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Survey of Skills for Blissymbol Use : A Pilot Study

Leisa J. Moore

Abstract

SURVEY OF SKILLS FOR BLISSYMBOL USE:
A PILOT STUDY

By Leisa J. Moore

The purpose of this study was to design an evaluative questionnaire to be used by two speech-language pathologists to survey cerebral palsied children's skills in areas pertinent to the learning of Blissymbolics, and to outline a Blissymbol protocol for recording Blissymbols of which children had knowledge. Skills of cerebral palsied children were surveyed and the Blissymbol knowledge of each was recorded.

The subjects of this pilot study were four cerebral palsied children, ages five years seven months to eight years five months. The children were currently involved in Blissymbol training, or had received Blissymbol training within the past year. Two speech-language pathologists, currently working with the subjects were provided with instructions and materials to use in evaluating the four subjects. These subjects were rated from high to low functioning in Blissymbol knowledge and usage by the speech-language pathologists and were chosen subject to availability.

It was determined to be beyond the scope of the present study to pretest the revised evaluative questionnaire which was constructed, and therefore impossible to obtain the statistical results needed in order to find what skills are actually necessary for a nonvocal cerebral palsied child to learn Blissymbolics. The results of the present study indicate that the revised evaluative questionnaire and data protocol are feasible for further research.

LOMA LINDA UNIVERSITY

Graduate School

SURVEY OF SKILLS FOR BLISSYMBOL USE: A PILOT STUDY

by

Leisa J. Moore

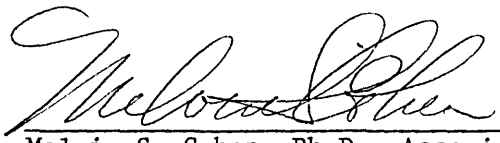
A Thesis in Partial Fulfillment of the

Requirements for the Degree

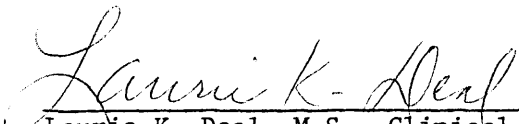
Master of Science in the Field of Speech-Language Pathology

August 1981

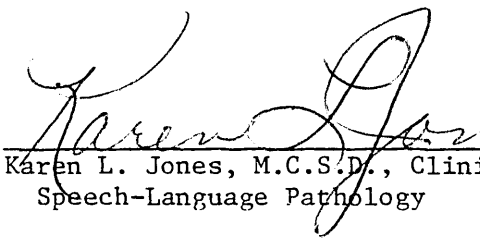
Each person whose signature appears below certifies that this thesis in his/her opinion is adequate, in scope and quality, as a thesis for the degree Master of Science.



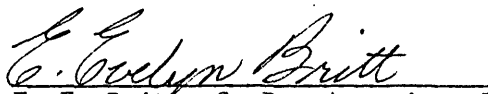
Melvin S. Cohen, Ph.D., Associate Professor of Speech-Language Pathology, Chairman



Laurie K. Deal, M.S., Clinical Instructor, Speech-Language Pathology



Karen L. Jones, M.C.S.D., Clinical Instructor, Speech-Language Pathology



E. E. Britt, Sc.D., Associate Professor of Speech-Language Pathology and Audiology

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My sincere gratitude goes to my classmates who have given encouragement many times when it seemed that the study would never be completed. Finally, I would like to express my love and appreciation to my husband, Kevin Moore, who stayed by me to the end of this study.

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Chapter 1

INTRODUCTION

Blissymbolics is a relatively new form of communication which has been used successfully with people having different types of nonverbal and nonvocal handicaps. With the growing interest in Blissymbolics have come many ideas and techniques without background research to substantiate their validity. Without such research, Blissymbolics cannot develop to its fullest as an augmentative form of communication (Silverman, 1976). Without a method to determine the skills which are necessary for learning types of Blissymbols, it is difficult for a teacher or clinician to know just which Blissymbols a child is capable of learning. At times, this results in the teacher or clinician trying to teach Blissymbols for which the child does not have the necessary skills. Consequently, both child and teacher may abandon Blissymbolics altogether when, in fact, if the prerequisite skills had been known, then taught, Blissymbolics could have been a useful augmentative form of communication for the child.

With cerebral palsied children for whom the prognosis for oral communication is poor, there is a definite need to begin a symbol program early in life (Archer, 1977). According to Snyder-McLean and McLean (1977), a normal child expressively uses the language he has mastered in order to acquire additional receptive language. This in turn helps to build additional expressive language. In this way, the

child's ability to use language as a functional communicative tool continues to grow. If this is so, then seventy percent of children with cerebral palsy who have difficulty with expressive communication (Lehrhoff, 1958) will not be able to continue from receptive language to expressive language production, and will be delayed by their inability to communicate.

