





This is to certify that the

thesis entitled The Relationship Between Language Acquisition and Symbolic Play: Implications for a Diagnostic Tool:

presented by

Lawrence Brent Rosenberg

has been accepted towards fulfillment of the requirements for

M.A.____degree in <u>Audiology &</u> Speech Sciences

Major professor

Date February 24, 1978

O-7639

THE RELATIONSHIP BETWEEN LANGUAGE ACQUISITION AND SYMBOLIC PLAY: IMPLICATIONS FOR A DIAGNOSTIC TOOL

.

By

Lawrence Brent Rosenberg

÷

A THESIS

Submitted to Michigan State University in partial fulfillment of the requirements for the degree of

MASTER OF ARTS

Department of Speech Pathology 1977

ABSTRACT

THE RELATIONSHIP BETWEEN LANGUAGE ACQUISITION AND SYMBOLIC PLAY: IMPLICATION FOR A DIAGNOSTIC TOOL

by Lawrence B. Rosenberg

The purpose of this study was to compare an assessment of symbolic play behavior comprised of imitation, block building, and socio-dramatic play to language development as measured by Brown's procedure calculating mean length of utterance (MLU).

Eighteen subjects and five observers were used in the investigation. Subjects consisted of three groups of normal children in the following age ranges: eighteen to twenty-one months, twenty-four to twenty-seven months, and thirty to thirty-three months. The children were selected from Lansing area preschools. Judges were graduate (2) and undergraduate (3) students enrolled in the Department of Audiology and Speech Sciences at Michigan State University.

This study asked the following questions.

(1) Is there a relationship between expressive language (measured by mean length of utterance) and age?

(2) What affect does age have on mean length of response as measured by analysis of variance?

(3) Can intrajudge reliability be established using the proposed measure for symbolic play?

(4) Can interjudge reliability be established using the proposed measure for symbolic play?

(5) Is there a relationship between expressive language (measured by mean length of utterance) and imitation of symbolic play?

(6) Is there a relationship between expressive language (measured by mean length of utterance) and block building of symbolic play?

(7) Is there a relationship between expressive language (measured by mean length of utterance) and socio-dramatic play behavior of symbolic play?

Analysis of the data gathered from the language samples and the three measures of representational play revealed the following conclusions.

(1) A significant relationship exists between age and expressive language measured by mean length of utterance.

(2) A significant difference exists between mean length of utterance of Group I versus Group III and Group II versus Group III.

(3) Intrajudge reliability could not be established using the proposed measure for the three measures of symbolic play.

(4) Interjudge reliability was established using the proposed measure for the three measures of symbolic play.

(5) A significant relationship exists between MLU and imitation of symbolic play. The relationship could only be demonstrated for Group I of the study.

(6) A significant relationship exists between MLU and block building of symbolic play. The relationship could only be demonstrated for Groups II and III of the study.

(7) A significant relationship exists between MLU and socio-dramatic play of symbolic play behavior. The relationship could only be demonstrated for Groups II and III of the study.

TABLE OF CONTENTS

Chapter		Page
I.	STATEMENT OF THE PROBLEM	1
	Introduction	1
	Purpose of the Study	2
	Definitions	4
II.	REVIEW OF THE BACKGROUND LITERATURE	5
	Play and Representation	9
	Measurement of Language	14
III.	METHODS	17
	Selection of Subjects	17
	Selection of Observers	18
	Physical Surroundings	18
		19
	Experimental Procedures: Phase I	20
	Experimental Procedures: Phase II	20
IV.	RESULTS	23
V.	DISCUSSION	42
	Summary	46 48
VI.	APPENDICES	
	A. Score Sheet Developed to Record Identifying Information About Each Subject	49
	B. Empirical Basis for the Score Sheet Based on Results of the Pilot Study	51
	C. G Gaddeliaes E Employed b by O bservers W Wan R Rating Each of the Subject's Performance	53
	D. Informed Consent Release Form	55
	E. Observer Rules Employed When Interacting With Each Subject During Symbolic Play Assessment	57
	F. Adapted Rules for Calculating Mean Length of Utterance from Roger Brown (1974)	59
	G. Intrajudge Data Summary Chart	61
	H. Interjudge Data Summary Chart	62
VII.	BIBLIOGRAPHY	63

LIST OF TABLES

Table

1.	Brown's five linguistic stages of language develop- ment as compared to mean length of utterance, grammatical relations, and modulation of meaning	16
2.	Age, mean length of utterance (MLU, median score on imitation, block building, and socio-dramatic play on ratings by three observers for each of the eighteen children	24
3.	One measure of expressive language as measured by MLU, median scores of the three measures of re- presentational play of all three age groups	25
4.	Median, range, mean and standard deviation of expressive language as measured by length of utterance for three age groups	27
5.	Spearman rho rank order correlation matrix comparing all subjects by age, each of the three measures of representational play and one measure of amount of expressive language	28
6.	Summary table for analysis of variance relating the effect of age (in months) on expressive language as measured by mean length of utterance (MLU)	29
7.	Newman-Keul's specific comparison test comparing the amount of expressive language as measured by MLU to each of the three age groups measured in months	30
8.	Spearman rho rank order correlation matrix of two observers rating four of the subjects on three measures of representational play at two separate times, one from a live session and one from video-tape .	32
9.	Spearman rho rank order correlation matrix comparing three observers and their rankings of all subjects' performance on three measures of representational play behavior	33
10.	Mendall coefficient of concordance (M) matrix analysis of consistency of three observers rating subjects' per- formance on three measures of representational play	-1
11.	Median, range, mean, and standard deviation of the	34
	as ranks for three age groups	35
12.	Median, range, mean, and standard deviation of the repre- sentational play behavior of block building measured as ranks for three age groups	36

13.	Median, range, mean, and standard deviation of the re- presentational play behavior of socio-dramatic play measured as ranks for three age groups	37
14.	Spearman rho rank order correlation matrix comparing subjects in each age group measured in months to each of the three measures of representational play and one measure of amount of expressive language (MLU)	38
15.	Spearman rho rank order correlation matrix comparing MLU for subjects in each group measured in months to each of the three measures of representational play	40
16.	Kruskal-Wallis H statistic measuring significant dif- ferences between three measures of representational play behavior and the three age groups	41

:

•

. .

.

•

CHAPTER I

STATEMENT OF THE PROBLEM

Introduction

At a recent seminar on assessment of mentally impaired children, Dihoff (1976) presented a paper on the "Standard and Nonstandard Application of Piagetian Assessment Procedures." The presentation reviewed methods on the assessment of special populations, especially the mentally impaired. She indicated that in examining Piaget's stages it is important to determine not only the current behavior demonstrated but also the cumulative behaviors that led to the current behavior. Therefore, in order to assess the level for remediation the previous stages as well as the current stages of function must be determined.

Furth (1975) suggested that the acquisition of language occurs within the framework of the child's acquisition of representational behavior which can be considered to be the beginning of symbolic function. The child produces a gestural imitation (symbolic play) of events in the absence of the original object. These same imitations later evolve into basic expressive acts. Furth claimed that spontaneously produced external imitation is not merely a sensorimotor response.

Wood (1976) summarized Piaget's developmental stages as follows:

- (1) zero to two years: termed the acquisition of perceptual invariants where the child demonstrates the ability to identify the main features of their environment;
- (2) two to seven years: called the preoperational intuitive thinking stage where the child begins to comprehend the association that exist between perceptual invariants such as time, space, and causality but only in one dimension at a time;

- (3) seven to eleven years: called the concrete operational thinking stage where the child demonstrates the ability to comprehend complex relationships within the environment such as conservation of weight, volume, and quantity; and
- (4) eleven years and older: termed the propositional thinking stage when the child can think in terms of logical problems that can be tested through experience.

It is during the preoperational stage (two to four years) that the child displays what has been called "transductive reasoning" such that his inferences are sometimes but not always correct. It is during this time that language is just emerging and being used to encode practical experiences of the previous stages. "Play is now symbolic in nature" (Dihoff, 1976).

If one accepts the view that a relationship exists between language and cognition and that symbolic play is one of the many behaviors presented in the cognitive development of a child, then language development can be assumed to parallel the development of symbolic play (Sinclair, 1974). If symbolic play precedes graphic collections and distinguishable drawing abilities (and it usually does), symbolic play can therefore be considered as one of the earliest preoperational behaviors identifiable (Dihoff, 1976). The most important information to be gained from the assessment of play is the differentiation of sensorimotor behavior from preoperational behavior. To accurately accomplish this differentiation, it is important to know whether a representational system and its cognitive counterpart, language, is present.

Purpose of Study

The present study attempted to investigate Piaget's proposal that the development of language in the young child is but one manifestation of the emergence of a more broadly based representational system whose aspects

include symbolic play. This study focuses on the pattern of symbolic play behavior and its relationship to language development, as well as with the viability of a particular method of assessing children's symbolic play behavior. Based on the significance of identification and remediation of speech and language disorders and the relationship existing between cognitive development and language development, the following questions will be examined.

