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LANGUAGE SAMPLING: TWO MODES OF ELICITATION

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A Thesis

by

Tami Elizabeth Herby

August 1982

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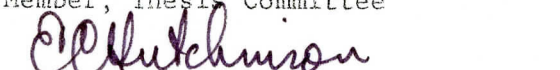
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LANGUAGE SAMPLING: TWO MODES OF ELICITATION

A Thesis

by

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Submitted to the Graduate School

Appalachian State University

in partial fulfillment of the requirements for the degree of

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August 1982

Major Department: Speech Pathology

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ABSTRACT

LANGUAGE SAMPLING: TWO MODES OF ELICITATION. (August 1982)

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The purpose of this study was to establish whether the form and content of children's language was altered when two modes of story retelling (with pictures and without pictures) were used to sample language skills.

The subjects were 10 language-normal and 10 language-impaired five- and six-year-olds in a rural district of Avery County, North Carolina. The 10 subjects identified as language-normal were selected on the basis of performance (>75 th percentile) on the Florida Language Screening Test and the 10 language-impaired subjects were selected on the basis of depressed performance (≤ 25 th percentile) on the Florida Language Screening Test and the clinical judgement of a certified speech, language, and hearing clinician. At the time of the study, all language-impaired children were enrolled in a speech and language therapy program.

The data were analyzed by means of an analysis of variance with repeated measures on six language variables, including: two measures of syntactic complexity (mean length of utterance and length complexity index), two measures of verbal productivity (total number

of utterances and total number of words), a measure of lexical diversity (type-token ratio), and a measure of thematic recall (total number of content units). Results of the analysis revealed significant differences between the language-normal and language-impaired groups on three of the linguistic measures: total number of utterances, total number of words, and total number of content units. Significant differences were also found on three linguistic measures between the two story retelling modes (with pictures and without pictures): type-token ratio, total number of utterances, and total number of words.

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Finally, the author wishes to express her deepest love and gratitude to her family and fiance for their constant encouragement, love, and understanding throughout the writing of this thesis.

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Chapter 1

INTRODUCTION

Statement of the Problem

As we become increasingly concerned about language deviations and what to do about them, we have to face the question of how to describe disorders of language. Because the area is so new and concepts so much in flux, there really are no universally applicable techniques for assessment (Siegel, 1975, p. 213).

Many times speech and language clinicians use formal standardized tests to provide an assessment of a child's level of linguistic functioning because they are easy to administer, score, and interpret. These tests describe children's language performance in various areas such as semantics and syntax, and compare their performance with normative data on individuals the same age. The information obtained from standardized tests is useful in determining if a child has a problem, but it does not define the nature of that problem. An alternative strategy which provides a qualitative description of children's current language performance is natural language sampling. Natural sampling, through the use of loosely structured eliciting situations in the child's home or non-clinic settings, evaluates expressive language, thereby insuring the most accurate and representative sample of the child's everyday linguistic performance. This method of eliciting samples of children's language has proved to be useful because it also reveals something about children's non-

testable behaviors such as maturity and the reaction of others to the child's speech. Perhaps its most important contributions are the early identification of existing problems and the establishment of management priorities for each child. By pursuing natural language sampling procedures, clinicians should:

be able to identify those children who are language delayed so they can be included in the case load and be provided with the appropriate language stimulation and training to bridge whatever developmental gap that may be present (Nelson-Burgess & Meyerson, 1975, p. 87).

Until recently, language analysis of children in a clinical setting was achieved almost entirely by formal test administration. Because of these structured formalities, limited opportunity for extended verbal interaction existed between clinician and child. From 1970 to 1980, "there has been a trend away from the use of formal tests for language and toward more direct methods for estimating language competency and describing language performances" (Musselwhite & Barrie-Blackley, 1980, p. 56). If clinicians continue to move even further away from formalized testing and closer to the analysis of language in context, it will be necessary to adopt elicitation protocols which are more representative of the oral language produced in natural communicative contexts.

During the 1960's and 1970's, many investigators have called for more systematic procedures in the collection and analyses of oral samples (Bloom, 1967; Cazden, 1970; Crystal, 1976; Lee, 1974; Leonard, 1972; Tyack & Gottsleben, 1974). Although strict standardization of oral language sampling is probably not feasible, "clinicians must be aware of the variables involved in eliciting and

analyzing oral language so that they can systematically manipulate them and thereby derive representative meaningful results relating to specific clinical situations" (Barrie-Blackley, 1978, p. 3). Included among this critical set of variables are (a) methods of language transcription and analysis, and (b) language elicitation procedures.

Because researchers have noted that variations in written transcription of language samples may affect results, specific rules for preparing and segmenting transcripts have been delineated by various investigators (Crystal et al., 1976; Lee, 1974; Loban, 1963; Tyack & Gottsleben, 1974). In the same regard, it has been noted that even slight variations in language sampling elicitation protocols may have an effect on children's verbal output. Over the years, clinicians have used a variety of methods to obtain a sample including interpretation of pictures (Siegel, 1962; Shriner, 1967; Longhurst & Shrandt, 1973; Weiner, 1974), storytelling and retelling (Brent & Katz, 1967; Wilson, 1969; Pine, 1973), description of toys and/or objects (McCarthy, 1930; Mintum, 1968; Lee & Canter, 1971; Longhurst & Grubb, 1974), conversation (Young, 1941; Lee, 1966; Dumas, 1973; Musselwhite, 1975), and recording of spontaneous speech in free play (Mueller, 1972; Pine, 1973; Johnson, 1974).

In particular, storytelling and story retelling tasks have been acknowledged as popular ways of eliciting language. According to Barrie-Blackley et al. (1978), there are several advantages associated with this elicitation strategy, including:

1. The developmental nature of sequencing ideas within a story retelling framework;

2. The consistent correspondence between story retelling and conversational samples in older children; and

3. The efficacy of the procedures in generating a relatively high number of utterances per minute as well as a variety of structures such as pronouns, verb tenses, and complex verb phrase relationships.

Although story retelling has been singled out as an effective language sampling strategy because it represents a meaningful situation which requires children to organize information (Blank & Frank, 1971), there still appears to be a controversy surrounding the issue of whether or not to use pictures as a stimulus for story recapitulation. Brent and Katz (1967) noted that stories produced in the absence of pictures required less prompting, were longer, and contained more logically related ideas. In this study, the order of story retelling with pictures always preceded story retelling without pictures; therefore it was impossible "to determine if the telling of the first story contributed to the better quality of the second story" (Barrie-Blackley et al., 1978, p. 45).

In a similar effort to determine the influence of the presence or absence of pictures on story retelling abilities, Rogister (1975) found no significant difference in the language samples based on the presence or absence of pictures. Because of these inconsistent findings and the methodological problems surrounding the study of Brent and Katz (1967), the present investigation was undertaken.

Purpose of the Study

The purpose of this study was to establish if the form and content of children's language was altered when two modes of story retelling (with pictures and without pictures) were used to sample language skills. More specifically, answers to the following questions were sought:

1. Does the content of children's language change as a function of retelling a story with and without pictures?
2. Does the lexical diversity of children's language change as a function of retelling a story with and without pictures?
3. Does the productivity of children's language change as a function of retelling a story with and without pictures?
4. Does the complexity of children's language change as a function of retelling a story with and without pictures?
5. Is there a difference in the form and/or content of language-normal and language-impaired children as a function of retelling a story with and without pictures?

Delimitations

1. This study was limited to 20 subjects, 10 language-normal and 10 language-impaired children, ages 5 to 6.
2. The subjects were judged to be language-impaired on the basis of depressed performance (≤ 25 th percentile) on the Florida Language Screening Test (FLASC) and enrollment in a speech therapy program. Language-normal subjects achieved a score ≥ 75 th percentile on the FLASC and were not or never had been enrolled in a speech therapy program.

3. The sampling protocol involved retelling the story of Curious George (Rey, 1969), with and without pictures.

4. Data regarding the form and content of children's language were confined to mean length of utterance, length complexity index, type-token ratio, total number of utterances, total number of words, and total number of content units.

5. The total testing time was two days for all 20 children.

Limitations

1. To the extent that the subjects selected are not representative of the language-impaired or language-normal population at large, results will not be generalizable beyond the sample investigated.

2. To the extent that knowledge of subject status affects the objectivity of the researcher's observations and judgements, or influences the subjects' reactions to the tasks, results may be biased in favor of one group or the other.

3. To the extent that the subjects are aware of participation in a research study, results may not be generalizable beyond the experimentally accessible population.

Assumptions

The following assumptions were made in the study:

1. That the groups of language-impaired and language-normal children were matched on the major critical variables affecting language skill: age, socioeconomic status and intellectual ability; and that other extraneous variables which may affect language skill,

such as motivation and personality characteristics, were randomly distributed between the language-impaired and language-normal groups.

2. That the exposure to intervening variables in the school environment, such as supportive relationships with teachers, was equivalent for both groups.

3. That the story retelling task did, in fact, provide a representative sample of the form and content of children's language.

4. That the researcher being a practiced speech, language and hearing clinician, was qualified to administer, score and interpret all testing procedures used in this study.

Hypotheses

To give direction to the data analysis, the following hypotheses were stated in the null form and tested at the .05 level of significance.

Ho 1. There is no statistically significant difference in the complexity of children's language in response to two modes of story retelling elicitation, with pictures and without pictures.

1.1 There is no significant difference in the mean length of utterance of language-normal children in response to two modes of story retelling elicitation, with pictures and without pictures.

1.2 There is no significant difference in the length complexity index of language-normal children in response to two modes of story retelling elicitation, with pictures and without pictures.

1.3 There is no significant difference in the mean length of utterance of language-impaired children in response to two modes of story retelling elicitation, with pictures and without pictures.

1.4 There is no significant difference in the length complexity index of language-impaired children in response to two modes of story retelling elicitation, with pictures and without pictures.

Ho 2. There is no statistically significant difference in the productivity of children's language in response to two modes of story retelling elicitation, with pictures and without pictures.

2.1 There is no significant difference in the total number of words used by language-normal children in response to two modes of story retelling elicitation, with pictures and without pictures.

2.2 There is no significant difference in the total number of utterances produced by language-normal children in response to two modes of story retelling elicitation, with pictures and without pictures.

2.3 There is no significant difference in the total number of words used by language-impaired children in response to two modes of story retelling elicitation, with pictures and without pictures.

2.4 There is no significant difference in the total number of utterances produced by language-impaired children in response to two modes of story retelling elicitation, with pictures and without pictures.

Ho 3. There is no statistically significant difference in the lexical diversity of children's language in response to two modes of story retelling elicitation, with pictures and without pictures.

3.1 There is no significant difference in the type-token ratio of language-normal children in response to two modes of story retelling elicitation, with pictures and without pictures.

3.2 There is no significant difference in the type-token ratio of language-impaired children in response to two modes of story-retelling elicitation, with and without pictures.

Ho 4. There is no statistically significant difference in the number of content units recalled by children in response to two modes of story retelling elicitation, with pictures and without pictures.

4.1 There is no significant difference in the number of content units recalled by language-normal children in response to two modes.

