced by each youngster under these two conditions, the group producing substantially more questions with mothers than with peers. This finding was also supported in a study by Scott and Taylor (1978). In their study of 12 normal children, language samples were taken in an unstructured clinician/child interaction in a clinic and an unstructured mother/child interaction in the home. They found that the home sampling stimulated substantially higher frequencies of questions from the children. In the present study, it is also interesting to note that the number and length of the taping sessions for the normal group did not vary in the two situations. The children were taped in one to two hour sessions which provided the necessary number of utterances for each speech sample. Analysis of each of the grammatical categories reveals little difference between the conditions. The normal group did tend to ask significantly more complete <u>what</u> questions of their mothers than their peers which was

also reflected in the findings of the conversation act analysis. This latter analysis produced more significant differences for the two conditions. The children asked many more information questions of their mothers, particularly for concrete information (RQPR), process or manner of how to do something (RQPC), and permission to do something (RQPM), than they did of their peers. However, the normal group used question forms for clarification (ODCQ) substantially more with their peers than with their mothers. The differences appeared to be a function of the partner, perhaps a reflection of unclear prior utterances. The following sequence exemplifies this:

PATRICK: I'm making the building for an airport. No, I'm making the twin towers.
HOLLY: There we are. Does this look like an egg?
PATRICK: A what?
HOLLY: An egg.
PATRICK: Yes.

The children just did not ask as many questions of their peers, possibly because of the nature of the relationship. Children may not expect their peers to provide information that they themselves do not have, although they may expect their mother (or possibly other adults) to do so. Asking for permission also did not appear to be necessary in interactions with peers but it was an integral aspect of the children's interactions with mothers. The use of clarification in the interactions between child/peer may reflect a difference in familiarity with different partners.

Although the children knew their peers well, having spent more than five months of daily contact together, the degree of familiarity as well as quantitative and qualitative interaction time could not be compared with interaction time with mothers. The normal children seemed to use clarification as a means of continuing conversations with their peers which was not evident in interactions with mothers.

When the total number of questions produced by the language disordered group was compared in the three conditions, significant differences were found. The children asked substantially more questions with their mothers than with either their peers or their clinician, and did not perform differently in the peer versus the clinician conditions. The language samples were taken from the children at home with their mothers and at school with their peers and in a private therapy room at school with their clinician. The number and length of the taping sessions did vary with the particular condition. The children were taped in one to two hour sessions with their mothers, four to five half hour sessions with their clinician and a minimum of eight fifteen minute sessions with peers. The children produced similar numbers of utterances with their mothers (compared to the normal children) but took longer periods of time to reach the same number of utterances in their samples with their clinician and peers. These dif-

ferences between conditions appear to be indicative of a reliable sampling procedure. Each youngster's speech was sampled more than once with his/her peers and clinician and, upon analyzing each transcript, it was noted that each youngster produced fairly similar numbers of questions during each session. Therefore, the consistency of the data suggests a reasonable degree of confidence in the applicability of the results. Analysis of each of the grammatical categories reveals only a few differences between conditions. The children tended to ask significantly more immature where type questions with their mothers than with their peers or clinician and more immature yes/no type questions than with their clinician. However, for almost all conditions all grammatical types of questions were used more often with mothers than with either peers or clinician. When the information seeking conversation acts were analyzed for differences between conditions the C-act which produced the most substantial difference between mother/peer conditions was that seeking concrete information (RQPR). It was not surprising that this C-act did not produce any significant differences between the mother and clinician condition. Similar results were also found for the normal group, tending to support an explanation of expectation (children expect that adults will be able to furnish them with information which they do not have, whereas they do not have that expectation of their peers). The language disordered

group used question forms for clarification (ODCQ) significantly more with their mothers than with their peers or clinician. This particular finding in conjunction with the overall performance of these children in each condition may indicate that there are social factors which effect differences in linguistic performance among language disordered children.

These findings suggest that clinical language sampling may underestimate the frequency by which language disordered children are able to produce questions, as well as other types of utterances. It appears that the pragmatics of the situation in which sampling occurs has a bearing on the linguistic performance of language disordered children. This finding should be taken into consideration by clinicians whose methods and settings are primarily limited to the clinic. Clinicians may need to observe their clients interacting with their mothers and/or siblings in order to assess their linguistic skills more accurately.