- (1) Is there a relationship between expressive language (measured by mean length of utterance) and age?
- (2) What effect does age have on mean length of utterance as measured by analysis of variance?
- (3) Can intrajudge reliability be established using the proposed measure for symbolic play as determined by Spearman rho correlation coefficient?
- (4) Can interjudge reliability be established using the proposed measure for symbolic play as determined by Spearman rho correlation coefficient?
- (5) What relationship exists between mean length of utterance and imitative behavior of symbolic play as determined by Spearman rho correlation coefficient? What effect does age have on this relationship?
- (6) What relationship exists between mean length of utterance and block building behavior of symbolic play as determined by Spearman rho correlation coefficient? What effect does age have on this relationship?
- (7) What relationship exists between mean length of utterance and socio-dramatic play behavior of symbolic play as determined by Spearman rho correlation coefficient? What effect does age have

on this relationship?

Definitions

The definitions of Kamii (1974), Smilansky (1971), Dihoff (1976), Dickson (1974) have been employed to clarify the following terms as used in this study.

Block Building (BB): A child's ability to demonstrate an understanding of three dimensional space by piling and or organizing blocks of various shapes and sizes (Smilansky, 1971).

Imitation (I): The use of the body to represent object (Kamii, 1974).

- Language: A structured system of arbitrary vocal sounds and sequences of sounds used in interpersonal communication and which rather exhaustively catalogues the things, events, and processes of human communication (Dickson, 1974).
- Mean Length of Utterance (MLU): A method of measuring language by calculating the number of morphemes across a specific set of utterancesfollowing a specific set of rules (Brown, 1974).
- Socio-Dramatic Play (SP): Play behavior comprised of the child's ability to use objects to represent other objects and to use their body to represent other objects (Smilansky, 1971).
- Symbolic Play: Comprised of imitation, make-believe, onamatapoeia, and the ability to construct two and three dimensional models (Smilansky, 1971).

CHAPTER II

REVIEW OF THE LITERATURE

Language is a system that pairs meaning to sounds. A model of language might include meanings basically represented as configurations of semantic units. Each semantic unit has a fixed number of meanings. By mapping these units into lexicon and syntax, where lexicon is a set of words and syntax is a set of rules for combining these lexicons, one can examine the semantic structure of language (Antinucci and Parisi, 1975). Bloom (1973) proposed that the conceptual relations to syntax develop first as cognitive relations: only then can they be expressed linguistically. Bloom noted that

> Children learn that objects are acted upon, that people or animate objects do things, that objects and events exist, cease to exist, and recur. This is the stuff of perceptual cognitive experience in the early years, and so it should not be surprising that these are the kinds of things that children talk about in early speech. But whereas children need to learn linguistic code for talking about such phenomena as relations among objects and events in the world, knowledge of the code is not necessary for their understanding such relations. Such phenomenological relations simply exist--without a dependence on linguistic form--in the context and behavior of events and states in early experience. The child's developing perception and cognitive awareness somehow organizes his experience so that categories of events and states of affairs come to be discriminated and conceptually represented. (1970)

Thus, language development can only be understood in the much larger perspective of a child's total cognitive development.

In <u>Play</u>, <u>Dreams</u>, and <u>Imitation in Childhood</u> (1952) Piaget described the evolution of what he called the "symbolic" or "representative" function. According to Piaget, language is by no means an isolated phenomenon, but is only one manifestation of the symbolic function which evolves from the sensorimotor period (approximately 0-18 months) and is necessary for further cognitive development.

Piaget believed that imitation, symbolic play, and mental image (as

"personal symbols") are a link between sensorimotor behavior (from which they are derived) and representative behavior found in the preoperational period. Representational behavior is "independent of language, even though it aids in the acquisition of language. We can say, therefore, that a symbolic function exists which is broader than language and encompasses both the system of verbal signs and that of symbols in the strict sense" (Piaget, 1967).

Piaget considered the symbolic or representational function to be a very general and basic process which provides the basis for the acquisition of both private symbols as in play and for the social signs of language. Piaget stressed the major role which this socially shared linguistic system plays in the development of conceptual logical thought. That is, with the development of the symbolic function, the child becomes capable of representing reality by a gesture, a mental image, or a word; thus, thought be-

This symbolic function, then, is of paramount importance in the child's later intellectual development and, as it is proposed by Piaget, represents one aspect of cognition whose continuous, ongoing process of development can be traced ontogenetically from earliest infancy. This language does not emerge suddenly in the child's second year of life but develops gradually along with deferred imitation symbolic play and other aspects of representation.

Werner and Kaplan (1963) discussed the development of language as only one aspect of a more general "representative function." Like Piaget, they maintain that language, or "linguistic representation," is only one form of representation and that it emerges from nonlinguistic forms of representation.

They state that

Although the independent inquiry into linguistic representation per se may have great value, it is our belief that a fuller psychological insight into all representation, including linguistic, will be attained only by operating on the assumption that linguistic representation emerges from, and is rooted in, nonlinguistic forms of representation. (Werner, Kaplan, 1963)

Piaget (1952) discussed symbolic play or "motor-gestural depication" as one aspect of the representative or symbolic function which emerges from the sensorimotor period of development. Piaget suggested that symbols are private non-codified signifiers which usually resemble their referents in some way, like the child's use of a square block for a car, as opposed to signs which have a socially shared meaning. The signifier is the symbolic vehicle (the block) and the referent is what is being symbolized. Piaget explained what he calls the "growing autonomy of the medium" or a "decrease in tangible likeness" between the symbol vehicle and what it represents. He noted that during the sensorimotor period (8-12 months) the distance between the symbol and what is being represented by the symbol begins to increase in differentiation. The child is capable of more comlex and varied abstractions of the object.

Therefore, in what manner does the structure of thought influence the structure of language? The question relates to the origin of linguistic abilities, whether they come from language or cognition. In early language nouns and verbs appear. McNiell (1967) hypothesized that the origin of nouns are from a "reflection" of language in the final step of sensorimotor development. He suggested that a young baby develops the idea that he can create and anihilate things in his environment. Since an eighteen month old child accepts the existence of things that are separate, and thus extraneous to himself, then we would expect that any language would also follow a similar pattern.

Sinclair (1967) illustrated the development of cognitive stages using a child of the preoperational stage. Normally a child in that stage cannot explain why a block of wood with a greater mass and size will float while a key smaller in size and mass will not. It is assumed, however, that as the child advances to the next cognitive stage, the stage of concrete operational thinking, he will acquire the principles to solve this problem; the process of acquiring these principles are universal to cognitive development.

If language development parallels cognitive development, then it can be said that similar universal processes of acquiring linguistic principles operate in language development. Research (Bauet, 1968: Dasen, 1970; Opper, 1970) has demonstrated that these universal patterns of linguistic development do exist and the knowledge of these universals as cumulative in nature.

Although the course of language acquisition is still largely unknown, "cognitive structure" (meaning a coherent system of mental operations which allows a person to arrive at these concepts) is universal in form (Sinclair, 1976). All human beings are supposed to acquire these universals in the same chronological order. Therefore, any model must have properties with the real phenomenon it represents. Language, being acquired as a part of knowledge, may not be separable from other knowledge. Much information is transmitted verbally, but knowledge itself does not stem from language; it is a series of concepts that can be fit into a linguistic framework. This does not mean that language can occur without representation. Deaf children who are at the age of primary schooling possess virtually no language; yet they can solve cognitive problems the same as normal children, only at slightly later stages (Sinclair, 1976).

Representation is what makes it possible to plan future behavior and to recapitulate past actions prerequisite to the thinking process. Deaf

children can arrive at mobile representations, and they do so without the help of language.

Lenneberg (1964, 1967) examined mongoloid children and their language. He found that retarded children acquire the basic structure of language, although it takes longer to do so. Therefore, he concluded that "language can be separated from cognition in only one sense, intellectual development is possible without language, but language acquisition is basal to the elaboration of cognitive structure in general" (Lenneberg, 1967).

Play and Representation

During the sensorimotor stage and after the use of symbols appears, children begin to abstract objects for other objects or use gestures to represent particular objects or events not within their surrounding visual environment. Furth (1972) discusses this relationship

Acquisition of language is placed within the framework of the child's acquisition of representational behavior. In the beginning of symbolic function the child produces a gestural imitation of events in the absence of the original model. Spontaneously produced external imitation is not merely a sensorimotor response. (Furth, 1972)

The child's initial imitation of an adult's gesture or external event is first possible in the presence of the model, in the absence of the model, then without the external model. Morehead (1974) points out that

The use of symbolic play and imagery has important implications for the general development of the symbolic function as well as intelligence itself since the child soon comes to substitute objects or events for other objects and events. (Morehead, 1974)

Therefore, the use of objects and gestures suggests a prerequisite knowledge of their appropriate use. Sinclair (1972) discussed this from a series of observations made on children in the age range of 12 to 26 months. She noted that children first attempt to discover properties of objects through primitive acts, e.g., throwing or putting items in their mouth, placing them into separate piles and, still later, treating these same items

as symbolic objects.