4.2 There is no significant difference in the number of content units recalled by language-impaired children in response to two modes of story retelling elicitation, with pictures and without pictures.

Ho 5. There is no statistically significant difference between the performance of language-normal and language-impaired children on measures of language complexity, productivity and content in response to two modes of story retelling elicitation, with pictures and without pictures.

- 5.1 There is no significant difference between language-normal and language-impaired children's mean length of utterance in response to a story retelling task with pictures.
- 5.2 There is no significant difference between language-normal and language-impaired children's length complexity index in response to a story retelling task with pictures.
- 5.3 There is no significant difference between language-normal and language-impaired children's total number of words in response to a story retelling task with pictures.
- 5.4 There is no significant difference between language-normal and language-impaired children's total number of utterances in response to a story retelling task with pictures.
- 5.5 There is no significant difference between language-normal and language-impaired children's type-token ratio in response to a story retelling task with pictures.
- 5.6 There is no significant difference in the number of content units recalled by language-normal and language-impaired children in response to a story retelling task with pictures.
- 5.7 There is no significant difference between language-normal and language-impaired children's mean length of utterance in response to a story retelling task without pictures.
- 5.8 There is no significant difference between language-normal and language-impaired children's length complexity index in response to a story retelling task without pictures.
- 5.9 There is no significant difference between language-normal and language-impaired children's total number of words in response to a story retelling task without pictures.

- 5.11 There is no significant difference between language-normal and language-impaired children's type-token ratio in response to a story retelling task without pictures.
- 5.12 There is no significant difference in the number of content units recalled by language-normal and language-impaired children in response to a story retelling task without pictures.

Ho 6. There are no statistically significant interactions between language ability (normal and impaired) and measures of language complexity, productivity, and content in response to two modes of story retelling elicitation, with pictures and without pictures.

- 6.1 There is no significant interaction between language ability and performance on mean length of utterance in response to two modes of elicitation, with pictures and without pictures.
- 6.2 There is no significant interaction between language ability and performance on the length complexity index in response to two modes of story retelling elicitation, with pictures and without pictures.
- 6.3 There is no significant interaction between language ability and performance on the type-token ratio in response to two modes of story retelling elicitation, with pictures and without pictures.
- 6.4 There is no significant interaction between language ability and performance on the total number of words in response to two modes of story retelling elicitation, with pictures and without pictures.

- 6.5 There is no significant interaction between language ability and performance on the total number of utterances in response to two modes of story retelling elicitation, with pictures and without pictures.
- 6.6 There is no significant interaction between language ability and performance on the total number of content units in response to two modes of story retelling elicitation, with pictures and without pictures.

Chapter 2

REVIEW OF RELATED LITERATURE

What is Language?

Language is a code by which ideas about the world are represented through a system of arbitrary signals used for communication (Bloom & Lahey, 1978). In this definition of language, there are three key words which need further explanation to better understand the meaning of the term: code, ideas, and system.

A code is a way of representing one thing for another, and language is an important means of representation. In language, objects, events, or relationships are most often represented schematically through pictures, words, or sentences. For example, it is possible to write the word "potato chip" to convey our meaning without having the real potato chip available (Bloom & Lahey, 1978).

Before communicators can transmit messages through the code, they must know something about the objects and events in the world around them. They must have ideas (Bloom & Lahey, 1978). These ideas are expressed through a system of rules which regulate the use of language. They specify how sounds combine to form words, and words combine to form sentences, and sentences to form longer dialogues or narratives.

According to Bloom and Lahey (1978), the language system may be divided into three major components: (a) content, (b) form and

(c) use. Content refers to the meaning of language. It is the linguistic representation of the things people know about the objects, events, and relationships of their world (Bloom & Lahey, 1978). Language form involves "the shape or sound of messages in terms of the elements in the message and the ways that the elements are combined" (Bloom and Lahey, 1978, p. 23). Included in this component of language are sound units (phonology), meaning units (morphology), and sentential units (syntax). Language use includes aspects of function and discourse. Function involves the reasons why individuals speak, and discourse, the alternative ways in which they produce messages, taking into account the needs of listeners and the situational context.

In order for children to become linguistically competent, the three components of content, form and use must be effectively integrated. Figure 1 schematically represents the integration of content, form and use. This model provides the clinician with a framework for studying the language behavior of normal as well as impaired children. By listening to children and watching what they do, clinicians can obtain evidence about what children know of language content/form/use, and such knowledge "underlines the behaviors of speaking and understanding messages" (Bloom & Lahey, 1978, p. 21).

Language-Impairment

Leonard (1979) defines language impairment as:

a group of conditions characterized by the late appearance or slow development of language in children who do not have sensory, motor, emotional or general intellectual deficits that might be considered basic to their difficulties (p. 205).

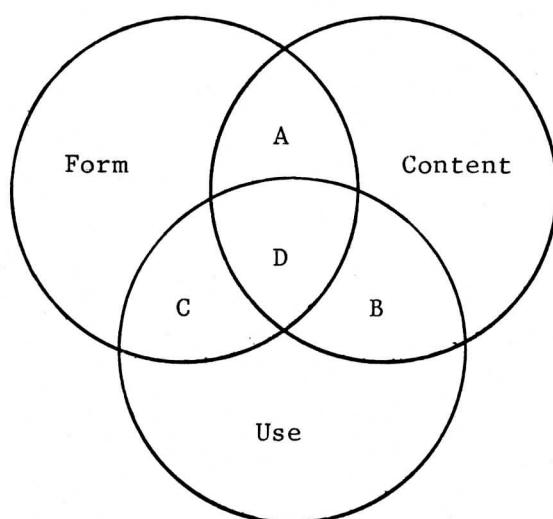


Figure 1. The Interaction of Content/Form/Use in Language (Bloom, 1978).

Language-impaired children evidence disturbances in the acquisition or use of the system of arbitrary signals used by others in the environment as a code for representing ideas about their world for the purpose of communication. When comparing these children to language-normal children, several behaviors are evident including: little or no talking, grammatical errors which interfere with communication, and little or no understanding of instructions (Bloom & Lahey, 1978).

By manipulating the content/form/use spheres in Bloom and Lahey's (1978) model of linguistic competence, it is possible to depict language-impaired children as evidencing a disruption within a single component or in the interaction among components. In this way, at least four broad categories of language-impairment can be identified: (a) disorders of form; (b) disorders of content; (c) disorders of use; and (d) disorders of the interaction of content/form/use. Children who maintain an interaction between content and use but exhibit a separation of form (see Figure 2), are those whose knowledge of the linguistic system for representing and communicating ideas is not intact. These children have well-developed ideas for communication, but express them in gestures or other non-verbal ways, or in language which is telegraphic or contains grammatical errors (Bloom & Lahey, 1978). The following example illustrates a disorder of language form in a child 6 years of age:

(Child walked into the clinician's office)	hi/doing
I'm typing	help
No, thank you, I'm all through/ I have to teach now	teach

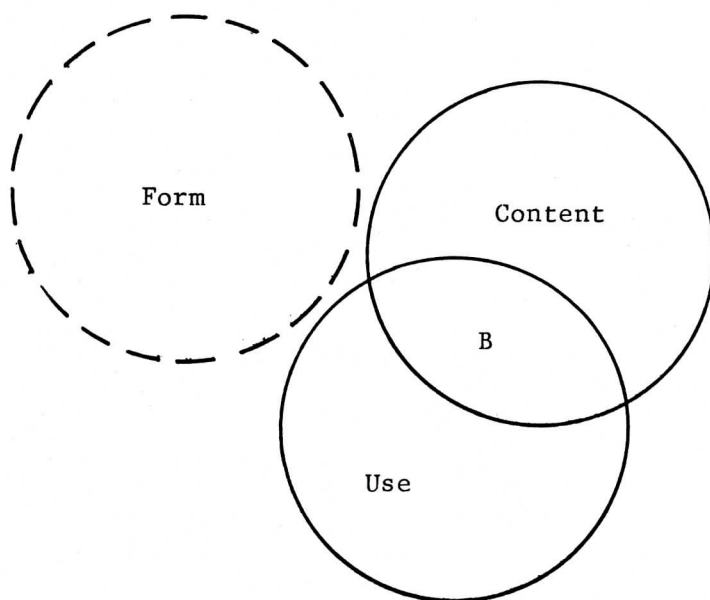


Figure 2. Disorders in the Form of Language
(Bloom and Lahey, 1978).

Yes	where
Over in that white building	oh/
(Pointing to pencil sharpener)	that
You know/what's it for?	pencil/sharp
Right, it's a pencil sharpener	
(Walking out door)	bye

(Bloom & Lahey, 1978, p. 294).

Children with disorders of content are often advanced in their development of form and use, but delayed in conceptual development -- the development of ideas that make up the content of language (see Figure 3). According to Bloom and Lahey (1978), this type of disorder is unusual because "conceptual development is necessary both for learning about form and learning about using form as a means for social interaction" (p. 296). The following is of a 6 year old who exhibits a disorder of content:

(Shown a button and asked
to tell about it)

this is a button/ it has two
holes in it/ it's like a lady
has/ it has a shape/ it is
round/ this is a button/ you put
it on your blouse or an apron in
case an apron has a button/
that's big like this/ you can
roll it and throw it but you
never smash a window/ because if
you have a button or a shape
that goes on the wall or if you
take it and hang it on the dress
that would be very nice/ would
you do that for me?/ if you have
a dress you can hang it on you
can keep it out to take it to
the store

(Bloom & Lahey, 1978, p. 296).

As shown in Figure 4, children who exhibit disorders of use evidence successful interactions of content and form but use the

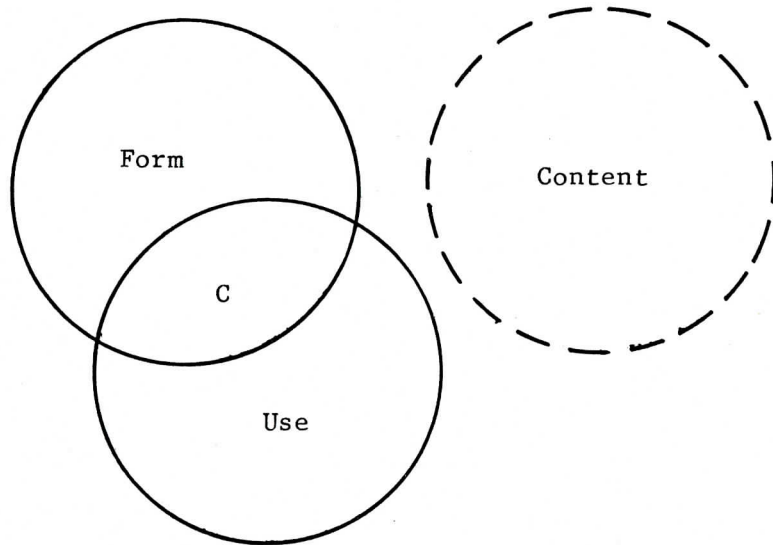


Figure 3. Disorders in the Content of Language
(Bloom and Lahey, 1978).