In conclusion, this study has shown that language disordered children do ask a variety of questions primarily in a home environment with their mothers and under this condition, their language samples closely resembled those of the normal children. Quantitative as well as qualitative differences were found when comparing these children to the normal children who were functioning at similar

linguistic levels. The findings also demonstrated significant differences in both groups' production of questions when the environments in which their language was sampled changed. Each group produced significantly more questions at home with their mothers than they did in the classroom with peers and clinician. It is not clear why this phenomenon occurred, but a few factors warrant elaboration. Firstly, the children's relationships were different for each of the conditions and these differences were reflected in both amount of verbal output and in the quantitative differences in conversational style. Some dialogues with mothers involved several turns for both participants, at times the children initiated sequences. This situation rarely occurred in the dialogues of the other two conditions. The children had difficulty initiating dialogue sequences with their peers and with their clinician and the sequences were made up of fewer turns. Secondly, the environments in which the children were sampled may also have encouraged or discouraged questioning from the children.

Differences in the grammatical structures produced by language disordered children, such as those studied in this investigation, may be reflective of a combination of several socio-linguistic factors such as a relationship to the addressee, environment and task. Prutting, et al. (1975) found, for example, that language disordered children produced 30% more grammatically correct structures during a

spontaneous language sampling procedure than during the administration of a formal language expression text eliciting those structures, varying only the task.

Observations made by speech-language clinicians that language disordered children seldom ask questions, were not supported by the findings of this study. In fact, the language disordered children did ask questions but not with their clinician which suggests that further assessment of the clinical process and the clinician's relationship to clients is warranted.

5.3 - Related Observations and Explanations of the Groups' Performance

The findings of the study have indicated that the language disordered children were not able to engage in lengthy verbal interactions with their peers. Often the verbal interaction would break down into parallel play without verbal interaction and the taping session would then be terminated. Parallel play was also apparent when the children were given daily free time out-of-doors in which to engage in physical activities. They were given balls, bats, and other athletic equipment in order to encourage initiation of group games. However, group, or even sub-group, interaction rarely occurred; they tended to play by themselves.

When the children did interact verbally they appeared to need the support of objects or games (i.e.,

Candyland game or a set of wooden trains). The children did not interact by using "pretend" situations or puppets which was in contrast to the use of fantasy, "pretend" situations, and role playing used by the normal children throughout all their interactions together. The normal children rarely used games in their play sessions together. It appeared that the language disordered children maintained topics in their dialogues as long as interest in the activity was maintained and then a new activity was needed for them to continue to interact verbally. For example, Lisa and Adam played the "Silly Sounds" game until Lisa said she won, at which point she walked away:

LISA: I is winning.
ADAM: You skipped a turn. Look...look.
LISA: Three! One...two...three.
ADAM: Did you win?
LISA: Yeah! (walks away from table)

When interacting with their mothers, the language disordered group were able to maintain lengthy verbal interactions. They frequently used clarification questions which may have helped them to maintain topics and continue the dialogue. However, there was a significant lack of use of rhetorical questions from all the samples of this group. The very few rhetorical questions used by only three of the language disordered children were used for the same purpose as those used by the normal children. Analysis of rhetorical questions in the speech samples of both groups indicates that they were used on occasions when the children wanted to change a topic abruptly. This seemed to occur when a child

made some association to the topic at hand and had a new thought she/he wanted to introduce. The following is an example taken from the transcript of Alexis (one of the normal children) and her mother.

ALEXIS: Mommy, what's this?
MOTHER: What you're eating?
ALEXIS: Yes.
MOTHER: It's a pear.
ALEXIS: A pear. You know what?
MOTHER: What?
ALEXIS: We eat apples in school. I did.
MOTHER: Do you like apples?
ALEXIS: Mommy, you know what?
MOTHER: What?
ALEXIS: Chocolate milk...in my school.

The language disordered children who used rhetorical questions did so in the same way but there were very few occasions in the samples of these children for this to occur. The following is one of the few examples from the transcript of Adam and his mother.

MOTHER: Next time we'll send a sweater.
ADAM: And some gloves.
MOTHER: Well the gloves were in your bag. You forgot to put them on. Why should you wear gloves when you get outside?
ADAM: Cause you get cold. You know what? I hurt my fingers.
MOTHER: How did you hurt your fingers?
ADAM: I fell down.