Lunzer (1959) attempted to evaluate play behavior of very young children. His major concern was in the intellectual development revealed through play. Lunzer suggested that symbolic play is a necessary prerequisite to language development because the symbols of play are closer to the content they represent than are the meanings of words. "Therefore, it is through play that children first learn to represent objects and events not co-existing in the situation" (Lunder, 1959).

Basing their thinking on this theory of "representational function," several authors have attempted to study and discuss the language delayed child. These children may be deficient in other aspects of representation function, most notably symbolic play. That is, the child is not only depressed in one area of cognitive development but rather has a more general deficit.

Lovell, Hoyle, and Siddell (1968) examined ten children who were judged to be delayed in speech and ten normal children matched for age and socioeconomic status. The children were observed for twenty minute sessions in three areas of Piaget's stages of mental development: sensorimotor, representational, and concrete. Lovell, et al. found no significant difference in amounts of time spent on forms of play among the youngest children. The normal children were judged to have spent more time on practice games which do have a bearing on thought or mental exercise and forms the transition into symbolic play. Lovell et al. concluded that

> overall our evidence supports the contention that the interaction of play and language promotes the elaboration of the former and the development towards independence in the latter. (Lovell, Hoyle, Siddall 1968)

Myklebust (1954) discusses his concept of inner language as the "fundamental basis of human behavior." Inner language develops after receiving language and prior to using language expressively. According to Myklebust

(1954), symbols are the basis of conceptualization.

Rodgon (1976) conducted a study concerning single word usage, cognitive development and the beginnings of combinatorial speech. The goals of the study were to demonstrate that there is an identifiable phenomenon (termed holophrastic speech) and to investigate the relationship between psycholinguistic ability and cognitive or sensory motor abilities. "Through some process which must include some form of covert imitation or overt repetition, they eventually adopt the standard terms and gradually drop the baby talk" (Rodgon, 1976). Results of his study were best summarized by his statement

> ...that at least for the tasks tested, there is no indication or evidence for such a one-to-one correspondence between sensory motor and symbolic abilities. It is perhaps best to examine basic motor abilities as prerequisite to language. (Rodgon, 1976)

Rodgon's results were not in contradiction to those of Sinclair (1972) but offered a different perspective for examining the symbolic behavior of the young child. To obtain a more complete impression of symbolic or representational play, Rodgon suggested that development of representational play is seen in combinatorial speech.

Daniel and Agnes Ling (1974) studied communication development in chiddren ranging in age from zero to three years. They evaluated the language of both the mothers and their children. They concluded that "verbal communication emerges from a rich variety of antecedent behaviors" (Ling and Ling, 1974).

In the same light, Nelson (1973) noted large differences in the pattern of speech presented by different children at the various stages of language acquisition. She concluded that there are various optional patterns a child can take to reach the same endpoint. For the development of language, cognitive development must be transferred from the external world. This

difference must be taken into consideration when looking at neurological and physiological limitations.

> To suppose that a physical limitation prevents the child from producing more than holophrastic speech does not consider that a large number of children produce a substantial number of non-meaningful sounds in meaningful contexts. (Nelson, 1973)

Therefore, there should be no difference between the production of meaningful sounds and physiological-neurological ability. Taking into account the relationship of physiological, neurological and cognitive development as they relate to language, the question arises as to where in development does expressive language correlate to symbolic play.

To assess the relationship between language and symbolic play it is important to define the components of representational behavior. In Bloom's <u>Handbook on Formational Evaluation of Student Learning</u> (1971) Kamii presented Piaget's definition of representational behavior as including five types of symbols; imitation, or the use of the body to represent objects; make-believe, or the use of objects; onomatapoeia, or the uttering of sounds to represent objects; three diminsional models; and two dimensional models.

Kamii (1971) suggested that socio-dramatic play belonged primarily to two of the above symbols, make-believe and imitation. The importance of this category rests in the fact that "it provides the bridge between sensorymotor intelligence (of Piaget's sensorimotor stage) and representational intelligence" (Kamii, 1971).

Smilansky (1971) summarized socio-dramatic play as being composed of the following:

- Make-believe with regard to objects or the use of toys and undefined objects as props in enacting roles,
- (2) imitative role playing,
- (3) imitative role playing involving specific situations,

- (4) making play last longer; and
- (5) moving from parallel play to cooperative play in which the children interact with each other.

Rodgon (1976) looked at holophrastic speech as it relates to cognitive development. He stated that

syntax cannot be acquired as a gradual process of the child's matching verbal productions to those in the community but sound patterns and vocabulary particular to any one language must be imitated. Therefore, one would expect to find a large amount of imitation at the single word level as well as in other cognitive developments. (Rodgon, 1976)

Rodgon, therefore, points out the need to evaluate imitative behavior as well as the socio-dramatic play Smilansky suggested to obtain a more complete view of representational behavior.

Lowe (1975) conducted an observational study with ten children ranging in age from one to three years. She claimed that symbolic play appeared to emerge in the second year of life, the same as language.

Presupposing that the child's actions have acquired meaning in relation to the objects around him, but also that he is developing the ability to represent an absent object by means of his own actions, one can therefore assume the emergence of symbolic play coinciding with that of verbal language. (Lowe, 1975)

Lowe used a doll, bell, brush, and cup and saucer to obtain play behavior from the ten children. From her observations she then categorized the children's behavior based on their age and performance and proposed the following classifications:

- twelve months: the child uses primitive rituals with objects.
 He uses the same motor schema with a lot of different objects.
- (2) nineteen months: the child uses the objects for the right function for part of the time.
- (3) twenty to twenty-four months: the child uses the object for its specific purpose all the time. He engages in the activity for longer periods of time and uses fewer objects.

- (4) Twenty-four to twenty-five months: the child engages in makebelieve games with a dominate interest in animated toys.
- (5) Twenty-six months: the child's play has a continuous theme using one sequence of actions.
- (6) Twenty-six to thirty months: the child introduces absent objects into play.
- (7) Thirty-three months to thirty-six months: the child uses an object to represent another symbolically.

Furth (1974) suggested that in order to assess representative behavior accurately, it is necessary to look at two and three dimensional representations (as in block building) as well as imitative and socio-dramatic behavior. By consolidating the assessment of block building, imitative, and socio-dramatic behavior a better measure of the difference between sensorimotor and representational knowledge can be obtained.

Measurements of Language Development

Much has been written in the literature concerning measures of language development. The results of early research in language development have yielded varying limits for measuring Mean Length of Response (MLR) (MCC) (MCC)

McCarthy (1930) suggested that fifty utterances "would give a fairly representative sample of a child's linguistic development in a relatively short period of time, without tiring the child with prolonged observation." She also suggested that MLR provided a simple and objective criterion for assessing how children combine words at various linguistic levels. McNiell (1970), Menyuk (1971), and Brown (1973) in more recent studies in child language acquisition have found that overt evidence of the use of syntactic rules is present in the speech of young children. They suggest that mean length

of utterance, which is the average number of morpheme productions, is a more useful indication of linguistic development for this age group.

Wood (1976) categorized the stages of syntactic development into six groups:

- twelve to eighteen months: the child communicates using holophrastic speech composed primarily with nouns combined with nonverbal cues such as gestures and inflections,
- (2) eighteen to twenty-four months: called the modification stage when the child's speech contains modifiers in the form of declaratives, questions, negatives, and imperatives,
- (3) twenty-four to thirty-six months: called the structure stagewhen the child begins using verbs with the modified noun,
- (4) twenty-eight to forty-eight months: called the operational changes stage when the child is capable of making word order changes on
 the basic sentence structure to formulate more complicated syntactical relationships,
- (5) forty-two months to seven years: termed the categorization stage when the child incorporates the word classes of nouns, verbs, prepositions and combines words reflecting a complex for categorizing word types, and
- (6) five years to ten years: termed the complex structure stage when the child uses complex syntactical structures.

From his study on language acquisition Brown (1973) proposed five mean length of utterance stages for categorizing linguistic development. Within each stage reflected by mean length of utterance range, children primarily expressed particular grammatical relations. The following table summarizes those five stages.

TABLE	1
-------	---

Brown's five linguistic stages of language development as compared to mean length of utterance, grammatical relations, and modulation of meaning.

.

Stage	MLU Range	Grammatical Modulation of Meaning
I	0-1.99	Semantic roles and relations.
II	2-2.49	Modulation of meaning in simple sentences.
III	2.5-3.13	Modalities of simple sentences. (yes-no questions; imperatives; negatives).
IV	3.2-3.74	Embedding.
V	3.75-4.5	Coordination of simple sentences.

.

.

•

CHAPTER III

METHODS

The purpose of this study was to investigate Piaget's proposal that the development of language in the young child is but one manifestation of the emergence of a more broadly based representational system whose aspects include symbolic play. This study focused on the pattern of symbolic play behavior and its relationship to language development and with the viability of a particular method of assessing children's symbolic play behavior.

The data collected for this experimental study were obtained by means of rating the representational play behavior in three areas--imitation, block building, and socio-dramatic play--and correlating these scores to mean length of utterance of children ranging in age from eighteen to thirty-three months.

Selection of Subjects

Children were selected from various preschools located in the Lansing, Michigan area and were arranged in three age groups of six subjects each as follows:

- (a) 18 to 21 months,
- (b) 24 to 27 months,
- (c) 30 to 33 months.