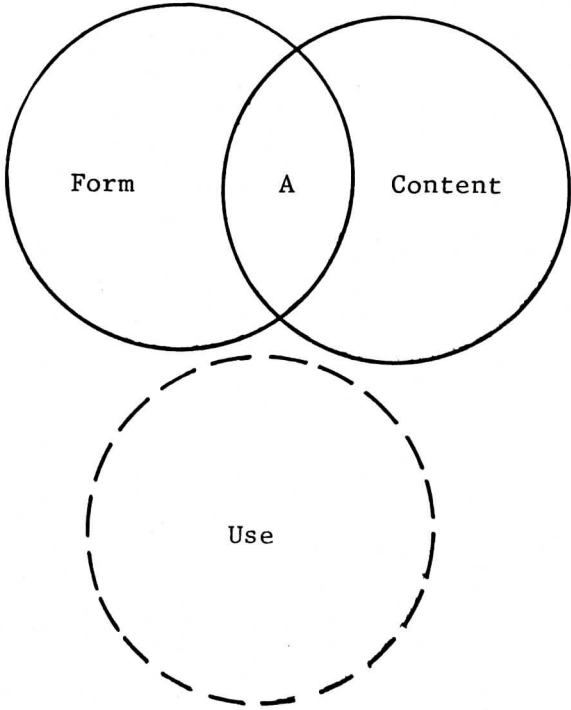


Figure 4. Disorders in the Use of Language (Bloom and Lahey, 1978).

resulting messages inappropriately. Many children who evidence this disorder rarely speak, even when questioned, and when they do speak, it is usually unrelated to the topic being discussed. An example of this disorder is as follows:

(Child and clinician enter
the clinic room and look
out at falling snow)

Look at that snow. It's all
on the grass

you're not going outside

No, I'm not going outside/
are you going outside?

no

(Child no longer directing
gaze toward clinician)

that's okay/ yeah/ I can stay
inside with Joe/ yeah/ okay I
can stay inside with Joe/ okay/
I do some work inside with Joe/
oh I can work with Joe/ Joe big
Joe gonna stay inside/ Jane gonna
go outside/ he gone yeah/ I can
stay inside with Joe/ okay/ I'll
do some work with Joe cut-color-
create inside/ okay/ Jane's
gonna go out

(Bloom & Lahey, 1978, p. 298).

Children who use forms to communicate ideas which are inappropriate both to the context and the meaning of the situation exhibit distorted interactions among all three components (see Figure 5). In this type of disorder, messages are well-formed and used for specific purposes, but there is a contradiction between the content of a message and its use. Two examples of this type of disorder follow. In the first, a child, named Thomas, using words spoken at some prior time by an adult, requests ice cream by saying:

you want some ice cream, Thomas?/ yes you may

In the second, another boy, repeating what had been said by a house

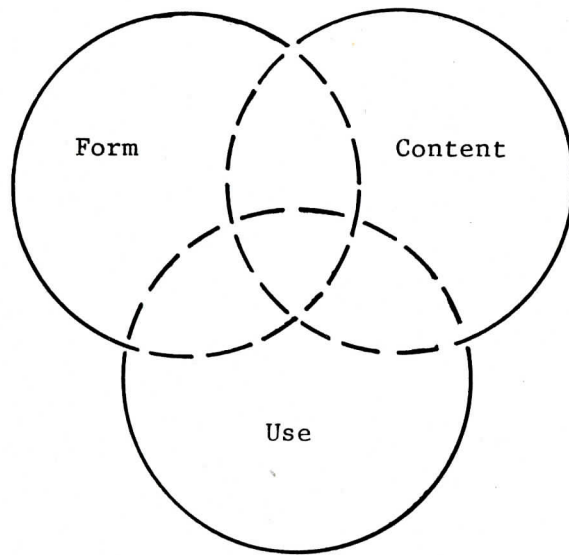


Figure 5. Disorders in the Interaction Among Content/Form/Use (Bloom and Lahey, 1978).

mother when dinner was demanded at the wrong time, requests dinner by saying:

daresay she'd throw me out if I gave it to you
now

(Bloom & Lahey, 1978, p. 301).

Assessment of Language

Assessment of language skills consists of a description of children's knowledge of language content, form, and use for the purpose of identifying a problem, and planning an intervention program. Because an assessment must occur before intervention begins, an effective program can be set up by using the most appropriate and reasonable procedures to facilitate language learning (Bloom & Lahey, 1978). Most assessments involve the use of a combination of evaluation strategies, including: standardized procedures, non-standardized procedures, and informal observations.

Standardized Assessment Procedures

The most common means of obtaining evidence about impaired language in clinical situations has been the use of standardized testing. This type of testing consists of highly structured observations which use preset categories for descriptions of certain behaviors, but allows for no other interpretations of the child's usage of language (Bloom & Lahey, 1978). In the field of speech pathology, standardized tests have often been used to provide an assessment of children's current level of functioning as compared to other children of the same age and socioeconomic status (Muma, 1973). In this way, an initial determination of whether or not a problem exists can be made. Standardized tests seem particularly well-suited to screening and

identification of children who may be in need of further in-depth language assessments. An extremely high degree of structure is imposed on a situation during the administration of a standardized test. With this type of testing, it is important for the examiner to keep constant as many situational variables as possible, and to plan in advance, the presentation of directions, the presentation of materials, and the time devoted to each task.

These instruments can be administered and analyzed more quickly and efficiently than nonstandardized informal assessment methods and require relatively little pre-planning of materials on the part of the clinician. When detailed specifications such as procedures, materials and scoring are followed by the clinician, results obtained can be compared with normative information on other children in response to the same test (McClellan & McClellan, 1978).

Standardized instruments, however, are not appropriate in all situations. Most instruments are not sensitive to individual needs of children and do not provide specific information necessary to devise an intervention program (Muma, 1973). The structured situation makes it difficult to determine how much the child knows about language in order to be an effective communicator. Because these highly structured observations are less useful in determining the type of language system a child has and how it differs from that of language-normal children, less structured situations are advisable when qualitative information is needed.

Nonstandardized Assessment

Nonstandardized methods of assessment include those in which language samples are obtained in a variety of informal situations.

Although this method of assessment is unstructured, it is important for the clinician to obtain data which accurately reflects a sample of behavior most representative of the child's level of functioning (McClellan & McClellan, 1978). In this type of assessment, children are asked to describe certain informal tasks such as what they are doing. All samples obtained are carried out in a play context using topics and objects of the child's selection.

The function of nonstandardized procedures is to observe children's language performance without comparing their responses to those of other children. This procedure is helpful in planning intervention strategies, but unlike the standardized procedures, it is less useful for screening when comparing a child's performance with that of other children is necessary. Because this procedure is unstructured, it provides an opportunity to observe children's spontaneous behaviors, thereby providing an opportunity for the clinician to test, in greater detail, features of language that may be suspect in the child's language usage. Moreover, it permits examination of children's comprehension of a feature that may not have been assessed in formal standardized tests and determine the range of children's difficulty with a particular feature of language.

One disadvantage of the nonstandardized method of assessment is the extra time required on the part of the clinician to devise materials for testing and to analyze the information gathered; however, the data from this type of assessment instrument are essential to clinical intervention (Leonard, 1978).

Informal Observation

Informal observational procedures are low structured situations in which the least amount of structure is placed upon children. The setting for informal observations most frequently consists of settings which are familiar to children and which enable them to interact verbally as much as possible. In this procedure, the information obtained from children can only be described within a social context, one that is more representative of the children's everyday interactions (Bloom & Lahey, 1978).

According to Longhurst and Schrandt (1973):

oral language is frequently the most important single factor used to evaluate a child's growth and development. Therefore, it is vital that the clinician obtain as accurate a representation of the child's language performances as possible (p. 137).

Not only should clinicians strive for the most accurate representation of language possible, but they should also insure that this representation is a valid example of children's everyday speech and language (Darley & Spriestersbach, 1978).

Natural Language Sampling

Recently, it has become a widely accepted practice among speech clinicians in the assessment of children's oral language ability to include an analysis of a spontaneous language sample (Kretschmer & Kretschmer). A language sample has been defined as a "verbatim transcribed record of all utterances produced by a child within a given situation over a certain period of time" (McClellan & McClellan, 1978, p. 137). This addition to the testing protocol seemed to address most effectively the issues discussed by Longhurst and Schrandt

(1973) and Darley and Spriestersbach (1978). These natural language samples involve situations which impose low amounts of structure on children. The settings in which the samples are collected are generally familiar and natural to the children, including: the classroom, the playground, the cafeteria, or even the home.

Spontaneous language sampling has several advantages over other methods of eliciting language from children. Because it occurs in a naturalistic situation involving social interaction, it places fewer constraints on the child than structured tests, and allows for greater flexibility in interpretation. Secondly, it encourages the production of syntactic structures that may not be evident in other formal assessments because it provides the clinician with evidence of children's productive language in interpersonal interactions in natural settings.

Spontaneous language samples do, however, have some disadvantages, in particular, the size of the sample required. In some clinical situations, it may be feasible to collect as many as 300 to 800 utterances from a child, whereas in other settings, such as the public school, a sample may be limited to only 50 to 100 utterances. Situational cues such as the topic of conversation, the age, sex, and familiarity of the clinician seem to have more negative effects on these smaller samples than on the larger ones. Therefore, as sample size decreases, the validity of the procedure must be questioned. A second disadvantage of spontaneous language sampling involves the quality of the analysis. Unlike the more structured assessment tools, the language sample does not focus on selected aspects of language structure, and as a result is limited to the habitual language use of

the children sampled (Wiig & Semel, 1980). More infrequently used elements and constructions may never occur within the confines of the sampling situation. Overall, however, the advantages of using the spontaneous language sample as an assessment tool for obtaining expressive language seem to outweigh the disadvantages. As Wiig and Semel (1980) point out, "a spontaneous speech sample may be the most suitable method for evaluating which morphological and syntactic rules and structures the child has learned well enough to use readily in his language" (p. 97).

Other methods for eliciting expressive language have been used including: sentence imitation (Carrow, 1974; Zachman et al., 1978), the cloze procedure (McCarthy, Kirk & Kirk, 1968) and tasks of grammatical judgement (Bankson, 1978). In several studies which compared the efficacy of these structured tasks to natural language sampling, natural language sampling was found to elicit more representative samples of functional communication.

Prutting, Gallagher, and Mulac (1975) examined the relationship between syntactic structures produced on the expressive portion of the Northwestern Syntax Screening Test (NSST), and those produced in a spontaneous language sample. Subjects were 12 language-delayed children, all between the ages of four years one month and five years eleven months. The NSST was administered to each subject, and two language samples were collected, one obtained by the child's mother and the other by the clinician. Each sample consisted of 10 minutes of spontaneous dialogue, and descriptions in response to six pictures from the Peabody Language Development Kit. Results from the study indicated that data obtained from the expressive portion of the NSST

did not present as accurate a representation of the children's language performance as did the spontaneous language sample. As a result, it was recommended that spontaneous language samples be used as diagnostic tools to analyze specific syntactic structures.

