LANGUAGE USE IN LANGUAGE-IMPAIRED AND LEARNING-DISABLED CHILDREN

A Thesis

by

Marianna Leigh Mayhew

July 1983

APPROVED BY:

R. Jane Lieberman, Thesis Committee

Murray Joselson, Thesis Committee

Thomas Swem, Thesis Committee

Edward C. Hutchinson, Department of Speech Pathology and Audiology

Joyce V. Lawrence, Dean of the Graduate School

LANGUAGE USE IN LANGUAGE-IMPAIRED AND LEARNING-DISABLED CHILDREN

A Thesis

by

MARIANNA LEIGH MAYHEW

Submitted to the Graduate School

Appalachian State University

in partial fulfillment of the requirements for the degree of

MASTER OF ARTS

July 1983

Major Department: Speech Pathology and Audiology

ABSTRACT

LANGUAGE USE IN LANGUAGE-IMPAIRED AND LEARNING-DISABLED CHILDREN. (July 1983)

Marianna Leigh Mayhew, B.S., Appalachian State University

M.A., Appalachian State University

Thesis Chairperson: R. Jane Lieberman

The purpose of this study was to compare the language use of language-impaired children and learning-disabled children on the Functional Inventory of Cognitive Communication Strategies (FICCS) (Lieberman, 1981). FICCS is based on Tough's (1976, 1977) functional taxonomy of language and measures the ability to use the cognitive communication strategies of Reporting (Central Meaning), Logical Reasoning, Projecting, and Predicting.

The sample included 20 children, ages 6, 7, and 8, who were placed into two groups of 10 children each, a language-impaired group and a learning-disabled group. Children from the language-impaired group were matched with children from the learning-disabled group according to age (±6 months), intelligence quotient (±6 points), socioeconomic status, and

achievement test scores (±10 points). Children were included in the language-impaired group on the basis of subaverage performance (≤85) on the Test of Language Development (TOLD) (Newcomer & Hammill, 1977) and the clinical judgment of a certified speech pathologist.

The Functional Inventory of Cognitive Communication Strategies (Lieberman, 1981), a structured interview of language use, was administered to each child in approximately 20 minutes. Responses were tape recorded and scored using a four-point scale devised by Barrie-Blackley (1982).

The data were submitted to five individual *t*-tests and tested at the .05 level of significance. Results indicated that there was no significant difference between the two groups on overall performance on FICCS or on the major use categories. A post hoc analysis revealed that 70 to 80 percent of the children in both groups had mastered the use of each category with the exception of the Predicting strategies for the Learning-Disabled group.

ACKNOWLEDGEMENTS

I would like to thank several people who have unselfishly offered their assistance to me in the research and writing of this project. Dr. Jane Lieberman, my thesis chairperson, spent much of her time and effort aiding me in this project, and I am truly grateful to her. Dr. Murray Joselson offered much support and encouragement during the writing of this project, and during my entire time in graduate school. Dr. Thomas Swem gave me much encouragement and was very helpful to me in completing this project.

I would also like to thank several people who were not on my committee, but without them this project could not have been completed. Dr. Deanna Bowman spent much time explaining many statistical matters to me that were confusing to me. Also, without the help of Laurie Baldwin, Caroline Lentz, Gayle Aughtry, and Brenda Jamison, finding the children for this study would have been difficult. These four people were all kind enough to take time out from their jobs to help me and that help was greatly appreciated.

Finally, I would like to thank my loving family and dear friends who encouraged and supported me

throughout the writing of this project. Without their love, prayers, and support, I could never have finished this project. I would especially like to thank my parents, John and Barbara Mayhew, whose love and guidance has been a blessing throughout my life.

TABLE OF CONTENTS

Chapter Page

APPENDIX Page

LIST OF TABLES

Chapter I

INTRODUCTION

From the moment of birth, infants develop communication skills. First, they learn to communicate with their caretakers through crying, gestures, vocalizations, and then true speech (Wood, 1982). In normal children, communication skills develop dramatically during the first five years of life. By the time children enter school, their speaking vocabularies contain approximately 2,000 words, their utterances consist of reasonably simple and complex sentences, and they can produce most of the sounds of English. These gains in language content and form contribute to effective communication in the classroom.

Not all children, however, enter school with the communication skills necessary to succeed in the classroom. Many children who lag behind their normally-achieving colleagues may be labeled by a speech pathologist or a special educator as language-impaired or learning-disabled. It has been estimated that between 39 to 63 percent of all learning-disabled

children exhibit language impairment (Wiig & Semel, 1980).

The description of learning disabilities presented in Public Laws 91-320 and 94-142 emphasizes that the problems of this population are characterized by difficulties in language. These laws describe a learning disability as a "disorder in one or more of the basic psychological processes involved in understanding and/or in using spoken or written language" (Lerner, 1971, p. 7). According to Wiig and Semel (1976), learning-disabled children have been found to exhibit significant delays in acquisition of certain linguistic concepts expressing spatial, temporal and comparative relationships. Gerber and Bryan (1981) and Davis (1982) have observed deficient language use in learning-disabled children, particularly in the social strategies of communication.

Success in the classroom is achieved by the use of a wide variety of social as well as cognitive communication strategies. Tough (1976, 1977) has identified specific communication strategies necessary for academic success which she groups into four categories of language use, including Reporting (Central Meaning), Logical Reasoning, Projecting and Predicting. To evaluate these strategies, Lieberman (1981) developed a structured interview called the

Functional Inventory of Cognitive Communication Strategies (FICCS) which is adapted from Tough's (1976, 1977) suggestions for the appraisal of language use in children.

Because effective communication skills are vital to school success, it is necessary to evaluate these skills in children who are at risk for poor language use. The problems which language-impaired and learning-disabled children have with language use may keep these children from participating in the cognitive activities of the classroom and from social interaction with their peers.

Statement of the Problem

Though much research has been done to investigate the language of the language-impaired and the language of the learning-disabled, only one study has compared the language content and form of these two groups (Moore, 1983) and none has compared their language use. The purpose of the present study is to compare the language use of language-impaired and learning-disabled children on the Functional Inventory of Cognitive Communication Strategies (FICCS) (Lieberman, 1981).

More specifically, answers to the following questions will be sought:

1. Is there a significant difference in overall language use of cognitive communication strategies by language-impaired and learning-disabled children as measured by FICCS?

2. Is there a significant difference between these two groups in the use of specific cognitive communication strategies, including Reporting (Central Meaning), Logical Reasoning, Projecting and Predicting?

Delimitations

1. This study was confined to two groups of children, ten language-impaired and ten learning-disabled.

2. The subjects ranged in age from 6 years, 7 months to 8 years, 4 months, and were selected from Avery and Mecklenburg County Public School Systems according to the following criteria: (a) Children in the language-impaired group were identified according to subaverage performance ($\leq$85) on the Test of Language Development (TOLD) (Newcomer & Hammill, 1977) and were enrolled in a language therapy program in the schools; (b) Children in the learning-disabled group were identified according to North Carolina state guidelines mandated by Public Law 94-142. The formula used to identify these children can be found in Appendix A.

3. Data regarding language use were collected on the Functional Inventory of Cognitive Communication

Strategies (Lieberman, 1981) and analyzed using a four-point scale developed by Barrie-Blackley (1981). This procedure measures the cognitive aspects of language function, but not the social aspects or discourse features of language.

Limitations

1. To the extent that residence in differing counties may have affected the results, the groups may not have been matched on all relevant variables.

2. To the extent that the groups may not have been representative of the language-impaired and learning-disabled populations at large, the results will not be generalizable beyond the sample investigated.

Assumptions

The following assumptions were made in this study:

1. That the language-impaired and learning-disabled groups were matched according to relevant variables: age, socioeconomic status, achievement scores, and cognitive ability.

2. That other extraneous variables such as school attended were randomly distributed among the groups.

3. That the researcher was qualified to administer, score, and interpret all testing procedures.

Hypotheses

The following hypotheses were developed in the null form and tested at the .05 level of significance.

Null Hypothesis 1

There is no significant difference in the overall performance between the language-impaired (LI) and learning-disabled (LD) groups on the cognitive communication strategies measured by FICCS.

Null Hypothesis 2

There is no significant difference in the use of Central Meaning strategies on FICCS between the LI and LD groups.

Null Hypothesis 3

There is no significant difference in the use of Logical Reasoning strategies on FICCS between the LI and LD groups.

Null Hypothesis 4

There is no significant difference in the use of Projecting strategies on FICCS between the LI and LD groups.

Null Hypothesis 5

There is no significant difference in the use of Predicting strategies on FICCS between LI and LD groups.

Chapter II

REVIEW OF RELATED LITERATURE

The Nature of Language

Language is an interpersonal communication system which consists of an organized set of symbols or sounds that when sequenced together express thoughts, intentions, experiences, and feelings (Nicolosi, 1978). According to Bloom and Lahey (1978), "language must include some aspect of content or meaning which is coded by linguistic form for some purpose or use in a particular context" (p. 11). Whether language is spoken or written, it must contain a set of rules for combining sounds into words, words into sentences, and sentences into longer discourse sequences. To become linguistically competent, children must successfully integrate the rules of content, form, and use.

The content of language refers to the meaning of language. Content is viewed by Bloom and Lahey (1978) as "the topics that are represented in particular messages, and categorizations of topics according to how they relate or are similar to one another in different messages" (p. 11). Language content

consists of a finite set of categories for representing the things people know about the objects, events and relationships of the world. Language may be classified by broad general categories such as possession and action that generally remain the same throughout life, whereas the topics of language vary according to age, culture and other factors. Young children talk about toys and teen-agers talk about records, but both talk about objects.

The form of language is the means for connecting sound or signs with meaning. Bloom and Lahey (1978) define form in terms of: phonology (units of sound), morphology (units of meaning that form inflections or words), and syntax (the order in which units of meaning are combined).

Language use refers to "the reasons why individuals speak and the ways in which speakers choose among alternative forms of a message according to what they know about the listener and context" (Bloom & Lahey, 1978, p. 23). Children speak for a purpose--to request a glass of milk, to express feelings of anger and love, to learn about their world. The particular content and form which they select to achieve their purpose depends upon the people involved in the communication and the setting in which the communication takes place. In this way, the interaction of content,

form, and use contributes to the children's increasing communicative competence.