Analysis of several of the transcripts of the language disordered children revealed that they rarely initiated change of topic as the example noted above. They were able to maintain topics but it was usually the child's partner who initiated a change in topic. All of the children in the normal group were more actively involved in topic change

introducing new or related ideas often using rhetorical questions although not always. The language disordered children were more passive participants in the dialogue exchanges. This does not appear to be due to their inability to use the syntactic structure associated with rhetorical questions, for they demonstrated competence in the use of this structure in sentences conveying other functional intents as in "you know what this is?"

All of these children exhibited severe delay in the onset of speech and were three and four years older than normal children with similar language skills. During the first three and four years of these children's lives, they were not able to communicate verbally. By this time their normal counterparts had already developed a competent language system (Brown, 1973). The findings in this study lend support to the already existing body of research that states that language disordered children acquire the same syntactic structures as do normal children but do so at a much slower rate and use these structures less frequently. The present study also found that these children use these syntactic structures differentially.

The major differences between the language disordered group and normal group were exhibited through mechanisms which control verbal interaction (or the flow of conversation). There appeared to be qualitative differences in their needs and abilities to verbally interact with one another.

These differences were most observable in the child/peer dyad. Each of the children in the normal group always appeared eager to play with another child. Dyadic and group interaction was the natural inclination of these children's behavior, whereas the children in the language disordered group always needed encouragement to engage in a social interactive experience and rarely initiated such behavior.

There were also differences noted in the social adjustment of the language disordered group to the three dyadic situations. The normal group evidenced an easy, relaxed manner in both situations. The language disordered children appeared far more relaxed and at ease at home with their mothers than at school with their peers or their clinician. This difference was reflected in the differential flow of their speech in the three conditions. This finding with respect to the child/clinician condition was contrary to expectation, for the rapport established between each child and clinician appeared to be excellent. Each of the children displayed affection with the clinician and looked forward to their individual sessions with her. However, their question performance was poorest with the clinician for all six children. One possible explanation may have to do with role expectations, like who is allowed to initiate and change topics. A second possible explanation for this phenomenon may be due to intrinsic differences in

a therapeutic relationship versus a maternal relationship. The positive feedback (i.e., warmth, encouragement, praise) given to a child by a clinician is usually conditional. The child must meet certain expectations and perform according to a prescribed set of rules. The clinician is there for a specific purpose, to help the child speak more proficiently and all of her goals and behaviors are aimed toward achieving this purpose. The positive feedback given to a child by a mother is usually not conditional; it is not based on a limited number of circumscribed expectations, although they do have expectations of their children which have probably been well defined by the relationship. Conditional versus non-conditional factors in relationships may effect significant differences in the language behaviors of children and needs further investigation (see next section).

5.4 - Limitations of the Study and Directions for Future Research

Conclusions and explanations of the findings of this study should be reached cautiously in light of the limited number of subjects used in each group. Six subjects was determined to be a manageable number in light of the arduous sampling procedure. The small number does, however, limit the kind of statistical analyses that can be applied to the data in order to derive meaningful results.

Another possible limitation of the study were the skewed sex differences between groups. There was one female and five males in the language disordered group and one male and five females in the normal group. The sex factor may have some bearing on the findings although, to date, other psycho-linguistic studies do not indicate the relevance of this factor. Fluharty (1974) found that sex was not a significant factor in differences between 203 normal preschool children in their performance on a speech and language screening test. However, future studies of similar design should attempt to obtain larger numbers of subjects with a more even distribution of males and females.

The significant difference found in the performance of the language disordered group with their mothers and clinician indicates that further investigation of these two conditions is needed. The performance of this type of child with different clinicians in comparison to their performance with mothers should be explored to look at whether it is the individual clinician that affects such performance of the nature of the therapeutic relationship. It might also be valuable to assess the questions produced by mothers and clinician as well as other aspects of their linguistic performance with language disordered children. The Cole, et al. study (1978) found that situation affected the types of questions produced by the teachers and aides, producing

differences in the children's performance.

A follow-up study to the present one, which examines the questioning behavior (those questions which are judged to be questions on the basis of question intent only) of language disordered children, would also shed more light on this population's ability to question.