Werner and Kresheck (1981) compared three methods of eliciting expressive language in fifty-four 4-, 5-, and 6-year-old language-normal children. These methods included spontaneous sampling analyzed by Developmental Sentence Scoring (DSS), direct imitation using the Carrow Elicited Language Inventory (CELI), and structured elicitation of self-generated utterances with the Structured Photographic Language Test (SPLT). Significant correlations were observed between performance on the SPLT and the CELI at all age levels and between the SPLT and DSS and the DSS and CELI at younger age levels. When responses of individual children were examined, there was variability in the frequency of occurrences for some structures on the three measures as well as some inconsistency in the errors made in forming similar grammatical structures. The authors concluded that "the nature and components of each of the tasks may have affected individual children's performances" (p. 82). "Thus, no one measure is suitable or best in eliciting a language sample from all children" (p. 89).

Fujiki and Willbrand (1982) compared four methods of language elicitation, including spontaneous language sampling, elicited imitation, sentence completion, and grammatical judgement. Subjects consisted of 30 children from two age groups (4- and 5-year-olds and 6- and 7-year-olds) who were diagnosed as language-impaired.

The language sample consisted of two 15 minute segments, one in which children described action pictures, and the second consisting

of conversation between the children and the clinician. In the elicited imitation task, the children repeated sentences read by the clinician. In the sentence completion task, the children were shown a picture while being presented auditorally with a related sentence. When the examiner stopped at a specified point, the children completed the sentence with appropriate syntactic structures. On the grammatical judgement task, the children listened to a sentence and told the examiner if they would say the sentence in the same way or differently.

Results of the study indicated that the most effective of the four procedures tested was the spontaneous language sample, followed by sentence completion, elicited imitation, and grammatical judgement. The overall percentage of appropriate performance in response to each of the elicitation strategies was calculated as was the percentage of appropriate performance of five specific syntactic structures: "is," "are," prepositions, past tense, and articles. Significant correlations were observed between spontaneous sampling, elicited imitation and sentence completion for overall performance, but when individual syntactic structures were compared, a highly variable pattern of comparability was observed. None of the comparisons involving grammatical judgement reached statistical significance. The authors concluded that:

it is likely that the most effective application of these tools in clinical language evaluation is a combination of spontaneous language sampling and sentence completion or elicited imitation. Spontaneous sampling might be used to identify general problem areas that could be explored in detail by the more expedient elicitation procedures. The use of either sentence completion or elicited imitation without the benefit of spontaneous language sampling should be viewed with considerable caution (p. 48).

In conclusion, the majority of studies conducted to date supported the thesis that the most effective and valid procedures for obtaining samples of children's everyday language performances involved the elicitation of oral language samples, either alone or in conjunction with another task.

Methods of Elicitation and Analysis

There are two major sets of variables which must be considered when oral language samples are used as assessment tools: (a) transcription and analysis variables and (b) elicitation variables.

The analysis variables include: transcription procedures, segmentation protocols, and the application of linguistic measures of analysis (Musselwhite and Barrie-Blackley, 1980). As early as the 1920's, the analysis of spoken language provided a fundamental research and clinical technique for the study of children's language (Barrie-Blackley et al., 1978). Several common areas of language sampling analysis have included measures of language completeness, syntactic complexity, semantic value, word variety, and language use.

Among the elicitation variables are:

1. the population from which the subject is drawn;
2. the rapport-building techniques;
3. the examiner;
4. the situation in which the sampling occurs;
5. the stimulus, including material(s) and/or verbal antecedent(s);
6. the instructions, including modeling procedures, that may accompany the stimulus;

7. the consequences of the child's responses;
8. the language task, which can be partly described by the interaction among the stimuli, the instructions, and the consequences (Barrie-Blackley et al., 1978, p. 28).

As early as 1930, many studies used the interpretation of visual material as a means of oral language elicitation. Stimulus materials used for these protocols consisted of: (a) picture books (McCarthy, 1930; Templin, 1957; Shriner & Sherman, 1967); (b) Children's Apperception Test Pictures (Winitz, 1957; Darley & Moll, 1960; Leonard, 1972); (c) films of objects (Mintum, 1968; Strandberg, 1969); (d) photographs (Griffith & Miner, 1969; Strandberg & Griffith, 1969; Shotick & Blue, 1971; Tyack, 1973); (e) sequenced pictures (John, 1970; Lee & Canter, 1971); (f) storytelling (Hahn, 1948; Brent & Katz, 1967; John, 1970; Lee & Canter, 1971; Pine, 1973); (g) description of toys and/or objects (McCarthy, 1930; Templin, 1957; Shriner & Sherman, 1967; Longhurst & Grubb, 1974).

Story Retelling

In 1982, Atkins and Cartwright conducted a national survey of 275 practicing speech and language pathologists to determine the most popular methods of language sample elicitation for various age groups. The eleven language elicitation procedures included in the survey were: (1) imperatives, (2) picture interpretation, (3) story retelling, (4) storytelling, (5) filmstrips, (6) wh-questions, (7) object description, (8) informal conversation, (9) imitative tasks, (10) formalized tests, and (11) others. Of the 275 surveys distributed, 62% were returned.

Results of the survey indicated informal conversation was the most preferred method of language elicitation for all age groups. In second place was "others" for toddlers, wh-questions for preschoolers, and imperatives for ages 6 years through adult. In third place was picture interpretation for toddlers, "others" for preschoolers, wh-questions for the elementary aged child, and imperatives for those 13 years of age and above.

Although story retelling did not fare as well as other elicitation procedures in this survey, Barrie-Blackley et al. (1974) have acknowledged it as a popular and efficient means of sampling. According to Barrie-Blackley et al. (1974), story retelling offers several advantages as a language elicitation protocol. Because the ability to tell or retell a story is developmental, this procedure provides the clinician with an opportunity to evaluate children's "skills in sequencing ideas within a story framework" (p. 67). In addition, storytelling and story retelling are relatively efficient sampling procedures which elicit a high number of utterances per minute including a variety of structures such as pronouns, verb tenses, and complex verb relationships. In older children, there is some evidence to suggest that storytelling and story retelling elicit utterances which are "more consistent with data elicited in conversational samples" (p. 67).

John et al. (1970) investigated the method of story retelling as a means of gathering language samples from children, ages 4 to 7. To determine how children select, transform, and store stimuli which impinge on them as they listen to the patterns of language of those around them, they asked each child to retell a story they had just

heard while looking at a sequence of pictures presented one at a time. The results of this descriptive investigation revealed a series of developmental stages in story retelling. During the first stage, children applied one word labels to the pictures even though their spontaneous utterances consisted of longer constructions. In the second stage, children produced at least one phrase per picture and evidenced greater awareness of the sequential relationships in the storyline. By the third stage, children offered embellished versions of the story, inventing new elements which strayed from the original. These embellishments generally diminished by the first grade when children produced longer stories, approximately one-fifth the length of the original story, containing two to three phrases per picture and many hesitations, fillers, phrase segments, and redundancies. During the final stage, accurate concise story retelling was achieved; however, the age at which this level began was not specified.

In a study by Stalnaker and Creaghead (1982), language samples were obtained from 12 Head Start preschool children, ages 4.0 to 5.6, under three experimental conditions: retelling a story with toys, playing with toys, and toys with questions. The quantity and quality of the three samples collected from each child were compared by analyzing the total number of utterances, the mean length of utterances, the proportion of sentence fragments, the number of transformations and adverbial expansions, and the number of semantic relationships. Results indicated that retelling a story produced the longest mean length of utterance suggesting that this method of elicitation may be an effective approach to use when gathering a language sample.

Although story retelling has been acknowledged as a popular and effective language elicitation protocol, the issue of whether or not to use pictures as visual stimuli during the data gathering has not yet been resolved. Rogister (1975) presented three variations of a story retelling task to 24 kindergarten and second grade children. The variations included: (a) a task in which children retold an unfamiliar story while looking at a sequence of pictures; (b) a task in which children retold a familiar story using pictures as visual stimuli; and (c) a task in which children retold a highly familiar story, half of the children in the presence of pictures, and half in the absence of pictures. Using measures of verbal output, efficiency, and auxiliary verb usage, Rogister (1975) observed the most complex language and the most verb usage in response to the familiar story. In addition, she found no significant difference between the stories produced with or without pictures.

Brent and Katz (1967) also investigated the efficacy of eliciting oral language samples, with and without picture stimuli, but their results did not corroborate those of Rogister (1975). In this study, the examiner told a story using sequenced picture cards to first and sixth graders and then asked each child to retell the story, first with the pictures, then without. Results indicated that stories produced in the absence of pictures required less prompting, were longer, and contained more logically related ideas. The authors concluded that:

theoretically, this finding implies that at lower levels of development, under certain circumstances, the presence of a concrete stimulus may actually interfere with the development of linguistically adequate, logically

coherent thought articulation. One may speculate that the actual presence of pictures, which constitute a spatially distributed series of perceptually discrete events, may in fact interfere with our younger subjects' ability to form a temporally distributed and logically continuous story -- a task which requires a conceptual and linguistic "bridging the gap" between discrete frames. Thus, our youngest subjects exhibit a high degree of "nomilization" -- i.e., much of their verbalization with pictures present consists of simply "naming" the various details in each picture. When the picture frames themselves may also be removed, leaving the subject free to integrate, into a more continuous body, those aspects of the original content he is able to recall. In this respect, it is interesting to note that the recall stories frequently include appropriate content not mentioned in the presence of the pictures themselves (p. 4-5).

A significant methodological problem of this study involved the order of presentation of the two stimulus modes. Those modes remained the same throughout the entire study with the story retelling task with pictures always preceding the story retelling without pictures. Because order of presentation was not counterbalanced, it was impossible to determine if the telling of the first story contributed to the better telling of the second story.

Summary

Language is the knowledge of a code for representing ideas about the world through a conventional system of arbitrary signals for communication. There are three basic components of language -- content, form, and use -- which must be successfully integrated for children to achieve language competence.

Language-impaired children evidence disturbances in this conventional system of arbitrary signals used for communication. These

children may demonstrate a disruption of language within a single component (content/form/use) or in the interaction among components in the absence of any predisposing sensory cognitive, emotional and/or neurological deficits.

The objective of a comprehensive language assessment is to identify a language disorder and to plan an intervention program. This assessment may involve a variety of strategies, including: standardized procedures, nonstandardized procedures, and informal observations.

A widely accepted and popular evaluative assessment procedure used by many speech and language clinicians is the spontaneous language sampling. This method has several advantages over other methods of eliciting language from children because it is naturalistic; it places fewer constraints on clinicians and children; and it provides greater flexibility in interpretation of the sample. Since 1970, studies have found that spontaneous language sampling is the most effective and valid procedure for obtaining samples of children's everyday language performance.

Numerous spontaneous language sampling protocols have been used by clinicians over the years, but a popular and efficient elicitation mode for young children is the story retelling task. Story retelling requires children to tell or retell a story they have just heard. Although this technique has been acknowledged as efficient and effective, it has not been demonstrated unequivocally whether story retelling in the presence or absence of pictures elicits the most complete and complex language from children.