Language Use

Language use falls under the linguistic domain of pragmatics, which refers to the functional use of language. Bates (1976) stated that the most important reason for studying pragmatics in child language is that pragmatics bridges the gap between the linguistic, cognitive, and social development of children. Within the component of language use are two main areas: context and function. The context of language is viewed by Bloom and Lahey (1978) as situation specific.

> Content encompasses the influence of specific situational parameters, such as time and place of the communication in determining the form which the message will take. . . . Speakers of a language have alternative means of saying the same thing or achieving the same purpose, and which alternative is used depends on the context. (p. 10)

Function refers to "the reasons why people speak" (Bloom & Lahey, 1978). Speakers choose appropriate verbal and nonverbal behaviors to bring about desired effects in a wide variety of social situations. As speakers engage in communicative exchanges, they

transmit their goals or intentions to the listeners. Bruner (1974) described the two primary functions of language in young children as regulation of joint activity and joint attention.

McLean and McLean (1978) elaborated on Bruner's (1974) work in their description of the two broad functions of language.

1. The regulating of a listener's actions, including communication acts such as requesting or demanding that require an overt response from the listener. These acts allow the speaker to judge the success of the communicative exchange.

2. The regulating or influencing of a listener's attentions or attitudes. These acts are not often easy to identify because it is difficult to extract the content of the communicative exchange from the speaker's underlying purpose or intent.

Because the systems of Bruner (1974) and McLean and McLean (1978) are extremely limited in their ability to categorize the wide variety of communicative functions of which children are capable, other researchers felt the need for more elaborate functional classification systems. The works of Piaget (1923), Halliday (1978), Dore (1976), and Tough (1976, 1977) are exemplary of these systems.

Functional Classification Systems

Piaget (1923) was the first to develop a functional classification framework for classifying children's language use. He (1923) attempted to determine the needs children satisfy when they communicate by describing two main categories of language function: egocentric and socialized. Egocentric language is intrapersonal because as children engage in it, they do not talk directly to an audience nor do they require a response from a listener. They talk for the pleasure of associating with anyone who is present at the moment. Children engage in egocentric language use through repetition of rhymes, songs, and monologues. Socialized language use is interpersonal and addresses the listener, considering the listener's point of view and attempting to influence the listener to exchange ideas with the speaker. In this function, children may use language to express adapted information, emotionally toned remarks, questions, answers, social phrases, and dramatic imitations. Piaget (1923) found that egocentric speech begins around the age of two and remains predominant until seven years of age. At two years, children realize they are individuals, but they have no real reasoning process. By seven years, socialized speech takes over and with maturation begins to sound more like adult speech.

Since the mid-1970s, other investigators have devised taxonomies of language use which may be applied to the preverbal communication of children as early as 9 to 10 months of age and extend through the school years.

Halliday (1978) studied the development of language use in his own son, Nigel, and was able to show how early functions of language evolved into adult functions through a series of three phases:

In Phase I, which took place from 10½ months to 18 months, Nigel communicated through idiosyncratic utterances that consisted of vocal postures containing neither structure nor words. In this phase, he was capable of using communication for the following purposes:

1. Instrumental or "I want" function. In this function, the child uses language to obtain objects and services to satisfy needs.

2. Regulatory or "Do as I tell you" function. This function of language is used to get someone to do something. It is different from the instrumental in focusing on the agent rather than on the object.

3. Interactional or "me and you" function. Language is used to interact with significant others in the environment.

4. Personal or "Here I come" function. Language is used to express and develop the child's uniqueness as an individual.

5. Heuristic or "Tell me why" function. Language is used to explore and learn about the environment. This function develops from a basic form, requesting the names of objects, into the entire range of questioning forms that the young child uses.

6. Imaginative or "Let's pretend" function. Language is used to create a make-believe environment, including sound-play, songs, rhymes, story-telling, and eventually language as a verbal art form.

During Phase II, which took place in Nigel from 18 to 25 months, Nigel began the transition into the adult language use system. This phase contains two broad functional categories which Halliday (1978) referred to as macro-functions. These are the pragmatic function, which develops from the instrumental and regulatory functions and refers to language as doing, and the mathetic function, which develops from the personal and heuristic functions of language and involves language as learning. A new language function emerges in Phase II, the Informative function, or "I've got something to tell you" function. In the Informative function, language is used

as a means of communicating an experience to someone who did not share it.

Phase III, which began in Nigel at 24 months and continued into adulthood, marks the beginning of the adult language system. Three functions of language appear during this phase: the ideational, interpersonal, and textual functions. The ideational or cognitive function involves the use of language to describe the real world. The interpersonal or social function involves the means by which individuals participate in speech situations. The textual function provides the text of messages delivered through these functions such as dialogue or narrative.

Dore (1976) developed a framework which used speech acts as a means of classifying children's language use at the three- to five-year level. Speech acts refer to children's communicative intentions and can be placed into one of six categories:

1. Requesting elicits an action or needed information.

2. Responses complement an action or needed information.

3. Descriptions represent verifiable aspects of content.

4. Statements express facts, attitudes, and beliefs.

5. Conversational Devices regulate conversation.

6. Performatives accomplish acts by merely being said.

Dore's framework is based on recordings collected in nursery schools.

Tough (1976, 1977), a British educator, devised a functional classification system to analyze the language use of preschool and school-aged children. Her system combined speech acts within a framework of seven language uses:

1. Self-maintaining--the use of language to create an awareness of the speaker's identity and to promote the individual's position in relation to others.

2. Directing--the use of language to control or regulate the physical actions and operations performed by others.

3. Reporting--the use of language to provide information about past and present experiences.

4. Logical Reasoning--the use of language which employs thought and argument to interpret experiences.

5. Predicting--the use of language to extend communication beyond immediate present or past

experiences that have not yet occurred and which may never take place.

6. Projecting--the use of language within an unfamiliar or external context.

7. Imagining--the use of language to create a world of make-believe.

Tough's (1976) taxonomy identifies language uses that are necessary in order for children to succeed in the classroom. If any of these uses are deficient, children may experience academic difficulty.

Measures of Language Use

Natural language sampling is viewed by many researchers as the best method of analyzing language use. It has been suggested by Lund and Duchan (1983) that natural language sampling for the purpose of a pragmatic assessment can be done in one of five ways:

1. Interviewing the children to learn their attitudes or ideas about an event.

2. Engaging children in enactments in which they are asked to play roles in various situations.

3. Participating in structured interactions wherein the clinician designs and carries out an event to elicit a particular behavior.

4. Designing a structured situation or specific contexts in which the children will carry out a prescribed sequence of behaviors without intervention.

5. Observing a naturalistic interaction or sample of the children's performance in a context familiar to them where they are allowed to "do their own thing."

Lund and Duchan (1983) suggest that the investigator use two or more of these methods for a pragmatic analysis of language use. Unlike analysis for syntactic or phonological structures, a pragmatic analysis may need to be done under several different contextual constraints. After this sample has been recorded, the next step in natural sampling is analysis. Lund and Duchan (1983) suggest analysis of the following:

1. Physical Situation Analysis--This includes an examination for all references to events or objects either present or not present in the physical setting. This analysis gives information on children whose language appears to be context bound.

2. Topic Analysis for Sentences and Discourse--This analysis would provide information on children who appear to be having problems with maintaining topic in conversation and whose conversations are generally confusing. It can reveal what children are interested in talking about and the power children have in maintaining a topic through discourse.

3. Intentional Act Analysis--This includes each single communicative act made by the child, the behavior that accompanied it, and what occurred before or after the communicative act.

Natural language sampling is appropriate for all ages and can provide much information on all levels of language.

Lucas (1980) developed the Behavioral Inventory of Speech Acts Performance (BISAP) to evaluate the speech act production of children ages three to five. BISAP includes the assessment of eight commonly used speech acts: requests for objects, requests for action, assertions, denials, statements of information, calling, and rule orders. Different activities can be used to elicit these speech acts depending on the children's experience. These activities may include art projects, preschool academic tasks and infant caregiver tasks, such as taking a bath or eating a snack. During the activity, the examiner presents probes, comments, and questions designed to elicit the desired speech acts from children.

The Assessment of Communication in Every Situations (ACES) (Lieberman & Hutchinson, 1980) assesses communication competence in children ages four to eight years. This tool is based on Tough's (1976, 1977) taxonomy of language use and elicits spontaneous

language through role-playing of situations familiar to the child. On ACES, language use is categorized into seven uses and 36 strategies. The seven uses are Self-maintaining, Directing, Reporting, Logical Reasoning, Predicting, Projecting, and Imagining. ACES contains three alternate forms: The Birthday Party, The First Day of School, and The Picnic.

The Functional Inventory of Cognitive Communication Strategies (FICCS) (Lieberman, 1981) is also based on Tough's (1976, 1977) framework for the classification of the cognitive uses of language, including Reporting (Central Meaning), Logical Reasoning, Projecting, and Predicting. Using a structured interview format, which is meant to simulate the natural interaction between teacher and child, FICCS elicits children's strategies of language use through a series of six pictures which illustrate the story of Black Kitten Gets Lost (Tough, 1976, 1977). Each picture is accompanied by a series of eight questions and prompts such as "What do you think will happen to the Little Black Kitten?" to stimulate the child to use a wide variety of cognitive communication strategies. The strong storyline contains subject matter familiar to young children and allows them to interpret the pictures that are presented in sequence.

Wiig (1982) developed an assessment tool of functional language use called Let's Talk for pre-adolescents, adolescents, and young adults. It is based on Wells' (1978) taxonomy of communication functions, including: ritualizing, informing, controlling, and feeling. The tool probes children's ability to use these functions by asking them to form sentences that persons in different situations would likely say. These pictures show communication exchange between an adolescent and an authority figure and between two adolescents. Total scores for the four functions can be compared to each other or to the age-related criterion developed from the field test studies.

Language Use in the Language-Impaired

The functions of language expressed by the language-impaired have been studied by a number of investigators. The studies span the developmental period from infancy to school-age.

Snyder (1975, 1978) investigated the pragmatic abilities of 15 language-normal children and 15 language-impaired children at the one-word level of development. These children were matched according to socioeconomic status and utterance length and screened for cognitive development. The language-impaired subjects had a mean age of 24.2 months and

the language-normal subjects had a mean age of 14.9 months.