Each of the groups was separated by a three month period of time to assist in defining the performance of each group.

Selection of each child was based on their chronological age and their apparent freedom from any physical handicaps based primarily on their mother's and teacher's impressions. In addition, each child was given a hearing test by a graduate student from the Audiology and Speech Sciences Department at Michigan State University. Each child who participated in

the study passed the following criteria:

- scored 70 percent or better on a list of children's spondee words
 presented at a hearing level of 30 dB (ANSI 53.6-1969); and
- (2) demonstrated Type I tympanograms (normal) in at least one ear.

Selection of Observers

Two graduate speech pathology majors served as experimenters. One interacted with all eighteen children in play behavior and the other worked with all eighteen children on obtaining a language sample for calculating a mean length of utterance.

Three seniors from the Department of Audiology and Speech Sciences at Michigan State University were selected as observers to rate subject behaviors. All observers had completed a course in child developmental psychology and a course in diagnostics in speech pathology. To acquaint each of the observers with the type of rating procedure followed in this study, a three-hour training session was used. Each observer viewed three video tapes of subjects interacting with an attendant as they would for the actual study. The score sheet form was the same for both the training session and the actual study.

Physical Surroundings

The rooms employed for play behavior, video taping, judging, and obtaining the language sample were located in the Audiology and Speech Sciences Building, Michigan State University. Each room was equipped with a microphone-speaker system connected to an adjacent observation room. A twoway mirror allowed observation and video taping from the observation room.

The room used to gather play behavior data was equipped with a table eighteen inches high facing the two-way mirror. Two small children's chairs were placed at the table. An adult chair was placed directly behind the child's chair.

Observations and videotaping of the children were accomplished from a darkened observation room through the two way mirror. Each observer had a clear view of both the child and examiner. The video tape camera was placed behind and between two of the observers.

A similar room was used to obtain the language samples. An audio tape recorder was used to monitor language samples for later analysis.

Apparatus

<u>Recording Equipment</u>--A video tape camera and recorder (Sony 3900) were employed to record each of the representational play sessions. To record the language sample for evaluating the mean length of utterance, a portable cassette audio recorder (Sony 330) was used.

<u>Toys</u>--The toys employed for obtaining symbolic play behavior were as follows.

- Imitation: a polyester green and yellow hat, a polyethylene banana, a plastic coffee cup, a stainless steel spoon, and a wooden hammer.
- (2) Block Building: thirty wooden blue, yellow, green, and red blocks in assorted shapes and sizes.
- (3) Socio-dramatic play: a plastic bristled long handled hair brush, a yellow plastic bell, a twelve-inch dorl, a plastic cup and saucer, a Fisher-Price play farm with a chicken, horse, cow, pig, and fences.

The toys employed for obtaining a language sample were as follows.

- (1) Fisher-Price dump truck.
- (2) Fisher-Price telephone with moveable dial and receiver.
- (3) Fisher-Price play house with three little people and a dog.
- (4) Twelve inch doll with removeable clothes.

<u>Score Sheet</u>--Scoring sheets were developed for the study in order to record identifying information about subject, observer, and experimental conditions (live vs. taped). Scoring sheets also summarized the tasks to be accomplished within each representational play category (imitation, block building, and socio-dramatic play) and provided a system of numerical rating for the elicited behaviors within each group category. A sample sheet is given in Appendix A, and a description of the empirical basis for the score sheet is given in Appendix B. A set of guidelines (Appendix C) were employed when rating each subject's performance of symbolic play behavior during live and video taped sessions.

Experimental Procedures: Phase I

This phase of the study was concerned with producing training tapes for the observers and for the observers to familarize themselves with the scoring procedure. Six subjects were selected in the age range of eighteen to thirty-three months following the same criteria employed for subjects of Phase II.

Experimental Procedures: Phase II

Upon arrival at the clinic, two copies of an informed consent release form (Appendix D) were given to the mother to read and sign. Any questions presented by the mother were answered at that time. The mother and child were then escorted to the test room by the researcher where they were introduced to the symbolic play attendant. The attendant presented a toy not used in the evaluation to the child. This was done to attract the child to the table. The mother was then given the following instructions by the researcher:

- (1) please avoid giving any verbal or nonverbal reinforcement to your child throughout the session, and
- (2) please avoid picking up your child during the session.

The mother was then seated behind the child and the researcher left the room.

The attendant allowed the child to play freely with the original toy until the child was seated and appeared comfortable with the surroundings.

<u>Block Building</u>--The experimenter then took a pre-packaged set of blocks and placed them in front of the child. She then allowed the child to play with them freely for about five minutes. If the child did not play with the blocks spontaneously, the attendant would start to pile the blocks in a non-descript manner until the child began playing with the blocks. When the child appeared to tire playing with the blocks or when five minutes had elapsed, the blocks were removed and the attendant proceeded to the next category.

<u>Imitation</u>--The experimenter presented a hat, hammer, spoon, banana and cup and saucer in random order. With presentation of the object, the experimenter posed the question, "What do you do with this?" If the child did not respond, the experimenter allowed the child to handle the object and then demonstrate its function. All objects in this category were presented in this fashion.

<u>Socio-Dramatic Play</u>--The experimenter randomly presented a brush, doll, cups and saucer, play farm, and a ball. With presentation of each object, the experimenter posed the question, "What are you doing?" After each object was displayed, they were left on the table for the child.

Each representational play session took approximately thirty minutes to complete.

Upon completion of all three categories, the MLU researcher escorted the child and mother to the room across the hall to a diffferent room set up to obtain a spontaneous language sample. The researcher introduced the mother and child to the MLU researcher and allowed them to proceed. The mother

was seated in an adult chair while the MLU researcher and child were seated on the carpet. The child was allowed to play freely with any or all of the following toys: telephone, dump truck, play house, or doll. The examiner questioned the child to ellicit spontaneous speech (Brown, 1974, Appendix F).

After the experimenter obtained a minimum of fifty uttemences for the language sample, the researcher escorted the mother and child downstairs for an audiometric test. The researcher introduced the mother and child to the graduate-student audiologist and assisted in obtaining the audiological information. Each child received a hearing screening following standard pediatric hearing evaluation procedures for assessing speech thresholds and tympanometry.

:

CHAPTER IV

Results

The purpose of this study was to investigate Piaget's proposal that the development of language in the young child is but one manifestation of the emergence of a more broadly based representational system whose aspects include symbolic play. This study focused on the pattern of symbolic play behavior and its relationship to language development and with the viability of a particular method of assessing children's symbolic play behavior.

The data collected for this experimental study were obtained through ratings of representational play behavior in three areas--imitation, block building, and socio-dramatic play--and correlating these scores to mean length of utterance on children ranging in age from eighteen to thirty-three months.

The analysis of the data was based on four independent variables: imitation, block building, socio-dramatic play, and mean length of utterance. The dependent variable was age. Median scores were obtained from the symbolic play behavior assessment test administered to all eighteen subjects. Median scores were obtained for each child for imitation, block building, and sociodramatic play. Three observers rated each of the eighteen subjects "live" and two of the observers rated four of the subjects a second time from video tapes. Observers ratings for the representational play behaviors and MLU scores were correlated with age.

Table 2 indicates the median scores for all eighteen subjects based on ratings by the observers on each of the representational play behaviors and their respective MLU scores. Table 3 presents the same data collapsed across subjects and their age groups.

Name	Age	MLU	I	BB	SP
Joey	18 months	1.35	1.40	3.00	2.60
Steven	18 months	1.21	1.20	3.00	1.60
Craig	19 months	1.21	1.00	5.00	1.60
Mike	21 months	2.11	1.80	3.00	2.53
Amanda	21 months	1.67	2.60	1.00	2.60
Brian	21 months	1.55	1.60	3.00	2.70
Ellen	24 months	1.55	1.20	3.00	2.00
Rebecca	24 months	1.56	: 1.00	4.00	2.00
Deanna	26 months	1.59	1.30	3.00	4.00
Monica	27 months	1.30	2.00	3.00	3.00
Jody	27 months	1.55	2.00	5.00	3.40
Darrel	27 months	2.70	2.73	4.00	3.40
Nathan	30 months	3.43	1.46	5.00	2.20
Stefanie	30 months	2.30	1.86	4.00	2.40
Shane	32 months	3.60	1.00	4.00	2.20
Corin	32 months	2.22	1.60	3.00	2.66
Kevin	33 months	2.59	2.40	3.75	5.00
Carmin	33 months	3.20	3.86	5.00	3.80

Age, mean length of utterance (MLU), median score on imitation (I), block building (BB), and socio-dramatic play (SP) based on rating by three observers for each of eighteen children.

TABLE 2

TABLE 3

One measure of expressive language as measured by MLU, median. scores of the three measures of representational play behavior across all three age groups.

Group	MLU	I	BB	SP	
I (18-21 mo.)	1.52	1.60	3.00	2.27	
II (24-27 mo.)	1.67	1.70	3.50	2.96	
III (30-33 mo.)	2.92	2.02	4.10	3.11	

ŧ

:,

Table 4 describes the median, range, mean and standard deviation of expressive language as measured by mean length of utterance (MLU) for the three age groups. The results indicated that as age increased the MLU score also increased.