Chapter 3

METHODS AND PROCEDURES

Subjects

The subjects in this study were 20 children between the ages of five and six years, who were placed in two groups: a group of 10 language-normal children and a group of 10 language-impaired children. All subjects were of average intelligence and came from lower to lower-middle socioeconomic backgrounds according to teacher report. None had any gross defects of audition or vision or spoke a language other than English in the home. Tables 1 and 2 include a description of pertinent subject characteristics.

Language-Impaired Group

The 10 children identified as language-impaired were selected for this study on the basis of depressed performance (≤ 25 th percentile) on the Florida Language Screening Test, and the clinical judgment of a certified speech, language, and hearing clinician. At the time of the study, all 10 subjects were enrolled in an elementary school program in Avery County, North Carolina and were receiving speech and language therapy.

Language-Normal Group

The 10 children in the language-normal group were also selected on the basis of performance (≥ 75 th percentile) on the Florida

Table 1
 Characteristic Data of the Language-Normal Subjects

Subject	Sex	Age	Grade	FLASC Score	FLASC %ile
1	M	6.3	1	38	80th
2	F	6.3	1	39	80th
3	M	6.8	1	43	95th
4	M	6.5	1	41	90th
5	M	6.2	1	37	75th
6	M	5.6	K	37	95th
7	F	5.6	K	39	95th
8	F	5.4	K	35	85th
9	F	5.5	K	43	95th
10	F	5.3	K	40	85th
Range		5.3-6.8		35-43	75th-95th
Mean		5.90		39	87th
SD		0.50		2.48	7.16

FLASC = Florida Language Screening Test

Table 2
Characteristic Data of the Language-Impaired Subjects

Subject	Sex	Age	Grade	FLASC Score	FLASC %ile
11	M	6.0	1	21	10th
12	M	6.1	1	21	10th
13	F	5.3	K	19	20th
14	F	5.5	K	20	25th
15	M	6.3	1	25	20th
16	F	5.2	K	17	15th
17	F	5.2	K	17	15th
18	M	5.4	K	19	20th
19	F	6.4	1	27	25th
20	F	6.3	1	25	20th
<hr/>					
Range		5.2-6.4		17-27	10th-25th
Mean		5.77		21.10	18th
SD		0.47		3.30	5.10

FLASC = Florida Language Screening Test

Language Screening Test. At the time of testing, all subjects were enrolled in an elementary school program in Avery County, North Carolina and were not now or had never been enrolled in speech and language therapy. In order to control for the influence of variables which might affect linguistic performance, the language-normal group was matched to the language-impaired group by grade, socioeconomic status and intellectual ability.

Materials

Materials used in the warm-up, pre-elicitation activities included three pictures taken from the story, Alligator's Toothache by Diane de Groat (1977). Ten sequenced pictures from Curious George by H.A. Rey (1969) were used in the main story retelling task. Each of these 10 pictures was brightly colored, mounted on construction paper, and laminated. During each language sample elicitation, two tape-recorders were used: one to record the child's language sample and the second to play the recorded story of Curious George (Rey, 1969).

Procedures

Each language sample was collected in two elicitation modes from each of the 20 subjects: (1) a story retelling task with pictures, and (2) a story retelling task without pictures. Before the samples were collected, the children individually listened to a tape-recorded story of Curious George (Rey, 1969) read by the examiner while looking at 10 sequenced pictures from the storybook.

In mode one, children were shown the same sequence of pictures presented during the initial story and asked to retell the story in

their own words as they looked at the pictures. In mode two, children were asked to retell the story of Curious George (Rey, 1969) without using the pictures as visual stimuli. Prior to participation in this study, none of the children had heard the story of Curious George (Rey, 1969) according to their own report.

The order of presentation for the two story retelling modes was counterbalanced. Ten of the children, five language-impaired and five language-normal, were randomly assigned to retell the story first without pictures, then with pictures. See Appendix C for the counterbalanced order of presentation. The remaining 10 subjects performed these tasks in the inverse order, retelling the story first with pictures, and then without pictures.

Collection of the Language Sample

The language sample was obtained from each subject following the elicitation protocol in Appendix A. The collection of all samples occurred at the children's school in a quiet room which is normally used as the speech and language therapy room. During the sample, only the clinician and child were present. All samples were collected by the same clinician using a portable General Electric tape-recorder model 3-5307. The total recording time for individual samples ranged from 17-24 minutes.

Prior to the collection of each language sample, the clinician and child engaged in a three-minute warm-up period of informal conversation. This was followed by a practice period in which the clinician presented the following instructions and demonstrated the

story retelling task to determine if the child understood the tasks and could proceed with the study.

I'M GOING TO SHOW YOU SOME PICTURES AND TELL YOU SOME STORIES. I WANT YOU TO LISTEN CAREFULLY BECAUSE WHEN I'M FINISHED, I WANT YOU TO TELL ME THE STORY IN YOUR OWN WORDS. SOMETIMES, YOU WILL TELL ME THE STORY WHILE LOOKING AT THE PICTURES AND SOMETIMES YOU WILL TELL ME THE STORY WITHOUT LOOKING AT THE PICTURES. HERE'S THE FIRST ONE.

Prompts were supplied when children refused to respond after a 10-second pause, and encouragement was provided by nodding, smiling, or a verbal "uh-huh."

Transcription and Segmentation of the Language Sample

All language samples were transcribed in standard orthography by the examiner within one week of the recording date. These utterances were further segmented using Lee's (1974) segmentation protocol. For the purpose of this study, an utterance was defined as any sentence or sentence fragment which began when a child commenced speaking and ended with a definite pause or appropriate final inflection. The segmentation rules for this procedure can be found in Appendix D and an example of a language sample from both a normal and an impaired speaker can be found in Appendices E and F.

Analysis of the Language Sample

Six methods of analysis were used on each of the language samples in this study. These included two measures of syntactic complexity (mean length of utterance and length complexity index), two measures of verbal productivity (total number of utterances and total number of words), a measure of lexical diversity (type-token ratio),

and a measure of thematic recall (total number of content units). Each of these units is discussed in greater detail in the following sections.

Mean Length of Utterance (MLU)

This method of analyzing language samples was first introduced by Nice (1925) and has been used extensively in studies of language development over the years. The MLU is obtained from a sample of consecutive utterances by summing the total number of words in each utterance, and dividing by the total number of utterances in the sample. According to McCarthy, "no measure seems to have superseded the mean length of sentence for a reliable, easily determined, objective, quantitative, and easily understood measure of linguistic maturity" (Darley & Spriestersbach, 1963, p. 168).

Length Complexity Index (LCI)

This measure of syntactic integrity was developed by Miner (1969) and has been used in language sampling research by others including Barlow and Miner (1969), Scharf (1972), and Longhurst and Grubb (1974). The LCI involves a numeric weighting system which provides a composite analysis of the length and complexity of a sentence. To obtain the LCI score, points are assigned to noun phrases, verb phrases, questions, and negatives of increasing length and complexity. These values are totaled and divided by the number of sentences in the sample. In studies conducted by Mintum (1968) and Ahmed (1973), it was found that of all the language measures studied, LCI differentiated least between treatments. It was concluded from this that the

grammatical complexity of a child's speech was not usually affected by situational variables.

Total Number of Words (TNW)

Total number of words (TNW) is a measure of verbal productivity.

According to Johnson, Darley, and Spriestersbach (1963):

children's knowledge of words has long served as an index of their language maturity. Investigators have based their judgements concerning progress in language development upon the age at which children first begin speaking intelligible words, the number of words they appear to know at any given age, and their ability to define, use, or indicate understanding of selected samples of words at various levels of difficulty (p. 173).

To calculate TNW, the total number of words produced in response to each elicitation mode was counted.

Type-Token Ratio (TTR)

The TTR is a measure of word variety or lexical diversity which has frequently been used in studies of children's language development. In this measure, the number of different words in the sample is referred to as types, and the total number of words is referred to as tokens. To obtain a type-token ratio, the number of different words (types) is divided by the total number of words (tokens), and the result is expressed as a ratio of types to tokens (Barrie-Blackley, Musselwhite, & Rogister, 1978). According to Longhurst and Grubb (1974), TNW and TTR seem to be more sensitive to situational variables since vocabulary and total verbal output may be easily modified by the situation. These two methods of analysis were selected for the present study because they are easily altered by various situations

and may be affected by a change in story retelling modes, with and without pictures.

Total Number of Utterances (TNU)

Total number of utterances is another measure of verbal productivity. For the purpose of this study, an utterance was defined as any sentence or sentence fragment which begins when a child commences speaking and ends with a definite pause or appropriate final inflection. To calculate TNU, the total number of complete sentences and sentence fragments produced in response to each elicitation mode was counted.

Total Number of Content Units (TNCU)

Total number of content units is a measure of thematic recall. It establishes how many of the major content units of the story, children recall in response to each elicitation mode. In the story Curious George (Rey, 1969), 34 content units were identified. To calculate TNCU, a point was given for each of the major content units recalled. A bonus point for each piece of additional information offered in relation to any of the pictures shown was also given. A total of 10 bonus points was possible. Any irrelevant information was penalized by subtracting one point per picture for irrelevant details. The maximum penalty for irrelevant remarks was 10. To obtain the TNCU, the total number of penalty points was subtracted from the total number of content units plus any additional points.

Data Analysis

In order to test the hypotheses developed for this study, data from the six measures of analysis for each language group were submitted to an analysis of variance for repeated measures.

Chapter 4

RESULTS AND ANALYSIS OF THE DATA

Results

Tables 3-6 show the means, standard deviations, and ranges for the six variables tested as a function of two elicitation modes (with and without pictures), and two levels of language ability (language-normal and language-impaired).

The means for mean length of utterance (MLU) of the language-normal group, in response to two modes of story retelling, with and without pictures, were 5.718 and 5.460, respectively. The range of MLU scores for both conditions was 4.273 to 6.776 with pictures, and 4.282 to 6.444 without pictures. The means for mean length of utterance (MLU) of the language-impaired group, in response to two modes of story retelling, with and without pictures, were 5.594 and 5.195, respectively. The range of MLU scores for both conditions was 4.343 to 7.238 with pictures, and 4.438 to 6.091 without pictures.