Snyder (1975, 1978) found that the older language-impaired children were deficient in their use of language even though they achieved the same developmental stage for utterance length. The language-impaired children gave significantly fewer verbal responses to the examiner, showing a preference for nonverbal over verbal responses. Instead of words, these children used grasping, reaching, and smiling to get the attention of the examiner. In general, the language-impaired generated fewer verbal and nonverbal attempts when compared to the younger language-normal children.

Rowan and Leonard (1980) replicated Snyder's (1975, 1978) work but controlled the experiment for knowledge of the required vocabulary. Their results showed no significant differences between the language-impaired and language-normal children in using words to express language functions.

Geller and Wollner (1976) investigated language use in three language-impaired children, ages three to five. Their mean length of utterance ranged from 1.1 to 1.6. These children were audiotaped in a preschool setting for analysis of language functions. When these results were compared to Dore's (1975) results

collected in a nursery school setting, it seemed that language-impaired children were deficient in language structure as well as language function.

Curtis, Prutting, and Lowell (1979) investigated the language use of a young hearing-impaired population that ranged in age from 22 to 60 months. They found that this population communicated intentions through verbal and nonverbal means with request/demands, descriptions, assertions, and responses all varying in frequency of occurrence with age. The mean length of utterance remained the same for all types of language use expressed by this population.

Fey, Leonard, Fey, and O'Connor (1978) and Ball and Cross (1981) investigated the language use of older language-impaired children by matching them with two groups of language-normal children. One group was matched on the basis of chronological age, and the other group was matched on the basis of linguistic level. The language-impaired group matched with the normal group for age showed fewer functions of language than did the normal group.

Lieberman (1981) studied the language use of language-normal and language-impaired children, ages six and seven years, using the Functional Inventory of Cognitive Communication Strategies. She found that

when these subjects were matched for chronological age, the normal group achieved superior scores on Logical Reasoning and Projecting strategies. When the subjects were matched for linguistic level, there were no significant differences between the groups, but the language-impaired children scored higher than their younger normal counterparts and several of these comparisons approached significance. These results suggested that language-impaired subjects could use language for a variety of language functions, even with impoverished systems of form and content.

Three patterns of language use can be inferred from these studies:

1. Some language-impaired children showed more restrictive use of language functions than their lexical and syntactic skills indicated. They were more deficient in language use than language content and form.

2. Other language-impaired children who exhibited an overall delay in language content, form and use showed language functions that were equal to their abilities in language content and form.

3. Still other language-impaired children exhibited normal language use, but were deficient in the areas of form and content.

Language Use in the Learning-Disabled

At the present time, there is little research regarding language use in the learning-disabled. Most studies of language use of these children focus on discourse devices rather than on mastery of language function. In 1982, however, Davis studied functional language use in learning-disabled children by comparing their pragmatic performance to that of normal children, ages 7-6 to 9-6, on the Assessment of Communication in Everyday Situations (Lieberman & Hutchinson, 1980). She found significant differences between these two groups on Logical Reasoning, Self-maintaining, and Projecting strategies. Her results indicated that learning-disabled children have difficulty with both the cognitive and social functions of language use.

Bryan and Bryan (1980) studied the use of discourse devices in young learning-disabled and nonlearning-disabled children. They found that learning-disabled children made more insulting remarks to their peers and were the targets of more insulting remarks from their peers. They concluded that the learning-disabled may be less sensitive to the rules of conversation, making their conversations more hostile and less cooperative than those of nonlearning-disabled children.

In another study by Bryan, Donahue, and Pearl (1981), learning-disabled children served as talk show hosts along with nonlearning-disabled children. Second and fourth graders were cast in the roles of talk show hosts with their classmates playing their guests. Videotapes made of the "talk show" indicated that learning-disabled children were just as cooperative as their classmates in conversational turn-taking. As the talk show host, learning-disabled children asked fewer questions than did the nonlearning-disabled host and learning-disabled children also asked less open-ended questions. As guests, learning-disabled children provided fewer elaborative responses to questions.

In another role-playing study, Wong and Wong (1981) found that third-grade learning-disabled girls performed substantially more poorly than other groups on social role-taking tasks enacting authority roles.

In a review of the studies of language use in learning-disabled children, Bryan, Donahue, and Pearl concluded that:

1. Learning-disabled children differed from nonlearning-disabled children in language use when the speaking situation was ambiguous or socially complex, and that under these circumstances, conversational breakdowns occurred frequently.

2. Learning-disabled children had more difficulty with pragmatic skills, such as responding to adequate messages, disagreeing, supporting an argument, and sustaining a conversation.

3. Compared to normal children, learning-disabled children were less able to adapt their speech to the needs of the listener.

Summary

Language is a representational system for interpersonal communication which consists of an organized set of symbols or sounds that when sequenced together express thoughts, intentions, experiences, and feelings (Nicolosi, 1978). The system may be divided into three components: content, form, and use. Content involves the meaning of language; form refers to structure; and use employs content and form in a wide variety of social situations. Language use may be further divided into two main areas, function and context (Bloom & Lahey, 1978). Function refers to the reasons why people communicate and context involves the influence of a specific social situation on communication.

Several functional classification systems have been devised as a way of classifying the development of children's communicative intentions. Piaget (1923) viewed language use in young children as egocentric or

socialized. Halliday (1978) developed a system based on the emerging language use of his young son, Nigel, which traced language use from infancy into adulthood. Dore's (1976) system was based on the distribution of speech acts in three- to five-year-olds in nursery school settings. In a system developed for older children, Tough (1976, 1977) described language use necessary for children to succeed in the classroom.

Few standardized measurements of language use are currently available. Many investigators (Lund & Duchan, 1983) suggest natural language sampling as the most effective strategy for collecting information on language use. Others have evaluated language use through role-playing (Lieberman & Hutchinson, 1980) and structured interviews (Lucas, 1980; Lieberman, 1981).

Studies of the language use of language-impaired children have demonstrated three patterns of language use. In one, children are deficient in all areas of language. In the second, they are deficient only in language use with normal form and content, while in the third, they are deficient in form and content, but normal in language use.

Of the few studies of language use on learning-disabled children, Davis (1982) found that these children had difficulty with both the cognitive and social strategies of Logical Reasoning, Self-maintaining, and

Projecting, while the work of Bryan et al. (1981) appeared to indicate problems with social strategies. The learning-disabled children whom they studied were less able to adapt to the needs of the listener and had more difficulty maintaining conversation.

Chapter III

METHODS AND PROCEDURES

Subjects

Two groups of 10 children each were identified as either language-impaired or learning-disabled on the basis of program placement. All children were from rural areas of Avery and Mecklenburg Counties and ranged in age from 6 years, 7 months to 8 years, 4 months. For a list of pertinent subject characteristics, see Tables 1 and 2.

The language-impaired and learning-disabled children were matched according to age (±6 months), intelligence quotient (±6 points), socioeconomic status, and achievement scores (±10 percentile points).

For the purposes of matching, Form A of the Test of Nonverbal Intelligence (TONI) (Brown, Sherbenou & Dollar, 1982) was used. This test measures intelligence without the use of language. On each item, an incomplete pattern is presented, and a geometric shape that completes the pattern must be selected. Raw scores may be converted to a TONI Quotient or an IQ score. The TONI was standardized in twenty-eight

Table 1

Subject Characteristics: Language-Impaired Group

Identification Number	Age	SES	Sex	CAT	TONI	TOLD
1	96	Free	Male	37	96	83
2	81	Free	Male	24	97	77
3	79	Free	Female	27	91	76
4	87	Reduced	Female	20	85	83
5	85	Full	Female	18	91	83
6	93	Free	Male	19	85	74
7	90	Reduced	Female	20	91	78
8	99	Free	Female	27	96	77
9	90	Full	Female	25	96	83
10	90	Free	Male	15	92	81
Range	79-99			15-37	85-97	74-83
Mean	89			23.20	92	79.50

KEY

SES = Socioeconomic Status

Full = Paying the full amount for lunch

Reduced = Paying for lunch at a reduced rate

Free = Receiving free lunch

CAT = California Achievement Test

TONI = Test of Nonverbal Intelligence

TOLD = Test of Language Development

Table 2

Subject Characteristics: Learning-Disabled Group

Identification Number	Age	SES	Sex	CAT	TONI
11	102	Free	Female	31	96
12	84	Free	Male	29	91
13	78	Free	Male	24	85
14	92	Reduced	Male	17	91
15	90	Full	Male	18	85
16	97	Free	Male	15	90
17	90	Reduced	Male	27	85
18	100	Full	Male	15	96
19	96	Full	Male	25	102
20	90	Free	Male	19	92
Range	78-102			15-31	85-102
Mean	91.90			22	91.30

KEY

SES = Socioeconomic status

Full = Paying the full amount for lunch

Reduced = Paying for lunch at a reduced rate

Free = Receiving free lunch

CAT = California Achievement Test

TONI = Test of Nonverbal Intelligence

states on 1,929 subjects who ranged in age from 5-0 to 85-11 years. Internal consistency was above .80 except for the five- and six-year-old groups. Construct validity was established with the Wechsler Intelligence Scale for Children--Revised (Wechsler, 1974) and yielded a high positive coefficient of correlation of .93.

The socioeconomic status of all children was determined by the method of payment for school lunch. Lunch in the public schools can be obtained in one of three ways: paying the full price, paying at a reduced rate, or receiving free lunch. This method of payment is based on family income. All children were matched according to method of payment.

In 1983, the California Achievement Test (CAT) (Tiegs & Clark, 1970) was administered to the language-impaired and learning-disabled children in this study by their regular teachers in a classroom setting. On the basis of overall reading scores achieved on the CAT, children from the language-impaired group were matched with children from the learning-disabled group. The California Achievement Test (Tiegs & Clark, 1970) was standardized on more than 50,000 children, ranging in age from six to nine years, from fifty states. The coefficient of reliability for the Reading section is .95.