Another area for future research might be to examine and compare conversations of language disordered children and normal children. This study looked at conversational performance indirectly as it focused on one aspect of syntactical performance and its relationship to use within conversation. But the results tend to indicate that these language disordered children converse with others in more limited ways. It would be of interest to determine how these children establish and continue topics, and whether they establish similar turn-taking patterns as normal children.

Another area for future research into the nature of language disorder lies in exploring the social development of these children, specifically how these children organize their behavior in social interactive situations. We know that these children do not develop linguistic skills normally and that there is a dramatic delay in the onset and subsequent progression of these skills, but how social factors interact with and affect the developing linguistic process is not known.

5.5 - Summary

This study examined the question forms of six normal and six language disordered subjects, all of whom had attained a mean sentence length of 4.2 - 5.2 words per utterance. The subjects were matched for mean length of utterance and socio-economic levels and screened for average mental development and normal hearing acuity. Transcriptions were made of their language samples as they interacted with different partners in familiar settings. The normal children interacted with their mothers and another child. The language disordered children interacted with their mothers, another child, and their speech and language clinician. All question forms identified from the texts were analyzed according to question type, degree of grammatical complexity, and pragmatic intentions. There were no significant differences between the two groups in the overall numbers of questions produced by the subjects although the normal group produced more questions in almost all of the grammatical (question type) categories. When the pragmatic intentions of the question forms were analyzed, differences were found specifically in seeking explanatory responses (RQPC) and in regulating the flow of conversation through the use of rhetorical questions (ODRQ). The normal group was more actively involved in utilizing these intention categories. The language disordered group was more actively involved in seeking clarification of

utterance with their mothers than was the normal group, although in the child/peer condition the normal group was more actively involved in seeking clarification.

Significant differences were found within each group when sampling situations were compared. Both groups produced significantly more questions with their mothers at home than with peers in the classroom. The language disordered children also produced significantly more questions with mothers than with clinician. Qualitative as well as quantitative differences within individual question categories suggest that social factors effect differences in the linguistic output of language disordered children. These need to be examined more closely. Most significantly, the study suggests that speech and language clinicians may underestimate their clients' linguistic levels because the clinical setting may not provide an optimum sampling and observational environment.

APPENDIX

TYPE OF SUBJECT: LD
NAME: ADAM
PARTNER: MOTHER
NUMBER OF QUESTIONS: 27

Sample Worksheet:

1.	RQCH	Y/N
2.	Is that it?	
3.		

1.	RQPM	Y/N
2.	Can I take something out?	
3.		

1.	ODCQ	Wh-What
2.	What?	
3.		

1.	RQPC	Wh-Why
2.	Why didn't you buy some trucks?	
3.		

1.	ODCQ	Wh-What
2.	What?	
3.		

1.	RQCH	Y/N
2.	Right?	
3.	(Is that right?)	

1.	RQPR	Wh-What
2.	What toys?	
3.		

1.	RQPR	Wh-What
2.	What is that there?	
3.		

1.	RQCH	Y/N
2.	You see the motor?	
3.	Do	

1.	RQPR	Wh-What
2.	What's that for?	
3.		

1.	ODCQ	Wh-What
2.	What?	
3.		

1.	RQCH	Y/N
2.	That off?	
3.	Is	

1.	RQPR	Wh-When
2.	When we go out?	
3.	Do	

1.	RQPR	Wh-Where
2.	Where?	
3.		

1.	RQCH	Y/N
2.	Right?	
3.	(Is that right?)	

1.	RQPR	Wh-What
2.	What boat?	
3.	(Which boat?)	

1.	ODCQ	Wh-What
2.	What?	
3.		

1.	RQCH	Y/N
2.	See that sticking up?	
3.	Do you	

1.	RQCH	Y/N
2.	Let go now?	
3.	Do I	

1.	RQSU	Wh-How
2.	How about make a house?	
3.	(How about making a house?)	

Sample Worksheet/Adam (Cont'd)

1.	RQPM	Y/N
2.	I come?	
3.	Can	

1.	RQPR	Wh-What
2.	What in there Mommy?	
3.	Is	

1.	RQPC	Wh-Why
2.	Why?	
3.		

1.	RQPR	Wh-What
2.	What that one?	
3.	Is	

1.	ODCQ	Wh-What
2.	What?	
3.		

1.	RQPR	Wh-What
2.	What tape do?	
3.	Does the	

1.	RQPR	Wh-Who
2.	Who driving me?	
3.	Is	

TYPE OF SUBJECT: NORMAL
NAME: ALEXIS
PARTNER: MOTHER
NUMBER OF QUESTIONS: 45

Sample Worksheet:

1.	RQPR	Wh-What	1.	RQSU	Y/N
2.	What is that?		2.	Please this?	
3.			3.	(Can we play this?)	
1.	RQPR	Wh-What	1.	RQCH	Y/N
2.	What's this?		2.	This one?	
3.			3.	Is it	
1.	ODRQ	Y/N	1.	RQCH	Y/N
2.	You know what?		2.	This one?	
3.			3.	Is it	
1.	ODRQ	Y/N	1.	RQPM	Y/N
2.	You know what?		2.	Just this cookie?	
3.			3.	(Can I have)	
1.	RQPR	Wh-Where	1.	RQPM	Y/N
2.	Where's the cookies?		2.	May I have just this cookie?	
3.	Are		3.		
1.	RQCH	Y/N	1.	RQPM	Y/N
2.	Are you gonna play?		2.	You let sometimes these cookies to eat	
3.			3.	(Will you let me eat these cookies?)	
1.	ODRQ	Y/N	1.	RQPR	Wh-What
2.	You know what, Mommy?		2.	What are you making?	
3.			3.		
1.	RQPR	Wh-What	1.	RQCH	Y/N
2.	What's your name?		2.	And spahetti?	
3.			3.	(are you making)	
1.	RQCH	Y/N	1.	RQCH	Y/N
2.	That's your name?		2.	And spaghetti?	
3.	Is that		3.	(Are you making)	
1.	RQPR	Wh-What	1.	RQPR	Wh-Where
2.	What's yours?		2.	Where's the talk?	
3.	(What are you)		3.		

Sample Worksheet/Alexis (Cont'd)

1. ODRQ	Y/N	
2. You know what?		
3.		
1. RQPM	Y/N	
2. Could I have one?		
3.		
1. RQPR	Wh-What	
2. What'd he do?		
3.		
1. ODRQ	Y/N	
2. You know what Mommie?		
3.		
1. RQCH	Y/N	
2. Is he gonna spill the food again?		
3.		
1. RQPM	Y/N	
2. Can I taste it?		
3.		
1. RQPR	Wh-What	
2. Mommy, what you're eating?		
3. Are you		
1. RQPR	Wh-What	
2. What's on it here?		
3.		
1. RQCH	Y/N	
2. Chocolate sauce?		
3. Is it		
1. RQCH	Y/N	
2. That's your plate or my plate?		
3. Is that		
1. RQPC	Wh-Why	
2. Why is it yours?		
3.		

1. RQCH	Y/N	
2. Me to talk?		
3. (Am I going to talk?)		
1. ODRQ	Y/N	
2. You know what?		
3.		
1. RQPC	Wh-Why	
2. Why you not eating spaghetti?		
3. Aren't you		
1. RQPC	Wh-Why	
2. Why?		
3.		
1. ODRQ	Y/N	
2. You know what mommy?		
3.		
1. RQPR	Wh-When	
2. Mommy, when your birthday is?		
3. Is your		
1. RQPR	Wh-When	
2. When my birthday is?		
3. Is my		
1. RQPR	Wh-What	
2. And then what?		
3. (Did he do)		
1. RQCH	Y/N	
2. You want to put these on?		
3. Do		
1. RQPM	Y/N	
2. Mommy, can we put that on?		
3.		
1. RQPR	Wh-Where	
2. Where's the book?		
3.		

Sample Worksheet/Alexis (Cont'd)

1. RQPC Wh-Why
2. Why?
3.

1. RQPC Wh-Why
2. Why that's over there?
3. Is that

1. RQCH Y/N
2. You have spaghetti on it?
3. Do

GUIDELINES FOR OBTAINING SAMPLES OF YOUR CHILD'S SPEECH

1. Try to be in a quiet room where extra noises (traffic, dishwasher, shower, children playing) will not be heard on the tape. Try to avoid having other children present so as not to have confusion over who said what.

2. Arrange to have your child engaging in activities in which he/she usually talks a lot (dinner time, story time, specific games or toys he/she likes to play with Mom).

3. Avoid telling your child to "say something." Let your child do most of the talking.

4. Please do not be concerned with what you say. Our primary interest is what your child says.

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