The means for length complexity index (LCI) of the language-normal group, in response to two modes of story retelling, with and without pictures, were 5.619 and 5.373, respectively. The range of LCI scores for both conditions was 4.303 to 7.102 with pictures, and 4.107 to 6.522 without pictures. The means for length complexity index (LCI) of the language-impaired group, in response to two modes of story retelling, with and without pictures, were 6.430 to 5.773,

Table 3

Raw Scores of Language-Normal Subjects
for Story Retelling With Pictures

Subject	MLU	LCI	TTR	TNU	TNW	TNCU
1	5.278	6.796	0.449	54	303	22
2	4.282	6.429	0.521	28	156	12
3	4.464	5.121	0.512	33	141	9
4	6.444	7.176	0.526	34	199	15
5	5.797	8.286	0.410	49	332	23
6	5.739	6.638	0.470	47	265	15
7	6.217	7.419	0.545	31	196	14
8	5.630	6.840	0.411	50	288	16
9	5.389	7.500	0.479	40	253	14
10	5.379	5.729	0.506	48	244	16
Range	4.273-6.776	4.303-7.102	0.399-0.489	28-54	144-332	9-23
Mean	5.718	5.619	0.483	41.40	237.60	15.60
SD	0.607	0.902	0.031	9.31	63.20	4.00

Table 4

Raw Scores of Language-Impaired Subjects
for Story Retelling With Pictures

Subject	MLU	LCI	TTR	TNU	TNW	TNCU
11	7.211	5.684	0.444	19	108	6
12	5.333	4.741	0.414	27	128	9
13	6.095	5.762	0.413	21	121	6
14	7.272	6.500	0.399	22	143	6
15	7.619	7.238	0.520	21	152	9
16	6.120	5.520	0.471	25	138	9
17	5.743	4.343	0.434	35	152	8
18	6.615	5.731	0.409	26	149	9
19	6.585	5.341	0.365	41	219	9
20	5.708	5.083	0.541	124	122	9
Range	4.343-7.238	5.333-7.619	0.365-0.541	19-41	108-219	6-9
Mean	5.594	6.430	0.411	26.10	143.20	8
SD	0.830	0.759	0.054	6.89	30.50	1.34

Table 5

Raw Scores of Language-Normal Subjects
for Story Retelling Without Pictures

Subject	MLU	LCI	TTR	TNU	TNW	TNCU
1	5.278	4.907	0.449	54	285	21
2	4.282	4.333	0.521	39	167	12
3	4.464	4.107	0.512	28	125	16
4	6.444	6.333	0.526	18	116	10
5	5.797	5.623	0.410	69	400	25
6	5.739	6.130	0.470	23	132	10
7	6.217	6.522	0.545	23	143	10
8	5.630	5.093	0.411	54	304	14
9	5.389	5.889	0.479	36	194	18
10	5.379	4.793	0.506	29	156	14
Range	4.282-6.444	4.107-6.522	0.410-0.545	18-54	116-400	10-21
Mean	5.460	5.373	0.483	37.30	202.20	15
SD	0.682	0.847	0.047	16.68	95.20	4.82

Table 6

Raw Scores of Language-Impaired Subjects
for Story Retelling Without Pictures

Subject	MLU	LCI	TTR	TNU	TNW	TNCU
11	4.438	4.813	0.479	16	71	6
12	4.471	5.059	0.513	17	76	7
13	4.533	4.800	0.412	15	68	4
14	5.063	5.563	0.556	16	81	6
15	6.000	6.933	0.533	15	90	6
16	4.792	6.042	0.539	24	115	7
17	6.091	6.364	0.463	22	134	8
18	6.083	6.917	0.425	25	146	9
19	5.543	5.714	0.345	35	194	7
20	4.941	5.529	0.524	17	84	7
Range	4.438-6.091	4.800-5.714	0.345-0.556	15-39	71-194	4-9
Mean	5.195	5.773	0.478	20.10	105.90	6.70
SD	0.678	0.745	0.067	6.33	41.00	1.27

respectively. The range of LCI scores for both conditions was 5.333 to 7.619 with pictures, and 4.800 to 6.933 without pictures.

The means for type-token ratio (TTR) of the language-normal group in response to two modes of story retelling, with pictures and without pictures, was 0.435 and 0.483, respectively. The range of TTR scores for both conditions was 0.399 to 0.489 with pictures, and 0.410 to 0.545 without pictures. The means for type-token ratio (TTR) of the language-impaired group in response to two modes of story retelling, with pictures and without pictures, was 0.441 and 0.478, respectively. The range of TTR scores for both conditions was 0.365 to 0.541 with pictures, and 0.345 to 0.556 without pictures.

The means for total number of utterances (TNU) of the language-normal group in response to two modes of story retelling, with pictures and without pictures, were 41.40 and 37.30, respectively. The range of TNU scores for both conditions was 28 to 54 with pictures, and 18 to 54 without pictures. The means for total number of utterances (TNU) of the language-impaired group in response to two modes of story retelling, with pictures and without pictures, were 26.10 and 22.40, respectively. The range of TNU scores for both conditions was 19 to 41 with pictures, and 15 to 39 without pictures.

The means for total number of words (TNW) of the language-normal group in response to two modes of story retelling, with pictures and without pictures, were 237.60 and 202.20, respectively. The range of TNW scores for both conditions was 28 to 54 with pictures, and 18 to 54 without pictures. The means for total number of words (TNW) for the language-impaired group in response to two modes of story retelling, with pictures and without pictures, were 143.20 and 105.90,

respectively. The range of TNW scores for both conditions was 108 to 219 with pictures, and 71 to 194 without pictures.

The means for total number of content units (TNCU) of the language-normal group in response to two modes of story retelling, with pictures and without pictures, were 15.60 and 15.00, respectively. The range of TNCU scores for both conditions was 9 to 23 with pictures, and 10 to 25 without pictures. The means for total number of content units (TNCU) of the language-impaired group in response to two modes of story retelling, with pictures and without pictures, was 8 to 6.70, respectively. The range of TNCU scores for both conditions was 6 to 9 with pictures, and 4 to 9 without pictures.

Data Analysis

In order to test the hypotheses developed for this study, the data were submitted to an analysis of variance (ANOVA) for repeated measures. Tables 7-12 contain a summary of these analyses.

As shown in Table 7, a summary of the analysis of variance with repeated measures for mean length of utterance (MLU) revealed no significant difference on this measure between elicitation modes, with and without pictures ($F=3.14$, $df=1$, $p=0.093$) or groups, language-normal and language-impaired ($F=0.54$, $df=1$, $p=0.471$). In addition, there was no significant interaction between the groups and MLU ($F=0.15$, $df=1$, $p=0.705$). Therefore, hypotheses 1.1, 1.3, 5.1, 5.7, and 6.1 were accepted.

As shown in Table 8, a summary of the analysis of variance with repeated measures for length complexity index (LCI) revealed no significant difference on this measure between elicitation modes, with

Table 7

Summary of Analysis with Repeated Measures for Mean Length of Utterance
as a Function of Language Ability and Elicitation Mode

Source	Sum of Squares	Degrees of Freedom	Mean Square	F	Two-Tail Probability
Mean	1206.75897	1	1206.75897	1705.04	0.000
1 Group	0.38234	1	0.38234	0.54	0.471
Error	12.73970	18	0.70776		
MLU	1.07500	1	1.07500	3.14	0.093
2 TG	0.05052	1	0.05052	0.15	0.705
Error	6.16477	18	0.34249		

Table 8

Summary of Analysis of Variance with Repeated Measures for Length Complexity Index as a Function of Language Ability and Elicitation Mode

Source	Sum of Squares	Degrees of Freedom	Mean Square	F	Two-Tail Probability
Mean	1687.03526	1	1687.03526	1523.60	0.000
1					
Group	0.74070	1	0.74070	0.67	0.424
Error	19.93008	18	1.10723		
2					
LCI	1.07231	1	1.07231	2.39	0.139
TG	0.00001	1	0.00001	0.00	0.995
Error	8.05992	18	0.44777		

and without pictures ($\underline{F}=2.39$, $\underline{df}=1$, $\underline{p}=0.139$) or groups, language-normal and language-impaired ($\underline{F}=0.67$, $\underline{df}=1$, $\underline{p}=0.424$). In addition, there was no significant interaction between the groups and the LCI ($\underline{F}=0.00$, $\underline{df}=1$, $\underline{p}=0.995$). Therefore, hypotheses 1.2, 1.4, 5.2, 5.8, and 6.2 were accepted.

Table 9 presents a summary of the analysis of variance with repeated measures for type-token ratio (TTR). There was a significant difference on this measure between elicitation modes, with and without pictures ($\underline{F}=14.27$, $\underline{df}=1$, $\underline{p}=0.001$), but no significant difference was observed between the language-normal and language-impaired groups ($\underline{F}=0.00$, $\underline{df}=1$, $\underline{p}=0.975$). In the story retelling mode, the language-normal group produced a significantly higher TTR ratio than the language-impaired group with pictures. There was no significant interaction between the groups and the TTR ($\underline{F}=0.18$, $\underline{df}=1$, $\underline{p}=0.674$). Therefore, hypotheses 3.1 and 3.2 were rejected, and 5.5, 5.11, and 6.3 were accepted.

As shown in Table 10, a summary of the analysis of variance with repeated measures for total number of utterances (TNU) revealed a significant difference on this measure between elicitation modes, with and without pictures ($\underline{F}=5.15$, $\underline{df}=1$, $\underline{p}=0.035$) and groups, language-normal and language-impaired ($\underline{F}=14.94$, $\underline{df}=1$, $\underline{p}=0.001$). The language-normal group produced a significantly higher TNU with pictures. However, there was no significant interaction between the groups and the TNU ($\underline{F}=0.18$, $\underline{df}=1$, $\underline{p}=0.674$). Therefore, hypotheses 2.2, 2.4, 5.4, 5.10 were rejected, and hypothesis 6.4 was accepted.

A summary of the analysis of variance with repeated measures for total number of words (TNW) as presented in Table 11, revealed a

Table 9

Summary of Analysis of Variance with Repeated Measures for Type-Token Ratio
as a Function of Language Ability and Elicitation Mode

Source	Sum of Squares	Degrees of Freedom	Mean Square	F	Two-Tail Probability
Mean	8.45099	1	8.45099	2033.49	0.000
1					
Group	0.00000	1	0.00000	0.00	0.975
Error	0.07481	18	0.00416		
2					
TTR	0.01810	1	0.01810	14.27	0.001
TG	0.00023	1	0.00023	0.18	0.674
Error	0.02284	18	0.00127		

Table 10

Summary of Analysis of Variance with Repeated Measures for Total Number of Utterances as a Function of Language Ability and Elicitation Mode

Source	Sum of Squares	Degrees of Freedom	Mean Square	F	Two-Tail Probability
Mean	39000.02500	1	39000.02500	220.70	0.000
1					
Group	2640.62500	1	2640.62500	14.94	0.001
Error	3180.85000	18	176.71389		
2					
TNU	255.02500	1	255.02500	5.15	0.035
TG	9.02500	1	9.02500	0.18	0.674
Error	891.45000	18	49.52500		

Table 11

Summary of Analysis of Variance with Repeated Measures for Total Number of Words as a Function of Language Ability and Elicitation Mode

Source	Sum of Squares	Degrees of Freedom	Mean Square	F	Two-Tail Probability
Mean	1186458.02500	1	1186458.02500	172.93	0.000
1 Group	90916.22500	1	90916.22500	13.25	0.000
Error	123496.25000	18	6860.90278		
TNW	13213.22500	1	13213.22500	13.54	0.001
2 TG	9.02500	1	9.02500	0.01	0.924
Error	17566.25000	18	975.90278		

significant difference on this measure between elicitation modes, with and without pictures ($\underline{F}=13.54$, $\underline{df}=1$, $\underline{p}=0.001$) and groups, language-normal and language-impaired ($\underline{F}=13.25$, $\underline{df}=1$, $\underline{p}=0.000$). The language-normal group produced a significantly higher total number of words than did the language-impaired group in the presentation mode, without pictures. However, there was no significant interaction between the groups and the TNW ($\underline{F}=0.01$, $\underline{df}=1$, $\underline{p}=0.924$). Therefore, hypotheses 2.1, 2.3, 5.3, and 5.9 were rejected, and hypothesis 6.5 was accepted.