Language-Impaired Group

For the purpose of this study, the term language-impaired was defined as a

> . . . disability in verbal learning (language disorder) resulting in markedly impaired ability to acquire, use or comprehend spoken or written language where no significant degree of sensory or motor incapacity, mental retardation, emotional handicap or environmental disadvantage is present as the primary disabling condition. (Rules Governing Programs and Services for Children with Special Needs, 1981, p. 3)

Subjects were selected for this group on the basis of subaverage performance (≤85) on the Test of Language Development (Newcomer & Hammill, 1977) and the clinical judgment of a certified speech and language pathologist.

The Test of Language Development (TOLD) (Newcomer & Hammill, 1977) is a measure of language ability designed to identify children who have significant problems with receptive and expressive language. All subjects in the language-impaired group had received this test as part of a routine diagnostic placement procedure in their individual schools, except for one female subject who was tested by the examiner. The

TOLD was standardized on 1,014 children in 15 states. The internal consistency of the TOLD exceeded .80 except for the Oral Vocabulary section, which is .63. The construct validity of the Oral Vocabulary section correlates highly with the Peabody Picture Vocabulary Test (Dunn, 1965) with a coefficient of .81.

Learning-Disabled Group

For the purpose of this study, a child with a specific learning disability was:

> . . . one who had a severe discrepancy between ability and achievement determined by a multidisciplinary team not to be achieving commensurate with his/her age and ability levels in one or more of the following areas: oral expression, listening, comprehension, written expression, basic reading skill, reading comprehension, mathematical calculation, or mathematical reasoning. The team does not include pupils whose severe discrepancy between ability and achievement is primarily the result of a visual, hearing, or motor handicap, mental retardation, emotional disturbance, or environmental, or economic disadvantage. (Rules Governing Programs and Services for Children with Special Needs, 1981, p. 3)

Children in the learning-disabled group were identified by a multidisciplinary team and placed in the learning disabilities program in their respective schools. The formula for placement is included in Appendix A.

Materials

The instrument used in this study was the Functional Inventory of Cognitive Communication Strategies (Lieberman, 1981), which is based on Tough's (1976, 1977) framework for the classification of the cognitive uses of language. This inventory evaluates four categories of language use: Reporting, which refers to the use of language to provide information about past and present experiences (Tough, 1976, 1977; Lieberman, 1981); Logical Reasoning, which refers to the use of language which employs rational thought and argument to interpret experiences (Tough, 1976, 1977; Lieberman, 1981); Projecting, which refers to the use of language within an unfamiliar or external context (Tough, 1976, 1977; Lieberman, 1981); Predicting, which refers to the use of language to extend communication beyond immediate present or past experiences to events that have not yet occurred and which may never take place (Tough, 1976, 1977; Lieberman, 1981). Using a structured interview format, FICCS enables children to demonstrate the use of a wide variety of

cognitive communication strategies in response to a set of six pictures which illustrate the storyline of the Black Kitten Gets Lost (Tough, 1976). Accompanying each picture in the set are eight questions and prompts which the examiner presents to the child. A training set of questions and prompts also was developed to accompany the picture Dad Forgets His Lunch (Tough, 1976) for the purpose of modeling and practice. Both sets of questions and pictures are found in Appendix B.

Procedures

A complete language sample was obtained from each child using the protocol found in Appendix B. The sample was collected in a quiet room with only the clinician and the child present. The same clinician collected all samples.

The samples were recorded using a Realistic, Model CTR-51 portable tape recorder with a Realistic, Model MC-1000, omnidirectional microphone. Total recording time ranged between 14 and 28 minutes per child.

Following a two- to four-minute period of informal conversation, the clinician presented to each child a practice set of three questions accompanying the picture entitled Dad Forgets His Lunch (Tough, 1976). To be included in this study, each child was

required to respond to two of the three practice questions. When a child did not respond after a 10-second interval following the clinician's stimulus, prompts were administered. Prompts were also administered when a child responded with "I don't know" or gave an unintelligible response. Each child was encouraged to give as much information as possible to the clinician about each picture. As the child responded to each question, the clinician encouraged the child with head nods and acknowledgements.

After the collection was completed, the sample was transcribed from the audiotape by the clinician within one week of the sample date.

Analysis of the Sample

Each response in the sample was analyzed according to a four-point scale developed by Barrie-Blackley (1981). This scale measures efficiency and effectiveness of children's language use in each of the following areas: Reporting (Central Meaning), Logical Reasoning, Projecting, and Predicting. For Central Meaning, strategies were elicited from the child by asking questions such as: "What do you think is happening here?" and "Tell me about this picture." Responses were given a rating of zero through three, with zero representing no interpretation of the picture in terms of central meaning,

and three, a response that gives the central, most important meaning.

On Logical Reasoning, strategies were elicited by questions such as: "Why is he doing that?" and "How come _____?" Each response was given a rating from zero through three, with zero representing no explanation or reason provided by the child, and three, a response that provides the most sensible explanation.

Projecting strategies were elicited by asking questions concerning feelings and thoughts such as: "How does the lady feel?" Projecting responses received a rating from zero through three, with zero representing no projection of feeling, and three, the most likely projection of feelings.

The strategies of Predicting were stimulated through questions such as: "What will happen next?" These responses received a rating from zero through three, with zero representing no prediction of outcome, and three, the prediction of the most likely outcome. For a complete description of this scoring system, see Appendix D.

From this analysis, the clinician computed the frequency of use for each category by calculating the scores obtained in response to each question. Each of the four language uses on FICCS could occur 12 times, for a total possible score of 36. These scores were

used to obtain cognitive communication information for individual children as well as for group comparison.

To avoid research bias, each individual child was given a number before the language sample was analyzed. The examiner did not know the name or group of any subject during the language sample analysis.

Intra- and inter-reliability of FICCS was established by two examiners who scored and rescored four tests selected at random.

Chapter IV

RESULTS AND ANALYSIS

Results

The individual raw scores, means, standard deviations, and ranges of performance on FICCS are presented in Tables 3 and 4.

The overall performance on FICCS for the LI group ranged between 100 and 124, with a mean of 114.70 and a standard deviation of 7.83. When the overall scores were further subdivided into the cognitive communication strategies of Central Meaning, Logical Reasoning, Projecting, and Predicting, results were as follows: On Central Meaning, the range was between 20 and 31, with a mean of 25.40 and a standard deviation of 2.91. On Logical Reasoning, the range was between 26 and 34, with a mean of 29.90 and a standard deviation of 2.68. On Projecting, the range was between 22 and 33, with a mean of 28.70 and a standard deviation of 3.40. On Predicting, the range was between 27 and 33, with a mean of 30.70 and a standard deviation of 1.70.

The overall performance on FICCS for the LD group ranged between 94 and 127, with a mean of 110.90 and a

Table 3

Raw Scores on FICCS: Language-Impaired Group

Subjects	Overall	CM	LR	PJ	PD
1	118	26	30	31	31
2	114	20	30	31	31
3	100	25	26	22	27
4	103	23	26	25	29
5	121	28	32	30	31
6	122	31	31	29	31
7	124	26	34	32	32
8	113	26	31	26	30
9	117	25	31	29	32
10	115	24	27	33	31
Range	100-124	20-31	26-34	22-33	27-33
Mean	114.70	25.40	29.90	28.70	30.70
Standard Deviation	7.83	2.91	2.68	3.40	1.70

KEY

CM = Central Meaning

LR = Logical Reasoning

PJ = Projecting

PD = Predicting

Table 4

Raw Scores on FICCS: Learning-Disabled Group

Subjects	Overall	CM	LR	PJ	PD
11	127	28	34	33	32
12	110	26	31	27	26
13	97	20	25	25	27
14	94	25	29	18	22
15	120	30	32	28	30
16	113	28	28	28	29
17	117	26	32	28	29
18	123	26	31	33	33
19	110	28	26	26	30
20	98	19	27	28	24
Range	94-127	19-30	25-34	18-33	22-33
Mean	110.90	25.60	29.50	27.40	28.40
Standard Deviation	11.43	3.52	2.95	4.22	3.56

KEY

CM = Central Meaning

LR = Logical Reasoning

PJ = Projecting

PD = Predicting

standard deviation of 11.43. When this overall score was further subdivided into the cognitive communication strategies, scores were as follows: On Central Meaning, the range was between 19 and 30, with a mean of 25.60 and a standard deviation of 3.52. On Logical Reasoning, the range was between 25 and 34, with a mean score of 29.50 and a standard deviation of 2.95. On Projecting, the range was between 18 and 33, with a mean score of 27.40 and a standard deviation of 4.22. On Predicting, the range was between 22 and 33, with a mean of 28.40 and a standard deviation of 3.56.

Analysis of Data

In order to test Null Hypothesis 1, the data were submitted to a two-tailed *t*-test and the results are shown in Table 5. The data revealed no significant difference between the groups' overall performance on FICCS ($t = 0.87$, $p = .40$). Therefore, Null Hypothesis 1 was not rejected.

In order to test Null Hypothesis 2, the data were submitted to a two-tailed *t*-test and revealed no significant difference between the groups on the use of Central Meaning ($t = -0.14$, $p = 0.89$). Null Hypothesis 2 was not rejected.

In order to test Null Hypothesis 3, the data were submitted to a two-tailed *t*-test, revealing no significant difference between the groups on the use of

Table 5

Summary of Performance on Functional Inventory of Cognitive Communication Strategies by Language-Impaired (LI) and Learning-Disabled (LD) Groups

	LI		LD			
	$\bar{X}$	SD	$\bar{X}$	SD	t-value	p-value
Overall	114.70	7.83	110.90	11.43	0.87	0.40
Central Meaning	25.40	2.91	25.60	3.53	-0.14	0.89
Logical Reasoning	29.90	2.68	29.50	2.95	0.32	0.75
Projecting	28.70	3.40	27.40	4.22	0.76	0.46
Predicting	30.70	1.70	28.40	3.56	1.84	0.09

Logical Reasoning (t = 0.32, p = 0.75). Therefore, Null Hypothesis 3 was not rejected.

In order to test Null Hypothesis 4, the data were submitted to a two-tailed t-test and the results revealed no significant difference between the groups on the use of Projecting (t = 0.76, p = 0.46). Therefore, Null Hypothesis 4 was not rejected.

In order to test Null Hypothesis 5, the data were submitted to a two-tailed t-test, and although the results revealed no significant difference between the groups on the use of Predicting (t = 1.84, p = .09), the difference approached significance. On the basis of the data analysis, Null Hypothesis 5 was not rejected.