Table 5 describes Spearman rho rank order correlation matrix comparing all subjects by age, each of the three measures of representational **play** and MLU. Results of the analysis indicated a moderate correlation demonstrating a substantial relationship between age and the three categories of representational play--imitation, block building, and socio-dramatic play-and a high correlation between age and MLU demonstrating a marked relationship.

Table 6 summarizes the analysis of variance (ANOVA) for MLU as a function of age group. The F ratio was found to be significant beyond the .015 level of conficence, indicating ω^2 (omega squared), an index of assocation, denotes the proportion of MLU score variance that can be explained by the effect of age group. The computed value of ω^2 was .59 indicating that 5% of the MLU variance can be assigned to the effect of age on language acquisition.

Table 7 illustrates results of the Newman-Keul's specific comparison test comparing the amount of expressive language as measured by MLU to each of the three age groups. The analysis was conducted to determine whether the amount of expressive language changed as a function of increasing age across each of the three groups. Results indicated that when comparing Group I to Group II, the difference was not significant, but the difference in MLU between Group I and Group III and between Group II and Group III were significant.

To investigate the ability of the observers to rate the same subject at two different times, a Spearman rho rank order correlation was done.

TABLE 4

Median, range, mean and standard deviation of expressive language as measured by mean length of utterance for three age groups. Ng=6, N=18

Group	Median	Range	x	Standard Deviation
I (18-21 mo.)	1.46	.90	1.52	•34
II (24-27 mo.)	1.56	1.40	1.71	.50
III (30-33 mo.)	2.9	1.38	2.89	.60

Spearman rho rank order correlation matrix comparing all subjects by age, each of the three measures of representational play, and one measure of amount of expressive language (MLU). N=18					
	Imitation	Block Building	Socio-Dramatic Play	MLU	

	Imitation	Block Building	Socio-Dramatic Play	MLU
AGE	.49*	∙րիր×	.49*	.76*

:,

*significant at the .05 level

.

.

TABLE 5
Summary table for analysis of variance relating the effect of age (in months) on expressive language as measured by mean length of utterance (MLU).

Source	df	SS	MS	F	ω²	
Age Group	2	6.648	3.324	13.793*	•59	
Error	15	3.611	.241			
Total	17	10.259				
						

Ξ,

.

*significant at the .05 level

-

Newman-Keul's specific comparison test comparing the amount of expressive language as measured by MLU to each of the three age groups measured in months. N=18

Group	М	Critical Value
^G 1 ^{vs G} 2	0.19	0.61
^G l ^{vs G} 3	1.37	0.74*
G _o vs G _a	1.18	0.74*

:,

*significant at the .05 level

•

Table 8 summarizes the results of that analysis. Each observer rated four subjects during a live session and a taped session. A high correlation was found for one observer's ability to rate block building, suggesting a marked relationship, whereas the other observer demonstrated a very high ability to rate both block building and socio-dramatic play indicating a very dependable relationship. Neither observer was able to demonstrate intrajudge reliability **significantly** while rating imitative symbolic play.

Table 9 summarizes the Spearman rho rank order correlation comparing three observers and their rankings of all subjects performance on the three measures of representational play. Each of the observers demonstrated a high to very high degree of reliability when ranking each of the three behaviors, indicating a very dependable relationship exists when different people observe the same behavior.

To investigate the consistency of each of the three observers' rankings of the three representational behaviors, the Kendall coefficient of concordance (W) was computed. Table 10 summarizes the results of that analysis. Results indicated that the observers appeared to be most consistent rating Group I rather than they were when rating Group II and III. They are most consistent rating block building and socio-dramatic play rather than imitation.

Tables 11, 12, and 13 summarize the median, range, mean, and standard deviation of the representational play behaviors of imitation, block building, and socio-dramatic play. In each category, as age increased the behavior also increased in frequency.

Table 14 summarizes the Spearman rho rank order correlation coefficient for each age group comparing subjects in each age group with the three measures of representational play and expressive language. Results indicated

Spearman rho rank order correlation matrix of two observers rating four of the subjects on three measures of representatation play at two separate times, once from a live session and once from videotape.

.

° ₁ vs ° ₁	.60	.82*	23
⁰ 2 vs ⁰ 2	.12	1.00*	1.00*

:

*significant at the .05 level

TABLE	9
	-

Spearman rho rank order correlation matrix comparing three observers and their rankings of all subjects' performance on three measures of representational play behavior. N=18

Observers	Imitation	Block Building	Socio-Dramatic Play
0 ₁ vs 0 ₂	.82*	.90*	.96*
⁰ 1 ^{vs 0} 3	•94*	•94×	.%*
0_2 vs 0_3	.80*	.76*	•95*

Ξ,

.

*significant at the .05 level

TABLE	10
-------	----

Kendall coefficient of concordance (W) matrix analysis of consistency of three observers rating subjects' performance on three measures of representational play behavior. Data for representational play were rankings.

Group	Imitation	Block Building	Socio-Dramatic Play
I (18-21 mo.	.) .79	.94	.92
II (24-27 mo	.) .71	.69	.81
III (30-33 mo.	.) .77	.94	.91

ī.

Median, range, mean, and standard deviation of the representational play behavior of imitation measured as ranks for three age groups. N=18

Group	1	Median	Range	x	Standard Deviation
I (18-21	mo.)	1.50	1.60	1.60	.69
II (24-27	mo.)	1.65	1.73	1.70	.86
III (30-3 3	mo.)	1.73	2.86	2.02	1.02

--

Median, range, mean, and standard deviation of the representational play behavior of block building measured as ranks for three age groups. N=18

Group	Median	Range	x	Standard Deviation
I (18-21 mo.)	3.00	4.00	3.00	1.26
II (24-27 mo.)	3.50	2.00	3.67	.82
III (30-33 mo.)	4.00	2,00	4.13	.77

.

•,

.

••

Median, range, mean, and standard deviation of the representational play behavior of socio-dramatic play measured as ranks for three age groups. N=18

Group	Median	Range	x	Standard Deviation
I (18-21 mo.)	2.52	1.13	2.28	.52
II (24-27 mo.)	3.20	2.00	2.97	.81
III (30-33 mo.)	2.53	2.80	3.04	1.13

t

Spearman rho rank order correlation matrix comparing subjects in each age group measured in months to each of the three measures of representational play and one measure of amount of expressive language (MLU). Data for representational play categories were median ranks; MLU results were expressed as means of counts. N=18

Group	Imitation	Block Building	Socio-Dramatic	MLU
I (18-21 mo.	.74*	.36	.11	.74*
II (24-27 mo.).94*	.32	•57*	.03
III (30-33 mo.) .75*	.02	.94*	.31
•		:		

*significant at the .05 level

a high correlation between the symbolic play behavior imitation and the three groups, suggesting that a marked relationship exists. A moderate to high correlation was demonstrated between socio-dramatic play and Groups II and III, indicating that a substantial to marked relationship exists between the two variables. A low correlation was demonstrated between the representational play behavior of block building and the three age groups, suggesting a small relationship exists between the two variables.

Table 15 presents a Spearman rho rank order correlation matrix comparing MLU for each of the three age groups and the three measures of representational play behaviors. Results indicated a moderate to high correlation between Group I and both imitation and block building, suggesting a substantial relationship exists. A low correlation was demonstrated between the MLU for Group I and socio-dramatic play. A low to moderately high correlation was shown between the MLU for Group II and all three of the representational play behaviors. Examination of results comparing the MLU for Group III and the three representational play behaviors also indicated a low to moderately high correlation, suggesting a small to substantial relationship existed.

To determine whether significant difference occured between the three behavior categories, the Kruskal-Wallis H statistic was computed. The results, as summarized in Table 16, indicate that no significant differences were found when comparing the three age groups on the three measures of representational play.

TABLE	15
-------	----

Spearman rho rank order correlation matrix comparing MLU for subjects in each group measured in months to each of the three measures of representational play. N=18

MLU of Group	Imitation	Block Building	Socio-Dramatic Play
I (18-21 mo.)	•95*	.67*	.21
II (24-27 mo.)	.20	.34	•53*
III (30-33 mo.)	.31	.61*	.52*

•

*significant at the .05 level

TA	BLE	16
_		

Kruskal-Wallis H statistic measuring significant differences between three measures of representational play behavior and the three age groups. Data for representational play behaviors measured as rankings.

Group	Imitation	Block Building	Socio-Dramatic Play
G ₁ vs G ₂	1.0	1.07	2.55
G _l vs G ₃	1.6	3.04	.63
G ₂ vs G ₃	1.8	.76	.002

*significant at the .05 level

CHAPTER V

DISCUSSION AND SUMMARY

Discussion

The purpose of this study was to investigate Piaget's proposal that the development of language in the young child is but one manifestation of the emergence of a more broadly based representational system whose aspects include symbolic play. This study focuses on the pattern of symbolic play behavior and its relationship to language development, the viability of a particular method of assessing children's symbolic play behavior.