A summary of the analysis of variance with repeated measures for total number of content units (TNCU), as presented in Table 12, revealed no significant difference on the measures between elicitation modes, with and without pictures ($\underline{F}=2.13$, $\underline{df}=1$, $\underline{p}=0.161$), but a significant difference was observed between the language-normal and language-impaired groups ($\underline{F}=32.67$, $\underline{df}=1$, $\underline{p}=0.000$). The language-normal group recalled significantly more content units than the language-impaired group. There was no significant interaction between the groups and the TNCU ($\underline{F}=0.29$, $\underline{df}=1$, $\underline{p}=0.597$). Therefore, hypotheses 4.1 and 4.2 were rejected, and 5.6 and 6.6 were accepted.

Table 12

Summary of Analysis of Variance with Repeated Measures for Total Number of Communication Units as a Function of Language Ability and Elicitation Mode

Source	Sum of Squares	Degrees of Freedom	Mean Square	F	Two-Tail Probability
Mean	5130.22500	1	5130.22500	265.17	0.0000
1 Group	632.02500	1	632.02500	32.67	0.0000
Error	348.25000	18	19.34722		
TNCU	9.02500	1	9.02500	2.13	0.1616
2 TG	1.22500	1	1.22500	0.29	0.5973
Error	76.25000	18	4.23611		

Chapter 5

SUMMARY, DISCUSSION AND RECOMMENDATIONS

Summary

The purpose of this study was to establish if the form and content of normal and impaired language was altered when two modes of story retelling (with and without pictures) were used to sample language skills.

The subjects consisted of 20 children between the ages of 5- and 6-years-old who were placed into two groups: a group of 10 language-normal children and a group of 10 language-impaired children. The children identified as language-normal were selected on the basis of performance (≥ 75 th percentile) on the Florida Language Screening Test. The language-impaired children were selected on the basis of depressed performance (≤ 25 th percentile) on the Florida Language Screening Test, and the clinical judgement of a language clinician.

Language samples were collected using two elicitation modes from each of the 20 subjects: (1) a story retelling task with pictures, and (2) a story retelling task without pictures. Materials used in the warm-up activities included three pictures taken from the story Alligator's Toothache by Diane de Groat (1977). During each language sample, two tape recorders were used, one to record each child's language sample and the second to play the recorded story of Curious George (Rey, 1969). Materials used in the story retelling task were

10 sequenced pictures taken from the storybook Curious George by H.A. Rey (1969). Each of these 10 pictures were brightly colored, mounted and laminated. Data were analyzed according to two measures of syntactic complexity (mean length of utterance and length complexity index), two measures of verbal productivity (total number of utterances and total number of words), a measure of lexical diversity (type-token ratio), and a measure of thematic recall (total number of content units).

To test the hypotheses developed for this study, the data were submitted to an analysis of variance (ANOVA) with repeated measures. Results of the analysis revealed significant differences on three of the linguistic measures between language-normal and language-impaired groups: total number of utterances, total number of words, and total number of content units. Significant differences were also found on three linguistic measures between the story retelling modes (with and without pictures): type-token ratio, total number of utterances, and total number of words.

Discussion

The ANOVA with repeated measures revealed no significant difference for the mean length of utterance (MLU) between either the elicitation modes or language groups. Cowan et al. (1967) found that MLU was not an intrinsic characteristic of children and that it remains constant from situation to situation. These findings lend support to the present data on elicitation modes, but offer no explanation of the findings between groups. According to Templin (1964), the average MLU for 5- and 6-year-old normal children range from 5.7 to 6.6. The

average MLU for the language-normal subjects in this study was 5.7, and 5.4 for the language-impaired subjects, which indicates that the language-normal group in this study was indeed within the normal limits whereas the language-impaired group was not. It is interesting to note that the MLU of the language-normal children in this study was at the lower end of normalcy which may have contributed to the findings of no significance between the groups.

The ANOVA for repeated measures for the length complexity index (LCI) revealed no significant difference for either the elicitation modes or the language groups. According to Ahmed (1973), grammatical complexity is the most stable characteristic of children's speech and is least subject to modification by situational variables. The findings of this study support Ahmed's (1973) observation.

A factor which may have contributed to the findings of no significant difference between the two language groups on MLU and LCI were the structures evaluated by these two measures. Both MLU and LCI, are more appropriate measures of children's use of basic syntax, whereas the complex structures produced by children are not accounted for in these measures. Use of complex structures may actually be penalized by MLU counts since more condensed or compact constructions are frequently reflective of more advanced syntax than longer, rambling types of sentences.

A second contributing factor to the findings of no significant difference between the groups on MLU and LCI involved "time." At the time of this study, the language-impaired children had been enrolled and had received language therapy for seven months. Because of the intervening time between their initial diagnosis and this study, it

appears that the language-impaired children made considerable progress in their language skills which resulted in no significant differences between the groups (language-normal and language-impaired) relative to the length and complexity of utterances.

The ANOVA for repeated measures for type-token ratio (TTR) revealed a significant difference between elicitation modes, but no significant difference was found between groups. There was a significantly higher TTR with pictures than without. According to Longhurst and Grubb (1974), TTR and TNW are more sensitive to situational variables than other linguistic measures because vocabulary and verbal output are easily altered by the situation. The present findings are supportive of Longhurst and Grubb's (1974) conclusions. Templin (1967) found that the mean TTR in 5- and 6-year-olds ranged from 0.45 to 0.46. The mean TTR in this study was 0.48 for the language-normal group and 0.44 for the language-impaired group which indicated that the language-normal group was performing slightly better than Templin's sample and the language-impaired group was performing slightly more poorly.

The ANOVA for repeated measures for the total number of utterances (TNU) revealed a significant difference between elicitation modes and language groups. The language-normal group achieved a significantly higher TNU than the language-impaired group, and the elicitation mode with pictures encouraged significantly greater TNU than the elicitation mode without pictures. Because TNU is a measure of verbal productivity very similar to TNW, it is also sensitive to situational variables. The findings of this study relative to TNU were also supportive of Longhurst and Grubb's (1974) observations.

The ANOVA with repeated measures for total number of words (TNW) revealed a significant difference on both elicitation modes and language groups. A significantly higher TNW in the elicitation mode with pictures was achieved, and the language-normal group exhibited a higher TNW than the language-impaired group. These findings were consistent with those of Longhurst and Grubb (1974) who showed TNW and TTR to be sensitive to situational variables. According to Templin (1964), the mean for TNW for normal 5- and 6-year-olds ranged from 286.2 to 328.0. The mean for the subjects in this study was 78.70 for the language-normal and 46.20 for the language-impaired group. Because the elicitation protocols for Templin's study and the present study were different, these results are not directly comparable.

The ANOVA with repeated measures for total number of content units (TNCU) revealed no significant difference on this measure between elicitation modes, but a significant difference was observed between the groups. Because the purpose of this measure was to recall specific thematic content, a significant difference between the language-normal and language-impaired groups was expected, however, no previous information indicated whether this measure would be sensitive to situational changes.

Recommendations

As a result of this study, the following recommendations for further research are made:

1. This study should be replicated on a larger sample of subjects to corroborate the present findings.

2. The language-impaired group should be classified on the basis of current test information rather than on enrollment in a language therapy program.

3. Other measures of language analysis should be employed especially those which account for differences in complex language use such as verbs per utterance, frequency of conjoining, adjoining, and embedding.

4. The results of language sampling should be compared with children's communication in the classroom to establish correspondence between everyday language use and a story retelling elicitation protocol.

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APPENDIX A

Language Sample Elicitation Protocol
a la Barrie-Blackley (1978)

Language Sample Elicitation Protocol
a la Barrie-Blackley (1978)

I. Preparation

A. Elicitor-language clinician

B. Materials

1. Pictures - the pictures used were from the book Curious George, by H.A. Rey (Boston, Massachusetts: Houghton Mifflin Company, 1969). This book consisted of sequenced pictures of which 10 were chosen.

C. Story (Appendix B)

II. Pre-Elicitation Activities

A. Instructions

SAY: I'M GOING TO SHOW YOU SOME PICTURES AND TELL YOU SOME STORIES. I WANT YOU TO LISTEN CAREFULLY BECAUSE WHEN I'M FINISHED, I WANT YOU TO TELL ME THE STORY WHILE LOOKING AT THE PICTURES AND SOMETIMES YOU WILL TELL ME THE STORY WITHOUT LOOKING AT THE PICTURES. HERE'S THE FIRST ONE.

B. Warm-up

Set 1: (With Picture)

SAY: POOR ALLIGATOR, HE HAS A TOOTHACHE BUT HE DOESN'T WANT TO GO TO THE DENTIST SO HE PUTS A BANDAGE ON HIS MOUTH TO MAKE IT FEEL BETTER. NOW LOOK AT THE PICTURE AND TELL ME WHAT HAPPENED.

Set 2: (Without Picture)

SAY: HERE'S THE NEXT PICTURE. OH NO! LOOK WHO'S AT THE DOOR. THE DENTIST FOUND OUT MR. ALLIGATOR HAD A TOOTHACHE AND HE CAME TO FIX IT. NOW I'M GOING TO TAKE THE PICTURE AWAY AND YOU TELL ME WHAT HAPPENED.

Set 3: (With Picture)

SAY: LET'S LOOK AT THE LAST ONE. LOOK HOW HAPPY MR. ALLIGATOR IS NOW. THE NICE DENTIST PULLED HIS TOOTH AND NOW MR. ALLIGATOR'S MOUTH FEELS BETTER AGAIN. LOOK AT THE PICTURE AND TELL ME ABOUT IT.

C. Continue until the child responds to all three practice pictures.

III. Elicitation

A. Instructions

SAY: NOW I'M GOING TO SHOW YOU SOME OTHER PICTURES AND TELL YOU A LONGER STORY ABOUT "CURIOUS GEORGE." LISTEN CAREFULLY. WHEN I'M FINISHED I WANT YOU TO TELL ME THE STORY IN YOUR OWN WORDS.

1. Play the tape-recorded story of CURIOUS GEORGE and present each picture in sequence.
2. In the picture presentation mode say: NOW LOOK AT THESE PICTURES AND TELL ME THE STORY ABOUT CURIOUS GEORGE.
3. In the non-picture presentation mode say: NOW YOU TELL ME THE STORY ABOUT CURIOUS GEORGE.

B. Prompting

1. Smile, nod and encourage with "uh-huh" throughout.
2. Say "what else?" after a 5 second pause.
3. When using the picture presentation mode, present the next picture after the child has finished with the preceding picture.
4. Follow the prompting procedure until:
 - a. The child indicates that he/she is finished or
 - b. A 10 second pause has elapsed.