A post hoc analysis was carried out to determine the proportion of language-impaired and learning-disabled children who scored above or below a predetermined criterion for language use. Using Bloom's (1978) recommendation, children who received a score of three on a particular aspect of language use at least five times were assumed to have mastered that use. The results of this analysis are included in Tables 6 and 7 and revealed that 80 percent of the language-impaired children had mastered the strategies of Central Meaning, Logical Reasoning, and Predicting, and 70 percent had mastered Projecting. In the

Table 6

Summary of Criterion-Referenced Performance on FICCS for the Language-Impaired Group

Subjects	CM	LR	PJ	PD
1	+	+	+	+
2	+	+	-	+
3	-	-	-	+
4	-	-	+	+
5	+	+	+	+
6	+	+	+	+
7	+	+	+	-
8	+	+	-	+
9	+	+	+	-
10	+	+	+	+
Percent Achieving Criterion	80	80	70	80

+ = Achieved a score of three at least five times.

- = Did not achieve a score of three at least five times.

CM = Central Meaning

LR = Logical Reasoning

PJ = Projecting

PD = Predicting

Table 7

Summary of Criterion-Referenced Performance on FICCS for the Learning-Disabled Group

Subjects	CM	LR	PJ	PD
11	+	+	+	-
12	+	+	-	-
13	+	-	+	-
14	-	+	-	-
15	+	+	+	-
16	+	-	+	+
17	-	+	+	+
18	+	+	+	+
19	+	+	+	+
20	-	+	+	-
Percent Achieving Criterion	70	80	80	40

+ = Achieved a score of three at least five times.

- = Did not achieve a score of three at least five times.

CM = Central Meaning

LR = Logical Reasoning

PJ = Projecting

PD = Predicting

learning-diabled group, 80 percent of the children had mastered Logical Reasoning and Projecting, 70 percent had mastered Central Meaning, and only 40 percent had mastered Predicting. The greatest discrepancy between performance of these two groups resulted from the Predicting strategies, with the learning-disabled group scoring much more poorly.

In summary, the language-impaired and learning-disabled groups showed no significant difference in overall performance on FICCS, and no significant difference in the use of the four types of cognitive communication strategies of Central Meaning, Logical Reasoning, Projecting, and Predicting. The difference between the groups, however, approached significance on Predicting strategies, with the LD group showing more variation around the mean than the language-impaired group.

Reliability

Two measures of reliability were used in this study to determine the consistency of measurement associated with FICCS.

Intra-rater Reliability

Intra-rater reliability refers to the extent to which a rater achieves the same scores on two separate occasions. Four language samples were selected at random to establish intra-rater reliability. These

four samples were rescored using a point-by-point percentage of agreement formula:

$$\frac{\text{Number of Agreements}}{\text{Number of Agreements + Disagreements}} \times 100$$

The results of this analysis produced the following percentages of agreement for these four samples: 85, 96, 94, and 94. The mean of the overall intra-rater reliability index was 93, which indicates a high degree of scoring reliability by a single rater.

Inter-rater Reliability

Inter-rater reliability refers to the extent to which different raters agree in classifying the same behaviors. An inter-rater reliability index for FICCS was established between two raters for three samples. The results yielded the following percentages of agreement: 82, 87, and 92. The mean overall inter-rater reliability index was 87, which indicates a high degree of scoring consistency between two raters.

Chapter V

SUMMARY, DISCUSSION, AND RECOMMENDATIONS

Summary

The purpose of this study was to compare the language use of language-impaired children and learning-disabled children on the Functional Inventory of Cognitive Communication Strategies (FICCS) (Lieberman, 1981). More specifically, answers to the following questions were sought:

1. Is there a significant difference in overall language use in the language-impaired and the learning-disabled groups as measured by FICCS?

2. Is there a significant difference between these two groups in the use of specific cognitive communication strategies of Central Meaning, Logical Reasoning, Projecting, and Predicting?

The sample included 20 children, ages 6, 7, and 8, who were placed into two groups of 10 children each, a language-impaired group and a learning-disabled group. Children from the language-impaired group were matched with children from the learning-disabled group according to age (±6 months),

intelligence quotient (±6 points), socioeconomic status, and achievement test scores (±10 points). Children were included in the language-impaired group on the basis of subaverage performance (≤85) on the Test of Language Development (TOLD) (Newcomer & Hammill, 1977) and the clinical judgment of a certified speech pathologist.

The Functional Inventory of Cognitive Communication Strategies (Lieberman, 1981), a structured interview of language use, was administered to each child in approximately 20 minutes by a single examiner. FICCS is based on Tough's (1976, 1977) functional taxonomy of language use and measures the ability to use the cognitive communication strategies of Reporting (Central Meaning), Logical Reasoning, Projecting, and Predicting. On FICCS, children respond to a series of questions and comments which accompany the storyline of the Black Kitten Gets Lost (Tough, 1976). Responses were tape recorded and scored at a later time using a four-point scale devised by Barrie-Blackley (1982). The scale ranges from zero to three, with a zero being awarded for no response or no interpretation of the question and three being awarded for the most appropriate answer.

The data were submitted to five individual *t*-tests and tested at the .05 level of significance.

Results indicated that there was no significant difference between the two groups on overall performance on FICCS. When overall performance was reanalyzed by the major use categories of Central Meaning, Logical Reasoning, Projecting, and Predicting, there were still no significant differences between the groups. A post hoc analysis, using a predetermined criterion of mastery (five answers achieving a score of three) within the major use categories revealed that 70 to 80 percent of the children in both groups had mastered the use of each category with the exception of the Predicting strategies of the LD group. On this category, only 40 percent of the children had achieved mastery.

Discussion

Analysis of the data revealed that language-impaired children are similar to learning-disabled children in language use. The only use on FICCS that approached a significant difference ($p = .09$) was Predicting, with the learning-disabled children evidencing more difficulty on this use than language-impaired children.

A post hoc analysis revealed that only 40 percent of the learning-disabled group had mastered the use of Predicting strategies in comparison to 80 percent of the language-impaired group. These strategies

involve anticipating possible outcomes of a variety of situations. Because Predicting requires consideration of events that have not yet taken place or may never take place, it is removed from the immediate situation and involves more abstract thinking. For this reason, learning-disabled children may have had more difficulty with Predicting.

The results of the present study are not in agreement with those observed by Davis (1982) or Lieberman (1981). In comparing learning-disabled to normally-achieving children, Davis (1982) found differences between these groups on Self-maintaining, Logical Reasoning, and Projecting strategies. In a study of language-impaired and normal children, Lieberman (1981) found significant differences between the groups in the use of Projecting strategies. According to Tough (1976, 1977), the strategies of Logical Reasoning, Predicting, and Projecting develop later in children than those of Self-maintaining, Directing, and some aspects of Reporting. By considering the results of all three studies together, we may be seeing a trend toward increased difficulty of the use of later-emerging strategies in language-impaired and learning-disabled children. Since the present study did not include a normal group, these comparisons must be interpreted with caution.

The results of the present study on language use were also not in accord with Moore (1983). Moore noted similar language disabilities of content and form in language-impaired and learning-disabled children with language-impaired children exhibiting greater syntactic deficits. The present study indicated that with the exception of the use of Predicting strategies by the learning-disabled group, neither group appeared to have any difficulty with language use in response to a structured interview. Since language use appeared to be a strength of these children, it might be possible to work through this ability to improve other linguistic deficiencies should they be present. The learning-disabled children in this particular study were not receiving the services of a speech and language clinician during the time of this investigation. The results of the present investigation, and those of Davis (1982) and Moore (1983), suggest that a routine language evaluation be part of every diagnostic placement procedure carried out on learning-disabled children, so that subtle as well as more serious language problems in this population can be identified and treated. Because many children in the public schools are served by both speech and language clinicians and learning disabilities specialists, ways need to be found to integrate the

services of these two professionals to best serve language-impaired and learning-disabled children.

Recommendations for Further Research

The following suggestions are made for future research as a result of the present study:

1. This study should be replicated on larger samples of language-impaired, learning-disabled, and language-normal children in order to corroborate present findings. Results should be analyzed including and excluding prompted responses.

2. Additional studies should be undertaken using children who have been identified as both language-impaired and learning-disabled.

3. The relationship of academic success to overall performance on FICCS should be investigated.

4. To make the analysis less subjective, Barrie-Blackley's (1982) method of scoring needs to be revised to include several examples of utterances representative of each score.

5. Other protocols for assessing language use such as role-playing and structured interactions should be attempted with language-impaired, learning-disabled, and language-normal children.

6. The conversational competence as well as the communicative strategies of these children should be investigated.

REFERENCES

REFERENCES

Ball, J., & Cross, F. Formal and pragmatic factors in childhood autism and aphasia. Paper presented at Symposium on Research in Child Language Disorders. Madison, Wisconsin, 1981.

Barrie-Blackley, S. Guidelines for rating Tough's categories of language function (unpublished), 1982.

Bates, E. Language and content. New York: Academic Press, 1976.

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

Brown, L., Sherbenou, R., & Dollar, S. The Test of Nonverbal Intelligence. Austin: Pro-Ed, 1982.

Bruner, J. S. From communication to language: A psychological perspective. Cognition, 1974, 3, 225-287.

Bryan, T., & Bryan, S. Understanding learning disabilities. Sherman Oaks, Calif.: Alfred, 1978.

Bryan, T., Donahue, M., & Pearl, R. Learning disabled children: Peer interactions during small group problem solving tasks. Learning Disability Quarterly, 1981, 4, 3-22.

Bryan, T., Donahue, M., & Pearl, R. Learning disabled children's conversation skills: The talk show study. Learning Disability Quarterly, 1978, 1, 70-79.

Curtiss, S., Prutting, C., & Lovell, E. L. Pragmatic and semantic development in young children with impaired hearing. Journal of Speech and Hearing Research, 1979, 22, 534-552.

Davis, A. Language use in normal and learning disabled children. Unpublished educational specialist's Master's thesis, Appalachian State University, 1982.

Dore, J. Children's illocutionary acts. In Freedle, J. (Ed.). Discourse Comprehension and Production. New Jersey: Lawrence Eribuum Associates, 1976.