The data collected for this experimental study were obtained by means of rating the representational play behavior in three areas--imitation, block building, and socio-dramatic play--and correlating these scores to mean length of utterance for children ranging in age from eighteen to thirtythree months.

The results of the analysis of expressive language of the three groups of children revealed significant correlations across age groups and for each child. When comparing these results to Brown's (1974) five stages for childrens linguistic development-semantic and grammatical aspects of their language development-and MLU, the average score for MLU for Group I was slightly less than Brown's Stage I. The average score for both Groups I and II were less than Brown's Stage II. The average score for Group III was within Brown's proposed Stage III.

Although there were no significant differences between MLU for Group I and Group II, these results may be reflecting a 'geometric phenomenon' which occurs during the early stages of language acquisition. In other words, language acquisition as measured by vocabulary expansion occurs as a geometric progression. However, the size of a child's vocabulary is directly related to their physiological and neurological maturation. Cognitive development and language acquisition are reflected in that maturation.

Nelson (1974) noted large differences in the speech presented by different children at various stages of language acquisition. Accepting the fact that neurological and physiological development occurs at different rates in children and that cognitive development and language acquisition are dependent upon the child's neurological and physiological status, as the child 'transfers to the external world' through maturation, cognitive and linguistic changes will be reflected accordingly. An investigation conducted by Smith (1926) on the development of vocabulary in young children reported that at around eighteen months the child uses one to three words, at twenty-four to twentyseven months they use nineteen to twenty-two words, and at thirty to thirty-six months the children used one hundred eighteen to two hundred seventy-two words. These data illustrate the 'geometric effect' increasing age has on expressive language development providing some explanation why significant differences were found between Group I and Group III and Group II and Group III.

When examining the correlations between age and the representational play behaviors of imitation, block building, and socio-dramatic play, within each of the three age groups, age was found to be significantly related to imitation in all three age groups, whereas socio-dramatic play was significantly correlated only in Groups II and III. Age did not significantly correlate to block building in any of the three groups. When looking at age and the three symbolic play measures for all eighteen subjects, significant relationships existed for all three measures. The result of correlating MLU with the three measures of representational play behaviors, revealed that the relationship between MLU of Group I and imitation and block building was significant, whereas it was not for socio-dramatic play. The MLU of Group II was significantly related only to the socio-dramatic play measure. A significant relationship was found between the MLU of Group III and the representational play behaviors of block building and sociodramatic play. When comparing the significant relationships found to exist between age and MLU and age with the three measures of representational play behaviors collapsed across the three groups, socio-dramatic play was the only category found to be significant in Groups II and III.

The lack of significant correlations with all three measures of representational play behaviors may be attributed to the following reasons:

- the scoring protocal did not accurately reflect the demonstrated behaviors or was not sufficiently sensitive to real differences in behavior,
- (2) the relationship between MLU and representational play may not be demonstratable because of difficulty, separating cognitive performance from language acquisition,
- (3) the scoring procedures were not differentially sensitive to the three types of representational play; and
- (4) MLU is not an adequate criteria for reflecting language development or symbolic play behavior.

Examination of the results of the intrajudge analysis revealed that when viewing the same behavior of the same child at different times, the judges demonstrated difficulty in significantly selecting the same behavior. This may be attributed to the description of the behaviors on the scoring sheet, a lack of understanding on the part of the judge as to what they saw and the choices available on the scoring sheet, or insignificant differences between choices on the score sheet for describing each behavior.

Yanz (1974) attempted to study the relationship between expressive language during representational play without assessing symbolic play.

She concluded that no relationship existed that could be significantly demonstrated. She attributed the difficulty in separating cognitive development from language acquisition as the major reason why.

Sinclair (1976) discussed language acquisition as the ability of a person to arrive at 'universal concepts' in some chronological order. Assuming this order exists for each child dependent upon physiological ability and neurological maturation, language acquisition may not follow the same order for two children at the same time. Therefore, to attempt to measure language differences as a function of age may not have been as advantageous as correlating age differences as a function of language ability.

As Furth (1972) suggested, the child's eventual external productions are not discernable from cognitive development during the early stages.

The aspect of whether it would be accurate to examine one category of symbolic play--such as imitation only--is not supported statistically from this study nor in the literature (Kamii, 1971; Smilansky, 1971: Dihoff, 1976).

Examination of the statistical analysis of intrajudge test-retest reliability revealed that both observers were able to reliably rate the representational play behavior of block building but not imitation or socio-dramatic play. The lack of significant correlations found for the other two measures may be attributed to the small number of subjects reviewed for a second time.

Examination of the statistical analysis of interjudge reliability measuring representational play behavior was found to be significant. An analysis of consistency among the judges across all of the subjects revealed that with increasing age the observers' ability to rate the subjects' performance also increased.

. 45

Summary

Speech and language development, as it relates to cognitive development, has been explored by numerous investigators in the past. More specifically, the relationship between language acquisition and cognitive development has acquired renewed interest in recent years relating Piaget's stages to acquisition of language.

The importance of determining the cognitive level of functioning in a child prior to language intervention should be obvious. The purpose of this study was to investigate the notion, proposed by Piaget, that the development of language in the young child is but one manifestation of the emergence of a more broadly-based representational system whose aspects include symbolic play. This study focuses on the pattern of symbolic play behavior and its relationship to language development.

Eighteen subjects and five observers, three as raters and two as experimenters, were utilized in this investigation. All of the subjects were normal children, ranging in age from eighteen to thirty-three months selected from preschools in the Lansing area. Two of the observers were graduate students enrolled in Audiology and Speech Sciences at Michigan State University. All observers received a minimum of two hours training in the procedures employed for this study.

Each subject was presented with a prearranged set of toys for the categories of imitation, block building, and socio-dramatic play. Following the interaction involving play behavior, each of the subjects was seen by another observer to obtain a language sample.

The data obtained from the language sample and the three measures of representational play behavior were submitted to statistical analysis. Spearman rho rank order correlations were determined between age and MLU,

age and the three measures of representational play, MLU and the three measures of representational play between two observers rating the same child at different times to determine intrajudge reliability, and across three observers rating all subjects to determine interjudge reliability.

The Michigan State University CDC 3600 computer was utilized for this analysis.

Based on the statistical analysis of the data from the language sample and the three measures of representational play, the following conclusions were made:

- a high marked relationship exists between age and mean length of utterance as measured by a Spearman rho rank order correlation,
- (2) a significant difference exists between mean length of utterance of Group I versus Group III and Group II versus Group III,
- (3) intrajudge reliability was high showing a marked relationship for one observer viewing block building and very high indicating a very dependable relationship for rating block building and socio-dramatic play for the other observer. Imitation was not significant for either observer,
- (4) results analyzing interjudge reliability indicated a high correlation demonstrating a marked relationship between observers rating all subjects for the three measures of symbolic play,
- (5) a significant relationship exists between MLU and imitation of symbolic play. The relationship could only be demonstrated for Group I of the study,

- (6) a significant relationship exists between MLU and block
 building of symbolic play. The relationship could only
 be demonstrated for Groups II and III of the study; and
- (7) a significant relationship exists between MLU and sociodramatic play of symbolic play behavior. The relationship could only be demonstrated for Groups II and III.

Implications for Future Research

Although the results of this study reveal the lack of sufficient significant correlations between all three measures of representational play and expressive language, there appears to be some kind of relationship as demonstrated by significant results with symbolic play and block building. Other studies should consider examining other cognitive concepts such as object permanance as well as symbolic play. It might also be beneficial to examine the semantic ability of the child rather than just obtaining an overall language sample. The fact that some significant results were obtained indicates the need for further indepth study.

If a stronger relationship could be demonstrated with a normal population, the area of mental retardation, representational play, and language acquisition should then be studied. APPENDICES

:

APPENDIX A

.

.

Score Sheet Developed to Record Identifying Information About Each Subject

• • •

•,

.

49

Score sheet developed to record identifying information about subject, observer, and experimental condition and subject performance on symbolic play

Live Video

Date _____ Judge _____ Subject # _____

•

SCORE SHEET

IM	<u>ITATION</u>)		hat	banana	cup	hammer	spoon	Median
1.	The child did not perform at all			·				
2.	The child could not pantomine of the object without the obj	use ect						
3.	The child had to use the obje before he could pantomine its	ct use						
4.	The child had to touch the ob before he could pantomine its	ject use						
5.	The child only pointed to or partial use of the object	suggested						
6.	The child pantomined complete to demonstrate the use	action						
BL	OCK BUILDING	Score						
1.	The child did not perform at all							Median
2.	The child built on the observ pile	er's						
3.	The child piled the blocks until they toppled over							
4.	The child elaborated slightly							
5.	The child added further elaboration							
6.	The child made varied and complex buildings	_						
		Score						

ł.

SO	CIO-DRAMATIC PLAY	brush	b ell	cup	cup- saucer	play farm	Median
1.	The child did not perform at all						
2.	The child manipulated the toys using primitive rituals						
3.	The child used objects for its specific purpose						
4.	The child used toy to enact roles						
5.	The child used nothing to enact roles						
6.	The child used props to enact roles						
	Score						

:

.