APPENDIX B

The Story of Curious George
H.A. Rey

Curious George
H.A. Rey

- Picture 1: This is George. He lived in Africa. He was very happy, but he had one fault; he was too curious.
- Picture 2: One day George saw a man. He had on a large yellow straw hat. The man saw George too. "What a nice little monkey," he thought. "I would like to take him home with me." He put his hat on the ground and, of course, George was curious. He came down from the tree to look at the large yellow hat.
- Picture 3: The hat had been on the man's head. George thought it would be nice to have it on his own head. He picked it up and put it on. The hat covered George's head. He couldn't see. The man picked him up quickly and popped him into a bag. George was caught.
- Picture 4: The man with the big yellow hat put George into a little boat, and a sailor rowed them both across the water to a big ship. George was sad, but he was still a little curious. On the big ship, things began to happen. The man took off the bag. George sat on a stool and the man said, "George, I am going to take you to a big zoo in a big city. You will like it there. Now run along and play, but don't get into trouble." George promised to be good, but it is easy for little monkeys to forget. On the deck he found some sea gulls. He wondered how they could fly. He was very curious. Finally he had to try. It looked easy, but....
- Picture 5: Oh what happened! First this...then this! "Where is George?" The sailors looked and looked. At last they saw him struggling in the water, and almost all tired out. "Man overboard," the sailors cried as they threw him a lifebelt. George caught it and held on. At last he was safe on board. After that, George was more careful to be a good monkey, until, at last, the long trip was over. George said good-bye to the kind sailors, and he and the man with the yellow hat walked off the ship, on to the shore, and on into the city to the man's house.
- Picture 6: The next morning the man telephoned the zoo. George watched him. He was fascinated. Then the man went away. George was curious. He wanted to telephone too. One, two, three, four, five, six, seven. What fun! Ding-a-ling-a-ling! George had telephoned the fire station. The firemen rushed to the telephone. "Hello! Hello!" they said. But there was no answer. Then they

looked for the signal on the big map that showed where the telephone call had come from. They didn't know it was George. They thought it was a real fire. Hurry! Hurry! Hurry! The firemen jumped onto the fire engines and on to the hook and ladders. Ding-dong-ding-dong. Everyone out of the way! Hurry! Hurry! Hurry! The firemen rushed into the house. They opened the door. No fire! Only a naughty little monkey. "Oh catch him, catch him" they cried. George tried to run away. He almost did, but he got caught.

- Picture 7: A thin fireman caught one arm and a fat fireman caught the other. "You fooled the fire department," they said. "We will have to shut you up where you can't do any more harm." They took him away and shut him in a prison. A watchman came in the prison where George was and George tricked the watchman and got away.
- Picture 8: Down the street he saw a man selling balloons. George watched. He was curious again. He reached over to catch a balloon, but all of the balloons came loose in George's hand, and George went flying up in the air.
- Picture 9: George went flying over the city and landed, bump, on a traffic light. The traffic got all mixed up and George didn't know what to do. He heard a man call "George!" It was the man in the yellow hat. George was very happy. The man took George down, and they drove away.
- Picture 10: To the zoo! What a nice place for George to live.

APPENDIX C

Counterbalanced Order of Presentation

Counterbalanced Order of Presentation

<u>Subject</u>	<u>With Pictures</u>	<u>Without Pictures</u>
1	2nd task	1st task
2	2nd task	1st task
3	2nd task	1st task
4	2nd task	1st task
5	2nd task	1st task
6	2nd task	1st task
7	2nd task	1st task
8	2nd task	1st task
9	2nd task	1st task
10	2nd task	1st task
11	1st task	2nd task
12	1st task	2nd task
13	1st task	2nd task
14	1st task	2nd task
15	1st task	2nd task
16	1st task	2nd task
17	1st task	2nd task
18	1st task	2nd task
19	1st task	2nd task
20	1st task	2nd task

APPENDIX D

Developmental Sentence Analysis Rules
for Separating Utterances
Laura Lee (1974)

Developmental Sentence Analysis Rules
for Separating Utterances
Laura Lee (1974)

1. Interjections. Interjections which have an accepted spelling such as yes, no, o.k., oh-oh, bye-bye, night-night, and hey are to be included in the transcription as separate utterances.
2. Nouns in Direct Address. When the child calls his listener by name, the name is listed separately. It is important to listen to the intonation of these utterances to be sure the proper noun is in direct address.
3. Imperative Interjection. Children frequently use look, lookit, and see as interjections or starts to an utterance. These should be separated from the rest of the utterances and counted as a separate utterance.
4. Sentence Tags. Sometimes children add sentence tags, such as "I mean," "I think," "I guess," "I see," "You know," to the end or the beginning of an utterance. These sentence tags should be separated from the utterance and scored as an individual sentence.
5. Initial Conjunction.
 - (a) Sentences which begin with conjunctions are counted as complete sentences, but the initial conjunction is not scored.
Ex: "(but) I'm not ready."
 - (b) "and" joining independent clauses. Only one "and" conjunction per sentence is allowed when the "and" connects two independent clauses.
Ex: (and) the dog got scare and he started to bark.
 - (c) The conjunction "and" used in a series, a compound subject, or a compound predicate does not require the sentence to be broken up.
Ex: I like red and blue and green and yellow.
 - (d) Internal conjunctions other than "and." These conjunctions do not require a sentence to be broken up, and are counted wherever they appear.
Ex: (and) then we had lunch and some kids came over but we didn't like them.
 - (e) Other overused conjunctions. At the clinician's discretion, the rules for "and" may be applied to any other overused conjunction. Occasionally a child will use "so" to string sentences along.
Ex: (so) they wanted a dog so they told their dad.

APPENDIX E

How To Count Words
Johnson, Darley & Spriestersbach (1952)

How To Count Words
Johnson, Darley & Spriestersbach (1952)

1. Where words or phrases are repeated deliberately for emphasis, count each occurrence (e.g. "up, up, up"). However, count no more than two repetitions of the word or phrase regardless of its use in context.
2. Count "compound words" as one word.
3. Count each word of a verbal combination as a separate word (e.g. "have been playing" = 3 words).
4. Ritualized expressions should be counted as single words (e.g. "darn it," "O.K.," "someone," "birdhouse").
5. Count the following as two words: "oh yes," "oh no," "onto," "Christmas tree."
6. Noises should be counted as a single morph only when they function as an integral part of the sentence (e.g. "The lion says 'grrr'").
7. Words, that in rapid speech can be slurred together in such a way as to sound "contracted" should be counted as two words (e.g. "what's" = "what is," "it's" = "it is," "kinda" = "kind of"). Words that have inflectional endings or that take very different phonological form in their "contracted" form should be counted as one word (e.g. "it" + possessive, "can't," "won't").

APPENDIX F

Language Sample
Language-Normal Subject
Age 5

Language Sample
Language-Normal Subject
Age 5

Without Pictures

1. Once there was this little monkey named George.
2. He lived in the jungle.
3. The man saw him.
4. He knew that George was very curious.
5. (so) he tried to get George.
6. He put out his yellow hat.
7. Like always George was curious.
8. George went over and put it on.
9. It was too big for him.
10. He could not see what was going on.
11. The man took him to a ship.
12. (and) they started rowing to the sea.
13. (and) George saw some sea gulls.
14. He promised not to get into any trouble.
15. He saw them flying.
16. He thought it would be so easy.
17. George started to fly.
18. What happened to him?
19. He had fell off under the water.
20. The sailors looked for George.
21. They could not find him.
22. Then they saw him just about all gave out.
23. They said man has went overboard.
24. (so) they pulled him up.
25. The ship ride was over.
26. The man took him to his house.
27. The man called the zoo.
28. George was curious.
29. He wanted to do that.
30. He dialed.
31. one
32. two
33. three
34. four
35. five
36. six
37. seven
38. He had dialed the fire department.
39. (and) they answered.
40. (and) the beeper told them where the fire was.
41. (and) George had played a trick on them.
42. (and) he was tryin to escape.
43. (but) a thin man caught him by one arm.
44. A big heavy man caught him by the other arm.
45. They had to take George to a prison.
46. He played a trick on one of the guards.

47. (and) he escaped.
48. (and) saw some balloons.
49. (and) he was curious like he always was.
50. George saw them and he was going to get one.
51. (and) he landed on a traffic light.
52. (and) he heard somebody callin.
53. It was the man with the yellow hat.
54. He took him to the zoo.

With Pictures

1. This is George.
2. He lived in the jungle.
3. He has one little problem.
4. He is really curious.
5. One day a man with a yellow hat saw George.
6. He figured that he was curious.
7. He had weared his hat and weared it (so)
8. he put it on.
9. George was curious about the hat.
10. He went over to it.
11. He put it on.
12. It was too big for him.
13. He couldn't see what he was doing.
14. They got a ship on it.
15. The man with a yellow hat let George sit on a stool.
16. (and) George had promised not to get into any trouble.
17. (but) one day he saw some seagulls flying out.
18. He thought it was easy and he tried it.
19. What happened?
20. He started down.
21. (and) they were looking for George everywhere.
22. (and) they finally found him just about give out.
23. They called a man overboard.
24. (and) they got him to the yellow man house.
25. (and) he dialed somebody on the telephone.
26. (and) Curious George was like he always was.
27. (and) George wanted to go talk on the telephone.
28. (and) he dialed.
29. one
30. two
31. three
32. four
33. five
34. six
35. seven
36. (and) he dialed the fire department.
37. They came to the phone.
38. George did not say nothin.
39. They came fast as they could.
40. (and) they found out George had just played a trick on them.

41. A skinny man carried him by one arm and a fat man carried him by the other.
42. One day the man came in.
43. George escaped.
44. He got away.
45. He played a trick on the keeper.
46. (and) he saw some balloons down below.
47. (and) he was going to get one.
48. Instead, he got all of them.
49. (and) he landed on a street light.
50. (and) all the traffic got mixed up.
51. (and) he heard somebody calling for him.
52. (and) he saw it was the man with the yellow hat.
53. He got down.
54. (and) they went off to the zoo.

APPENDIX G

Language Sample
Language-Impaired Subject
Age 6

Language Sample
Language-Impaired Subject
Age 6

Without Pictures

1. He went to to the circus.
2. He was in the forest swingin around.
3. (and) this man put his hat down.
4. (and) he put it on.
5. (and) the man got it.
6. (and) they got on the boat.
7. (and) the sailors rowed.
8. (and) George called.
9. (and) the fireman came.
10. (and) put him in jail.
11. He went to the circus.
12. The man came in there.
13. (and) he got out.
14. Went to the circus.
15. He swunged up on the thing.
16. He swung on the balloons.

With Pictures

1. He's swingin.
2. He's eatin a banana.
3. (and) a man saw the monkey.
4. He wanted to keep him.
5. (and) he put his hat out.
6. (and) he got him and put him in the boat.
7. (and) he put it on.
8. It's too big for him.
9. (and) he put him in the boat.
10. He was in the cellar.
11. (and) he starts to play and he landed on that.
12. (and) he crashed.
13. He called the fireman.
14. He locked him up and put him in the cage.
15. (and) he got him by the arms.
16. (and) Curious George got all the balloons.
17. He got up on that thing and the man called him.
18. (and) he was happy.
19. He went to the circus.

VITA

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