Dunn, L. M. Peabody Picture Vocabulary Test. Circle Pines, Minn.: American Guidance Services, 1965.

Fey, M., Leonard, L., Fey, S., & O'Connor, K. The intent to communicate in language-impaired children. Paper presented at Third Annual Boston University Conference on Language Disorders and Development, Boston, Mass., 1978.

Fey, M., Leonard, L., & Wilcox, K. Discourse devices in language impaired children. Journal of Speech and Hearing Disorders, 1981, 46, 91-97.

Gallagher, T., & Prutting, A. Pragmatic assessment and intervention issues in language. San Diego: College Hill Press, 1983.

Gerber, A., & Bryan, D. N. Language and learning disabilities. Baltimore: University Park Press, 1981.

Halliday, M. A. Language as social semiotic. Baltimore: University Park Press, 1978.

Lerner, J. Learning disabilities: Theories, diagnostics, and teaching strategies. Dallas: Houghton-Mifflin Co., 1971.

Lieberman, R. J. The influence of language abilities, age and socioeconomic status on language use. Unpublished doctoral dissertation, University of Florida, 1981.

Lieberman, R. J., & Hutchinson, E. The Assessment of Communication in Everyday Situations. Unpublished, 1980.

Lucas, E. Semantic and pragmatic language disorders. Rockville, Md.: Aspen Systems Corporation, 1980.

Lund, J. E., & Duchan, J. Assessing children's language in naturalistic contexts. Englewood Cliffs, N.J.: Prentice-Hall, 1983.

McLean, J., & McLean, L. A transactional approach to early language training. Columbus, Ohio: Charles Merrill, 1978.

Moore, S. Language abilities of language impaired and learning disabled children. Unpublished Master's thesis, Appalachian State University, 1983.

Newcomer, P., & Hammill, D. The Test of Language Development. Austin: Empiric Press, 1977.

Nicolosi, L., Harryman, F., & Kresheck, J. Terminology of communication disorders. Baltimore: Williams & Wilkins, 1978.

Piaget, J. The language and thought of the child. New York: Harcourt, Brace and World, 1923.

Rees, M. Pragmatics of language. In R. L. Schiefelbush (Ed.). Bases of Language Intervention. Baltimore: University Park Press, 1978, 191-268.

Rowan, L., & Leonard, L. Performative and presuppositional skills in language disordered and normal children. Paper presented to American Speech-Language-Hearing Association, Los Anagles, Calif., 1981.

Snyder, L. S. Pragmatics in language disabled children: Their prelinguistic and early verbal performatives and presuppositions. Unpublished doctoral dissertation, University of Colorado, 1975.

Tiegs, E., & Clark, W. The California Achievement Test. Los Angeles Test Bureau, 1970.

Tough, J. Listening to children talking. London: Ward Lock Educational, 1976.

Tough, J. The development of meaning. New York: John Wiley & Sons, 1977.

Wiig, C. Let's talk. Baltimore: University Park Press, 1982.

Wiig, E. H., & Semel, E. M. Language assessment and intervention for the learning disabled. Columbus, Ohio: Charles Merrill Publishing Co., 1980.

Wollner, S. G., & Geller, E. How to evaluate communication in a somewhat pragmatic way. Paper presented at the ASHA Convention, Houston, 1976.

Wong, E., & Wong, W. Roleplaying in learning disabled children. Learning Disabilities Quarterly, 1981, 4, 50-63.

Wood, Barbara. Children and communication. 2nd ed.; Englewood Cliffs, N.J.: Prentice Hall, 1981.

APPENDIX A

FORMULA FOR LEARNING DISABILITY PLACEMENT

APPENDIX A

FORMULA FOR LEARNING DISABILITY PLACEMENT

Step 1: *What is the pupil's current intellectual function?*

An individually administered, norm-relevant intelligence test shall be administered to all potential specific learning disability pupils (screening tests of intelligence are excluded from use, i.e., Slosson Intelligence Test and PPVT).

Step 2: *Calculate the expected grade level functioning based upon the results of an intelligence test.*

(a) Obtain the intelligence test score.

(b) Obtain the student's chronological age.

(c) Substitute that information into the following formula:

$$\frac{IQ}{100} \times (CA - 5.5) = \text{Expected Grade Achievement}$$

Step 3: *Determine the amount of discrepancy from expected academic performance and current academic performance.*

(a) Obtain current achievement test scores in any of the achievement areas under consideration.

(b) Subtract the Expected Grade Achievement Score from the Current Grade Achievement Score.

(c) Compare the difference score to the Degree of Severity Index utilizing the student's current grade placement.

(d) Define the pupil's achievement level as falling within the Mild, Moderate, or Severe level of discrepancy, as follows:

MILD	--In Kindergarten, at Grade Level to 6 months behind
	--In Grade 1; At Grade 1; At Grade Level to 10 months behind.
	--In Grades 2 and 3: At Grade Level to 10 months behind.
MODERATE	--In Kindergarten: 6 to 10 months behind
	--In Grade 1: 8 to 15 months behind
	--In Grades 2 and 3: 10 to 20 months behind
SEVERE	--In Kindergarten: 10 or more months behind
	--In Grade 1: 15 or more months behind
	--In Grades 2 and 3: 20 or more months behind

APPENDIX B

THE FUNCTIONAL INVENTORY OF COGNITIVE COMMUNICATION STRATEGIES (LIEBERMAN, 1981)

I. Presentation

A. Elicitor--Language Clinician

B. Materials

1. Practice stimuli--"Dad Forgets His Lunch," #1

2. Sample stimuli--"Black Kitten Gets Lost," #1, 2, 3, 4, 5, 6

C. Practice and Sample Statements--see below

II. Pre-elicitation Activities

A. Rapport building (Engage the child in informal conversation for two minutes.)

B. Instructions and Modeling

SAY: "I'D LIKE YOU TO TELL ME SOME STORIES. I'M GOING TO SHOW YOU SOME PICTURES AND I'D LIKE YOU TO MAKE UP A STORY FOR EACH PICTURE. BUT FIRST LET ME SHOW YOU HOW TO DO IT." (Present "Dad Forgets His Lunch," Picture #1.)

Set 1: SAY: SUPPOSE I ASKED YOU TO TELL ME ALL ABOUT THIS PICTURE. YOU MIGHT SAY, IT LOOKS LIKE MOM HAS MADE SOME SANDWICHES FOR LUNCH AND DAD HAS GONE OFF AND FORGOTTEN THEM.

Set 2: THEN SUPPOSE I ASKED YOU, WHAT IS THE MAN DOING HERE? (Point to man in picture.) YOU MIGHT SAY, HE'S GOING TO WORK. AND SUPPOSE I SAID, WHY IS HE DOING THAT? YOU MIGHT SAY, SO HE CAN EARN SOME MONEY FOR HIS FAMILY.

Set 3: AND THEN SUPPOSE I SAID, HOW DO YOU THINK MOM (Point to woman in picture) FEELS. YOU MIGHT SAY, SHE FEELS VERY SAD CAUSE DAD HAS FORGOTTEN HIS LUNCH.

C. Practice

1. Say: NOW YOU TRY SOME.

2. Follow elicitation procedure for practice and sample items.

III. Elicitation

A. Present practice and stimulus pictures, one at a time.

1. Ask first question of each set (see below).

2. Ask alternate question of each set if:

a. Child emits a response which is more than 50 percent unintelligible.

b. Child emits a response such as "I don't know."

c. A ten-second pause is observed.

3. Continue until child responds to all three questions for the practice picture and all eight questions for each sample picture.

B. Practice Statements

Set 4: (a) WHAT DO YOU THINK THE BOY IS SHOUTING?

(b) IF YOU WERE THE BOY, WHAT WOULD YOU SHOUT?

Set 5: (a) CAN THE BOY MAKE DAD HEAR HIM? WHY DO/DON'T YOU THINK SO?

(b) DOES DAD HEAR THE BOY? WHY DO/DON'T YOU THINK HE HEARS HIM?

Set 6: (a) WHAT DO YOU THINK THE CHILDREN WILL DO NOW?

(b) WILL THE CHILDREN TRY TO CATCH THEIR DAD? HOW WILL THEY DO IT?

SUMMARY: SO IT LOOKS LIKE MOM IS UPSET BECAUSE DAD HAS GONE OFF TO WORK AND FORGOTTEN HIS SANDWICHES.

C. Sample Statements

NOW, LET'S LOOK AT SOME MORE PICTURES.

THE BLACK KITTEN GETS LOST

Picture I

Set 1	a.	Tell me all about this picture.
	b.	What do you think is happening here?
Set 2	a.	What do you think is wrong here? Why do you think that?
	b.	What are the kittens doing? I wonder why they're doing that?
Set 3	a.	What else do you think is wrong here? Why do you think that?
	b.	What else are the kittens doing? I wonder why they're doing that?
Set 4	a.	How do you think the lady feels? Why do you think that?
	b.	Do you think the lady is mad? Why is she mad?
Set 5	a.	What will the lady do now?
	b.	If this were you, what would you do?
Set 6	a.	What do you think the mother cat is thinking?
	b.	If you were the mother cat, what would you be thinking?
Set 7	a.	Tell me about something that you did that made your mother mad.
	b.	Have you ever made your mother mad? What did you do?
Set 8	a.	Let's look at the picture again. What do you think is going to happen next? Why do you think that?
	b.	What do you think the black kitten is going to do now? Why do you think that?

SUMMARY: So, it looks like the lady is upset because the kittens have made such a mess. They have spilled the milk, eaten the hot dogs and ruined her knitting. And during all the confusion, the little black kitten has wandered, unnoticed, out the back door.

Picture II

Set 1 a. Tell me all about this picture.

b. What do you think is happening here?

Set 2 a. What do you think is wrong here? Why do you think that?

b. What is happening to the little black kitten now?

Set 3 a. Tell me all about the road in this picture.

b. What kind of road are the dog and the little black kitten coming to? Why do you think that?

Set 4 a. What kinds of things might happen when there's a lot of traffic on the road? Anything else?

b. Have you ever seen a busy road like the one in the picture? Tell me about it.

Set 5 a. How do you think the little black kitten feels? Why do you think so?

b. Do you think the little black kitten is frightened? Why?