APPENDIX B

.

:

.

Empirical Basis for Score Sheet Based on Results of the Pilot Study

.

Empirical basis for the score sheet based on results of the pilot study This discussion is concerned with a revision of the original score sheet. A pilot study was conducted with three observers and six children in the age range of eighteen to thirty-three months to evaluate the scoring procedures to be employed for this study. Results of that study indicated the following changes needed to be made:

- (1) the elimination of the category Make Believe,
- (2) the elimination of the subheadings Make Believe and Imitation under the category of Socio-Dramatic Play,
- (3) the addition of the behavioral descriptions: The child did not perform at all, and The child used objects for its specific purpose; under the category of Socio-Dramatic Play,
- (4) the addition of the numbers one through six for each behavior description in each category,
- (5) the addition of a total score row,
- (6) the addition of a space to record median score for each category; and
- (7) the alignment of columns and rows for marking scores to facilitate scoring of each behavior.

There are two reasons why the category of Make Believe was eliminated from the scoring procedure. The first and foremost was that during the pilot study all three observers scored each of the children in the category of Make Believe as a one, the child did not perform at all. Since scores higher than one necessitates some sort of verbal response and the children consistently responded in a non-verbal manner, the category offered no information differentiating the level of symbolic play. The second reason the category of Make Believe was eliminated was that the category of Socio-Dramatic Play also contained a section for make-believe behavior which was a better measure of symbolic play because scoring was not dependent upon verbal responses.

Changes to the category of Socio-Dramatic Play were two-fold. The first was to eliminate overlap between categories by removing the subheadings imitation and make-believe and consolidating the behavioral descriptions under the single category heading of Socio-Dramatic Play. The second change was to add the behavioral descriptions of "The child used objects for its specific purpose." These changes were made because situations arose where these behaviors occured and no appropriate description was available.

The addition of the numbers one through six were added to facilitate in the statistical analysis of the study. That type of system allows the data collected from the play behavior section to be related to the mean length of utterance portion of the study.

The addition of score and median lines at the bottom and side of each . category was to facilitate in scoring each subject.

APPENDIX C

•

.

.

Guidelines Employed by Observers When Rating Each Subject's Performance

.

:

Guidelines employed by observers when rating each subject's performance of symbolic play behavior during live and video taped sessions. Imitation:

- (1) The child did not perform at all. The child did not touch nor demonstrate any action concerning the target object.
- (2) The child could not pantomine the use of the object without the object. The child had to hold the object and use the object to demonstrate the object's function.
- (3) The child had to use the object before he could pantomine its use. The child had to touch, motion with the object, set the object down, and then pantomine the object's function.
- (4) The child had to touch the object before he pantomine its use.The child just touched the object in the observer's hand and then demonstrated the object's function.
- (5) The child only pointed to or suggested partial use of the object. The child did not have to touch the object but could only demonstrate partial use of the object.
- (6) The child pantomined complete action to demonstrate its use. The child did not touch the object but demonstrated the object's function.Block Building:

(1) The child did not perform at all. The child did not touch nor

- demonstrate any action concerning the target object.
- (2) The child used the observer's blocks. The observer had to encourage the child by initiating block building in a nondescript manner.
- (3) The child piled the blocks until they toppled over. The child built simple towers (2-5 blocks high) until they toppled over. The child did not vary his combination of blocks to different towers.

- (4) The child elaborated slightly. The child built various sized towers using different size and shaped blocks for a combination of continually standing towers.
- (5) The child elaborated further. The child varied the size of his towers and added different buildings to his construction.
- (6) The child made various complex buildings. The child combined various sized and shaped blocks to construct various buildings.

Socio-Dramatic Play:

- The child did not perform at all. The child did not touch nor demonstrate any action concerning the target object.
- (2) The child manipulated the toys using primitive rituals. The child banged, shook, threw, or placed the objects in his mouth. He used the same motor schema with each of the objects.
- (3) The child used the object for its specific purpose.
- (4) The child used toys to enact roles. The child manipulated the toy and created a situation which related to that object. The child's play had a continuous symbolic theme using one sequence of actions.
- (5) The child used nothing to enact roles. The child introduced absent objects into play. (He pretended to feed the doll even though no spoon was present).
- (6) The child used props to enact roles. The child used an object to symbolically represent food. To accomplish this the child ignored the actual attributes of the prop itself.

APPENDIX D

Υ.

•

.

.

.

Informed Consent Release Form

:,

.

Informed consent release form

- (1) I, ______, freely and voluntarily consent to allow ______ to serve as a subject in a scientific study of the relationship between play behavior and expressive language conducted by Lawrence B. Rosenberg and student assistants working under his supervision.
- (2) I understand the the procedure for this study is presently experimental and that the results of this study may not be of direct personal benefit to me.
- (3) I understand that I will not be exposed to any experimental conditions which constitute a threat to my hearing, or to my physical or psychological well being.
- (4) I understand that data gathered from me for this experiment are conh^k h^k/h^k
 fidential, that no information uniquely identified with me will be
 made available to other persons or agencies, and that any publication
 of the results of this study will maintain my anonymity.
- (5) I engage in this study freely, without payment to me or from me, and without implication of personal benefit. I understand that I may cease participation in the study at any time.
- (6) I understand that I will be videotaped and will not have to pay or be paid to participate and that these tapes will be used only for research purposes. Confidentiality will be respected in all situations. The tapes will be destroyed after the research is completed.
- (7) I have had the opportunity to ask questions about the nature and purpose of the study, and I have been provided with a copy of this

written informed consent form. I understand that upon completion of the study, and at my request, I can obtain additional information about the study.

(8) I understand that my child will receive a hearing test, and that there will not be any charge for this test, and that the results of this test will be made available to me upon request. I understand that the test will be conducted by a graduate student in audiology at the Michigan State University Speech and Hearing Clinic.

Date: _____ Signed: _____ (Parent or Guardian)

:,

APPENDIX E

.

.

Rules Observers Employed When Interacting with Each Subject During Symbolic Play Assessment

,

:,

Rules observers employed when interacting with each subject during symbolic play assessment.

Imitation:

- (1) The observer presented each of the following toys in random order: hat, banana, hammer, and spoon. With each object presented the observer questioned the child:
 - a. without letting the child touch the object, "What do you do with this?"
 - b. if no response, allowing the child to touch the object and repeating the question, "What do you do with this?"
- (2) Only one object was shown at a time.
- (3) After each object was shown it was removed from sight before presentation of the next object.

Block Building:

- (1) The observer presented a set of thirty various sized and shaped blocks to the child and allowed the child to play freely.
- (2) If the child did not demonstrate an interest in the blocks, the observer was allowed to manipulate the blocks in a nondescript fashion until the child began using the blocks. Once the child commenced using the blocks the observer ceased touching the blocks. Socio-Dramatic Play:
 - (1) The observer presented each of the following toys in random order: brush, bell, cup and saucer, doll and play farm.
 - (2) The observer presented each toy one at a time allowing the child to play with the toy freely.
 - (3) The observer did not put each toy away before presenting the

next toy but left the toy out for the child to play with.

(4) The observer could not model any activities for the child but could encourage the child to play with the different toys in combination.
APPENDIX F

.

.

Adapted Rules for Calculating Mean Length of Utterance From Roger Brown (1974).

.

· .

.

.

•

Adapted Rules for Calculating Mean Length of Utterance From Roger Brown (1974).

Count the first 50 utterances satisfying the following rules.
Only fully transcribed utterances are used; none with blanks.
Portions of utterances entered in parantheses to indicate doubtful transcriptions, are used.

3. Include all exact utterances. Utterance repetition (marked with a plus sign in records). Stuttering is marked as repeated efforts at a single word; count the word once in the most complete form produced. In the few cases where a word is produced for emphasis or the like ("no, no, no") count each utterance.

4. Do not count such fillers as "mm" or "oh," but do count "no," "yeah," and "hi."

5. All compound words (two or more free morphemes), proper names, and ritualized reduplications count as single words. Examples: "birthday, rackety-boom, choo-choo, quack-quack, night-night, pocket-book, see-saw." Justification is that there is evidence that the child relates these to present forms.

6. Count as one morpheme all irregular pasts of the verb ("got, did, went, saw"). Justification is that there is no evidence that the child relates these to present forms.

7. Count as one morpheme all diminutives ("doggie, mommie") because these children at least do not seem to use the suffix productively, diminutives are the standard forms used by the child.

8. Count as separate morphemes all auxillaries ("is, have, will, can, must, would"). Also all catenatives: "gonna, hafta, wanna." These latter are counted as single morphemes rather than as "going to" or "want to" because evidence is that they function so for the children.

59

Count as separate morphemes all inflections, for example possessive /s/, plural /s/, third person singular /s/, regular past /d/ and progressive /ing/.

:、

APPENDIX G

,

.

.

Intrajudge Data Summary Chart

		i i i i
-	NTTRA 7	OTATTIC.

		IMLTA	NOITI			BIC BUTLD	CK ING		~4	SOCIO-DI PLA	RAMATIC Y	
	Ъ	н	ĥ	വ	ц		J2		L,	_	Ŀ	N
NAME	Ч	5	ч	2	1	2		2	٦	5	Ч	2
Mike	1.6	2.8	2.2	2.8	3.0	3.0	3.0	3.0	2.4	1.4	2.6	1.4
Amanda	2.4	2.2	3.0	2.4	1.0	1.0	1.0	1.0	2.6	2.2	2.6	2.0
Brian	1.6	1.6	1.6	2.2	3.0	3.0	3.0	3.0	2.8	3.0	2.6	2.8
Stefanie	2.0	1.8	2.0	1.6	h.0	4.0	h.0	3.0	2.6	2.2	2.4	2.6
Shane	1. 0	4.2	1.0	4.2	4.0	р. 0	4.0	h.0	2.2	2.4	2,2	2.4

the play behaviors of the five children listed above. The columns numbered 1 and 2 represent the median scores assigned to a particular child in a particular category. The abbreviations J1 and J2 stand for judge one and judge two respectively. All second veiwings were done with a videotaped recording of the live sessions. For assessing intrajudge reliability, each judge was asked to re-evaluate

61

APPENDIX H

.

Interjudge Data Summary Chart

.

- .

		MEAN		EINI	RJUDGE DI	ATA	DO TE	5	20		
		LENGTH		IMITATI	NO		BUTTDI	NG	Š	PLAY	- OTTU
NAME	AGE	UTTERANCE	ц.	*J2	*J3	Ľг*	*J2	*J3	۲ ۰ *	*J2	*J3
Joey	18 months	1.352	1.6	1.2	1.4	3.0	3.0	3.0	2.6	2.6	2.6
Steven	18 months	1.212	1.8	1.6	1.8	3.0	3.0	3.0	2.0	1.8	1.8
Craig	19 months	1.206	1.0	1.2	1.0	5.0	4.0	5.0	2.0	1.6	1.8
Mike	21 months	2.109	1.6	2.2	1.6	3.0	3.0	3.0	2.4	2.6	2.6
Amanda	21 months	1.673	2.4	3.0	2.4	1.0	1.0	1.0	2.6	2.6	2.6
Brian	21 months	1.545	1.6	1.6	1.6	3.0	3.0	3.0	2.8	2.6	2.8
Ellen	24 months	1.550	1.2	1 . 4	1.2	3.0	3.0	3.0	2.0	2.2	2.0
Rebecca	24 months	1.560	1.0	1.0	1.0	р. 0	4,0	4.0	2.0	2.0	2.0
Deanna	26 months	1.594	1.4	1.2	1.3	3.0	3.0	3.0	3.8	4.2	4.0
Monica	27 months	1.302	2.0	1,8	2.0	3.0	3.0	3.0	3.0	2.8	2.8
Jody	27 months	1.552	2.0	2.0	2.0	5.0	5.0	5.0	3.4	3.2	3.4
Darrel	27 months	2.700	2,8	2.6	2.8	٥.4	3.0	5.0	3.4	3.2	3.6
Nathan	30 months	3.433	1.8	1.0	1.6	5.0	5.0	5.0	2.2	2.2	2.2
Stefanie	30 months	2.297	2.0	2.0	1.6	h.0	h.0	3.0	2.6	2.4	2.2
Shane	32 months	3.600	1.0	1.0	1.0	h.0	h.0	h.0	2.2	2.2	2.2
Corin	32 months	2.220	1.8	1.8	1.2	3.0	3.0	3.0	2.6	2.4	3.0
Kevin	33 months	2.594	2.6	2.0	2.6	h.0	3.0	4.0	5.4	h.6	5.2
Carmin	33 months	3.203	3. 3	3.8	0.4	5.0	5.0	5.0	3.6	4.2	3.6

.

*J JUDGE

BIBLIOGRAPHY

.

.

ì

Books

- Antinucci, F., Pariis, D., "Early Semantic Development in Children's Language" in <u>Foundations of Language Development</u>, E. and E. Lenneberg, eds., 1972.
- Bloom, L., Language Development, M.I.T. Press, 1970.
- Brown, R., <u>A First Language: The Early Stages</u>, Harvard Press, Cambridge, 1974.
- Davis, E., The Development of Linguistic Skills in Twins, Singletons with Siblings, and Only Children from Age Five to Ten Years, Child Development Monographs, No. 14; University of Minnesota Press, Minneapolis, 1937.
- Dickson, S., Communication Disorders; Remedial Principles and Practices, Scott, Foresman and Company, Glenview, Illinois, 1974.
- Hays, W., <u>Statistics for Psychologists</u>, Holt, Rinehart, and Winston, Inc., New York, 1963.
- Kamii, C., Preschool Education: Socio-emotional, Perceptual-motor, and Cognitive Development. In: Handbook on Formative and Summatic Education of Student Learning, B.S. Bloom (ed.) et al., New York: Mc-Graw-Hill Book Co., 1971
- Linton, M., Gallo, P., The Practical Statistician: Simplified Handbook of Statistics, Brooks/Cole Publishing Co., Monterey, California, 1975.
- Menyuk, P., The Acquisition and Development of Language, Englewood Cliffs, N.J., Prentice Hall (1971).
- Myklebust, H., <u>Auditory Disorders in Children</u>, Grune and Stratton, New York, 1954.
- McNiell, D., The Acquisition of Language, Harper and Row, New York, 1970.
- Piaget, J., Play, Dreams, and Imitation in Childhood, W. and W. Norton and Company, New York, 1962.
- Rodgon, M., <u>Single-word Usage</u>, <u>Cognitive Development and the Beginnings of</u> Combinatorial Speech, Cambridge University Press, New York, 1976.
- Sie, N., "Reorganization of Babbling Phonatory-Articulation and Auditory Mechanisms and Their Applications to Language" in <u>Foundations of Language</u> <u>Development</u>, E. and E. Lenneberg, eds., 1972.
- Smilanski, D., Preschool Education: Socio-emotional, Perceptual-motor, and Cognitive Development. In: Handbook on Formative and Summatic Education of Student Learning, B.S. Bloom (ed.) et al., New York: McGraw-Hill Book Co., 1971.
- Smith, M., An Investigation of the Development of the Sentence and the Extent of the Vocabulary in Young Children, University of Iowa Studies of Child Welfare, III, No. 5, 1926.

- Sinclair, H., "The Role of Cognitive Structure in Language Acquisition" in Foundations of Language Development, E. and E. Lenneberg, eds., 1972.
- Sinclair-de-Zwart, H., "Sensorimotor Action Patterns as a Condition for the Acquisition of Syntax" in Language Acquisition: Models and <u>Methods</u>, H. Huxley and E. Ingram, eds., Academic Press, New York, 1971.
- Slobin, D., "Suggested Universals in the Ontogensis of Grammar" <u>Working</u> Paper #32, Language Behavior Research Laboratory, 1970.
- Werner, H., and Kaplan, G., <u>Symbol Formation</u>, John Wiley and Sons, Inc., New York, 1963.
- Yanz, M., Language Development and Representational Function in Children, Unpublished Master's Thesis, University of Iowa, 1974.

Periodicals and Papers

- Day, E., "The Development of Language in Twins: A Comparison of Twins and Single Children," Child Development, 3:179, 1932.
- Dihoff, R., Standard and Nonstandard Applications of Piagetian Assessment Procedures, Unpublished, 1976.
- Furth, H., "On Language and Knowing in Piaget's Developmental Theory," Human Development, 13:241-257, 1970.
- Hulme, I., and Lunzer, E., "Play Language and Reasoning in Subnormal Children," <u>Journal of Child Psychology and Psychiatry</u>, 7:107-123, 1966.
- Ling, D., and Ling, A., "Communication Development in the First Three Years of Life," Journal of Speech and Hearing Research, 4:146-157.
- Lovell, K., and Hoyle, H., and Siddall, M., "A Study of Some Aspects of the Play and Language of Young Children with Delayed Speech," Journal of Child Psychology and Psychiatry, 19:35-43, 1968.
- Lowe, M., "Trends in the Development of Representational Play in Infants for One to Three Years: An Observational Study." <u>Journal of Child</u> Psychology and Psychiatry, 16:33-47, 1965.
- Lunzer, E., "Intellectual Development in the Play of Young Children." Educational Review, 11:205-217, 1959.
- McCarthy, D., "Language Development in Children," <u>Manual of Child</u> <u>Psychology</u>, 1948.
- Morehead, D., "Early Grammatical and Semantic Relations: Some Implications for a General Representational Deficit in Linguistically Deviant Children," <u>Papers and Reports on Child Language Development</u>, Volume 4, 1972.

Myklebust, H., "Language Disorders in Children," Exceptional Child, 9:163-166, 1972.

- Nelson, K., "Concepts, Word, and Sentence: Interpretations in Acquisition and Development," <u>Psychology Review</u>, 81:267-285, 1973.
- Williams, H., "Analytical Study of Language Achievement in Preschool Children," Part I. <u>Development of Language and Vocabulary in Young</u> <u>Children</u>, University of Iowa Studies in Child Welfare, 8:9-18, 1937.