Set 6 a. What do you think the dog is thinking?

b. If you were the dog, what would you be thinking?

Set 7 a. What will the little black kitten do now? Why?

b. If you were the little black kitten, what would you do? Why?

Set 8 a. What do you think is going to happen next? Why do you think that?

b. What will happen to the little black kitten now? Why do you think that?

SUMMARY: So, a big dog is chasing the little black kitten towards a busy road. If the kitten runs onto the road, he might get run over.

Picture III

Set 1 a. Tell me all about this picture.

b. What do you think black kitten is doing now?

Set 2 a. What do you think is wrong here? Why do you think that?

b. What will happen if the black kitten keeps running? Why do you think that?

Set 3 a. What do you think the boy in the bus is thinking?

b. If you were the boy in the bus, what would you be thinking?

Set 4 a. What do you think the man in the truck is thinking?

b. If you were the man in the truck, what would you be thinking?

Set 5 a. What do you think the little black kitten is thinking?

b. If you were the little black kitten, what would you be thinking?

Set 6 a. What should you do when you come to a busy road? Why?

b. What's the best way to cross a busy road?

Set 7 a. Tell me about a trip that you took in a car or a bus.

b. Have you ever traveled anywhere by car or by bus? Tell me about your trip.

Set 8 a. What do you think is going to happen next? Why do you think that?

b. What do you think will happen to black kitten now? Why?

SUMMARY: Black kitten has reached the main road safely but now it looks like he might be in danger from the traffic.

Picture IV

Set 1 a. Tell me all about this picture.

b. Now, what do you think is happening?

Set 2 a. What is the man going to do? Why is he going to do that?

b. Is the man going to pick black kitten up? Why is he going to do that?

Set 3 a. Is it a good thing that the man has stopped? Why do you think so?

b. What might happen to black kitten if no one picked him up? Anything else?

Set 4 a. What do you think the man is saying to black kitten?

b. If you were the man, what would you say to black kitten?

Set 5 a. What do you think black kitten is thinking?

b. If you were black kitten, what would you be thinking?

Set 6 a. Tell me about a time you got lost.

b. Have you ever been lost? What happened?

Set 7 a. Let's look at the picture again. What kind of work do you think the man does? How do you know?

b. Do you think the man might be a window cleaner? Why do you think so?

Set 8 a. What do you think the man will do now? Why do you think that?

b. Where will the man take black kitten now? Why do you think that?

SUMMARY: The man has stopped his van to take care of the little black kitten because the kitten seems to be lost.

Picture V

Set 1 a. Tell me all about this picture.

b. What do you think is happening here?

Set 2 a. What is the man doing here? Why is he doing that?

b. Where has the man brought the kitten? Why do you think he did that?

Set 3 a. How do you think the children feel? Why do you think so?

b. Do you think the children are happy? Why do you think so?

Set 4 a. How do you think the mother feels? Why do you think that?

b. Do you think the mother is pleased? Why or why not?

Set 5 a. What do you think the mother will say? Why do you think that?

b. What would your mother say if you brought a lost kitten home? Why would she say that?

Set 6 a. What do you think the children will do now?

b. How will the children take care of black kitten now?

Set 7 a. What would you do if someone brought a lost animal to your house? Anything else?

b. Did you ever find a lost animal and bring it home to your family? What happened?

Set 8 a. What do you think will happen next? Why do you think that?

b. Do you think the black kitten will stay with the family? Why do you think that?

SUMMARY: The man has brought the kitten home to his family and all the children are happy to see him.

Picture VI

Set 1 a. Tell me all about this picture.

b. What do you think is happening here?

Set 2 a. What is everybody doing here?

b. What is/are the little black kitten (children, mother) doing now?

Set 3 a. What do you think the little girl is thinking now?

b. If you were the little girl, what would you be thinking?

Set 4 a. Tell me about the lady coming up the path.

b. What is the lady coming up the path doing?

Set 5 a. What will the lady say to the family?

b. If you were the lady, what would you say to the family?

Set 6 a. What do you think the black kitten will want to do? Why do you think that?

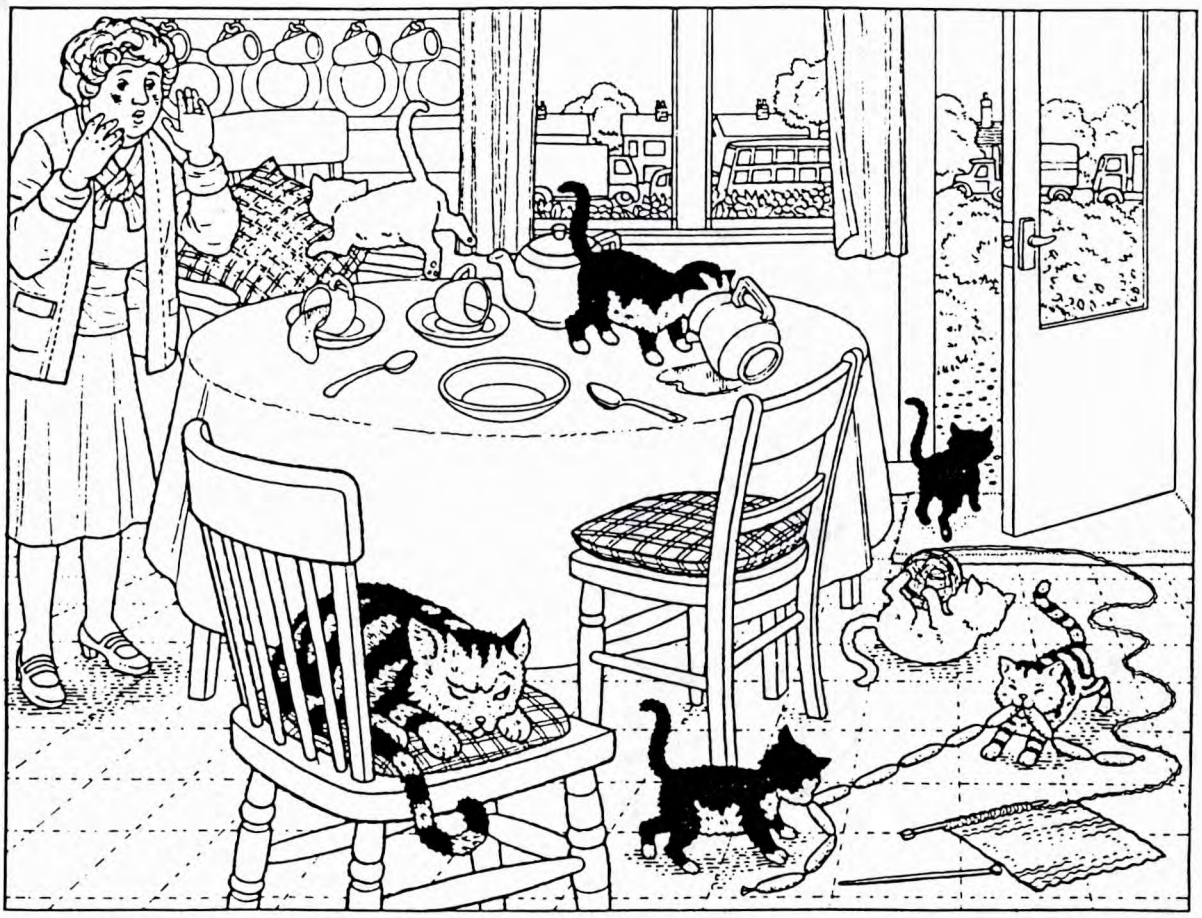
b. If you were the black kitten, what would you want to do?

Set 7 a. How would you take care of a kitten if you had one?

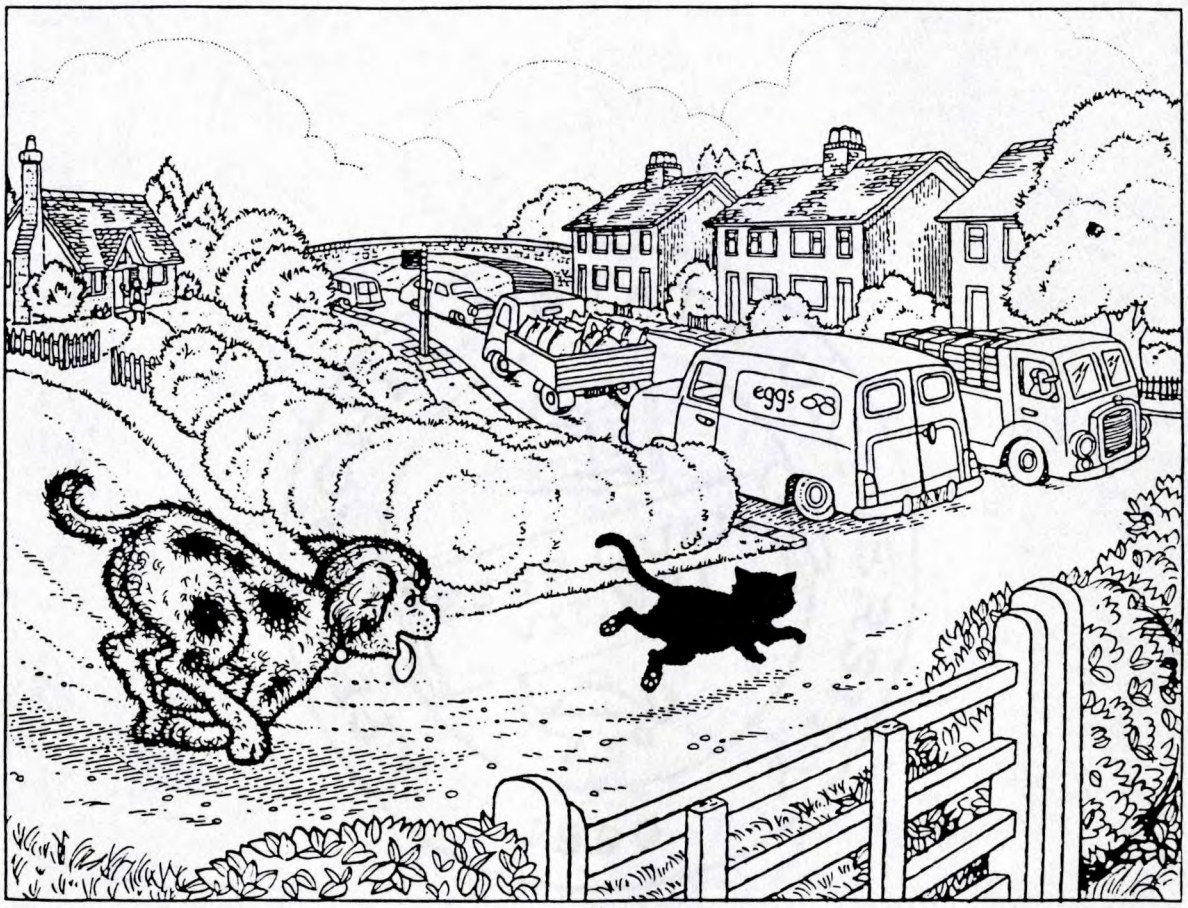
b. What kinds of things do you need to do to take care of a kitten?

APPENDIX C

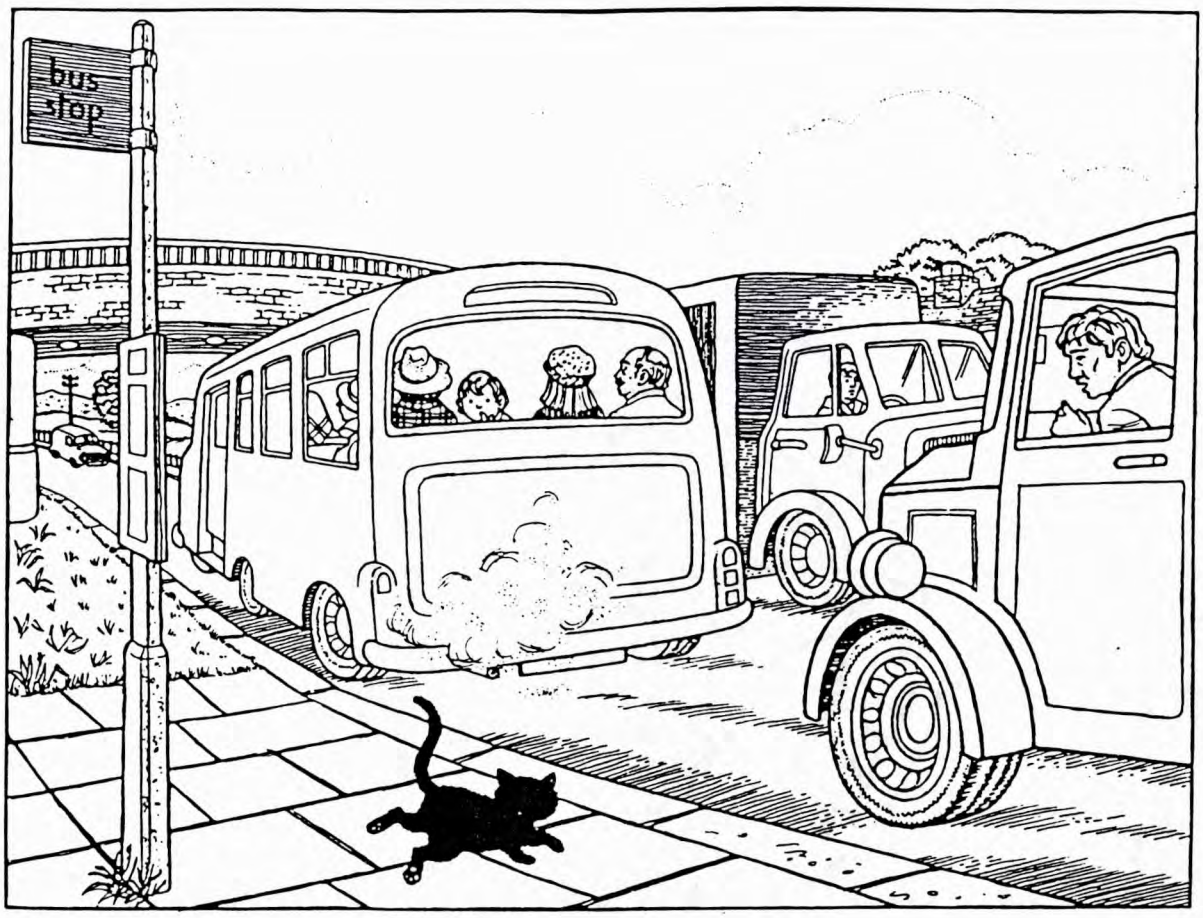
STIMULUS MATERIALS FOR LANGUAGE SAMPLE ELICITATION



Black kitten gets lost 1



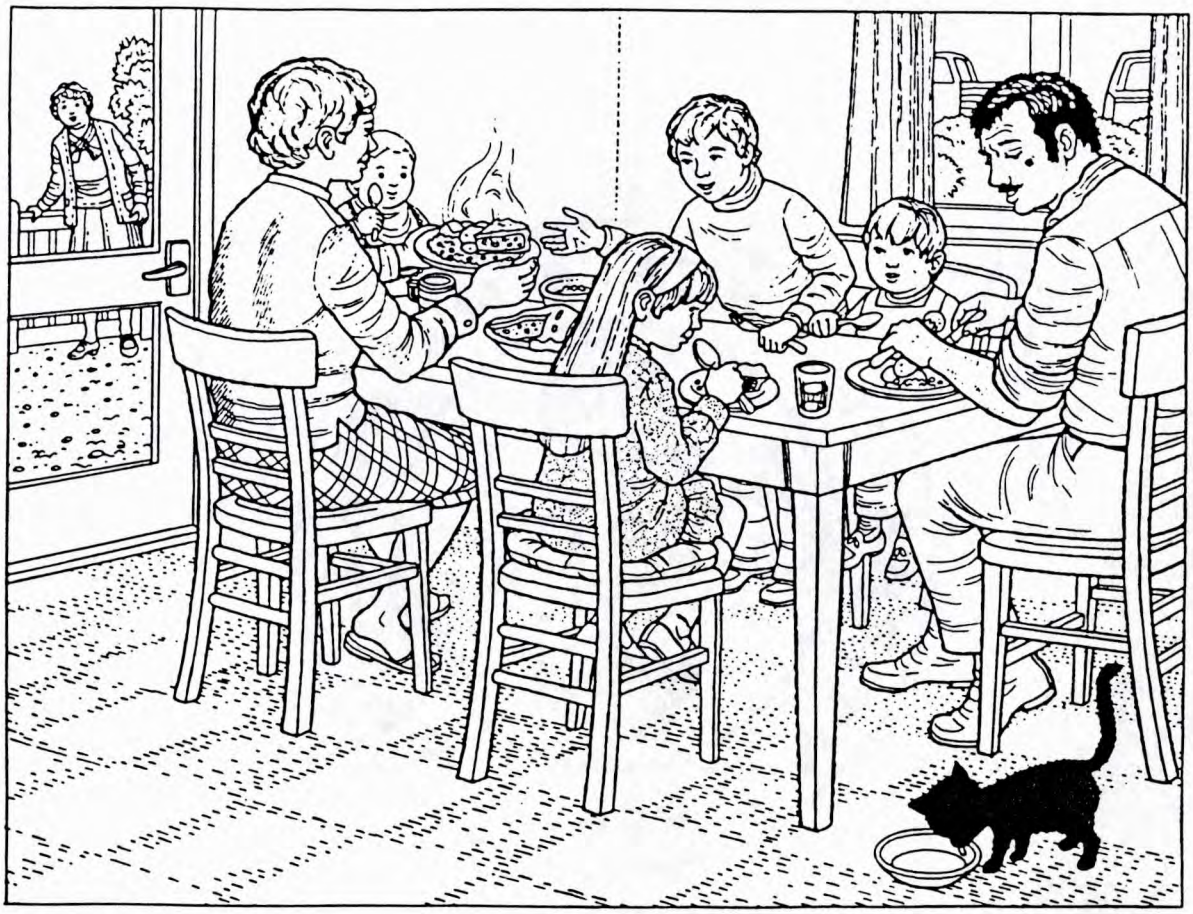
Black kitten gets lost 2



Black kitten gets lost 3

Black kitten gets lost 4

Black kitten gets lost 5



Black kitten gets lost 6

APPENDIX D

SANDIE BARRIE-BLACKLEY'S GUIDELINES FOR RATING TOUGH'S CATEGORIES OF LANGUAGE FUNCTION

Appendix D

Sandie Barrie-Blackley's Guidelines for Rating Tough's

Categories of Language Function

PICTURE	CENTRAL MEANING OF PICTURE	LOGICAL REASONING (Why . . .)	PREDICTING (What will a character do or say? What will happen?	PROJECTING (What does character want? What does he think?)
ELICITING GUIDELINES	(What is happening . . . Tell all about this picture. OPENING QUESTIONS: What do you think is happening here? Tell me about this picture. What has happened here? FOLLOW-UP QUESTIONS: What about this _____? What is/are _____ doing? Is the _____? Why?	Why _____? How come _____? What _____ for?	What will happen? What will _____ do?	What is _____ thinking, feeling, wanting?
RATING GUIDELINES FOR RESPONSE 0	No interpretation of the picture in terms of meaning; incorrect naming; inappropriate, off topic	No explanation of reason, circular reasoning ('cause, or 'cause I said so)	No predicting of outcome	No feeling or internal state projected
1	Correct naming--no attempt to interpret meaning	Unlikely explanation	Unlikely outcome predicted	Inappropriate projection
2	Attempts to interpret meaning but not most important meaning	Possible but not most likely explanation	Possible but not most likely outcome predicted	Partly appropriate projection
3	Gives the central, most important meaning or meanings	Most probable or sensible explanation	Most likely outcome predicted	Most probable or appropriate projection

VITA

Marianna Leigh Mayhew was born in Charlotte, North Carolina on December 13, 1959. Miss Mayhew is the daughter of Mr. and Mrs. John Mayhew of Cornelius, North Carolina. She attended Cornelius Elementary School and graduated from North Mecklenburg High School in 1978. After she attended Catawba College, she entered Appalachian State University in 1979. She received the Bachelor of Science degree in May 1982 and the Master of Arts degree in August 1973, both in Speech Pathology, from Appalachian State University in Boone, North Carolina.