Augmentative communication techniques, such as Blissymbolics, may provide the opportunity for expressive communication which is necessary for nonvocal children to continue acquiring language. With a means of expressive communication, the child is able to ask questions and communicate with those around him, thereby encouraging a continuum of language. Ideally, augmentative forms of expressive communication should be provided at an early age so that language potentials of the child may be developed to their fullest.

In order to begin a Blissymbol program at an early age, the requisite skills for its use must be determined (Cohen, 1980). Developmental sequences for the skills leading to Blissymbolics communication should be explored. By determining the requisite skills, the teacher or clinician will be able to identify those children who are candidates for a Blissymbolics program with the use of the proposed screening device, for which this study may provide information. By proper identification of the requisites for use of Blissymbolics, pre-Blissymbol programs could be developed and implemented to teach these skills.

Statement of the Problem

This study sought to answer the following questions;

1. For a nonvocal, cerebral palsied child, what skills are necessary in order to learn and use Blissymbolics as a form of communication?

2. Is an evaluative questionnaire designed for the teacher and/or clinician feasible in assessment of the skills which the child does possess?

3. Can the learning of different types and levels of Blissymbols be placed in hierarchical order according to the amount and/or complexity of skills required for each particular type or level of Blissymbolics?

Purpose

The purpose of this study was to design an evaluative questionnaire for teachers and clinicians to use with nonvocal, cerebral palsied children who are currently being taught Blissymbolics as a form of communication. The evaluative questionnaire was designed to assess each child's skills in areas which appear to be pertinent to learning of Blissymbols, as outlined in the Handbook of Blissymbolics (Silverman, 1974). Included with the evaluative questionnaire was a Blissymbol data protocol to record symbols of which the child has knowledge, and levels of usage of these symbols. This was included in order to compare a child's skills in those areas which appear to be pertinent to the learning of Blissymbols with his current knowledge and usage of Blissymbols.

Hypotheses

The following hypotheses are stated in the null form:

1. It will not be possible to find what skills are necessary for a nonvocal cerebral palsied child to learn Blissymbolics.

2. It will not be possible to design an evaluative questionnaire for the teacher and/or clinician, which is feasible in assessment of the skills which the child does possess.

3. The learning of different types and levels of Blissymbols cannot be placed in hierarchical order according to the amount and/or complexity of skills required for each particular type or level of Blissymbolics.

Importance of Study

The communication cycle between parent and child is begun early in life. Parents' responses and imitations of the child's vocalizations reinforce and encourage more vocalizations. With the cerebral palsied child who does not speak, this process is disturbed and results in a pattern of actions and reactions which affect social, emotional, and intellectual development (McDonald and Schultz, 1973).

Estimates of the incidence of cerebral palsy in the United States range from 1.6 to five per 1,000 population under 21 years of age (Kurland, 1957; Levin, 1949; Wishik, 1956). Approximately 70 percent of children with cerebral palsy manifest disturbances in their ability to communicate (Lehrhoff, 1958).

"Often the greater the cerebral palsied child's desire is to communicate, the more tense he becomes, and the less successful are his attempts at speech. Unable to communicate, the child often becomes passive and dependent" (McDonald and Schultz, 1973).

By providing an augmentative form of communication early in life, cerebral palsied children could bypass much of the frustration that results from their inability to communicate effectively. Clinical work with young children has shown that those children who use augmentative forms of communication attempt to vocalize words as they point to objects, pictures, symbols and/or words, facilitating closer approximation of these words (McDonald and Schultz, 1973).

In order to effectively work with the problems experienced by young cerebral palsied children, it is necessary that language learning begin early; not only receptive language, but expressive language. Blissymbols provide one form of augmentative communication, but there is a great need for formal research of the Blissymbolic system from linguistic, cognitive, educational and psychological perspectives (Archer, 1977).

It is important that requisite skills for Blissymbolics be determined, and that an evaluative tool be designed to assess these skills. An evaluative tool, including a record of each child's knowledge and usage of Blissymbolics, could be invaluable in the collection of data from children who are using Blissymbolics. With these tools, comparison of a child's skills in areas pertinent to the learning of Blissymbols, and his actual knowledge and use of Blissymbolics, may be made. In this

way it may then be established. It would then be possible to identify which skills are present in children who have knowledge of different types of Blissymbols, such as pictographic, ideographic and arbitrary symbols, and which skills are present in children who use symbols at various levels.

Information obtained from a study with these tools may be a prelude to establishment of pre-Blissymbol programs which teach requisite skills to children who may benefit from an augmentative communication system such as Blissymbolics.

Definition of Key Terms

Arbitrary Blissymbol: A line drawing that has no pictorial relationship between the form and what it is intended to symbolize (Silverman, 1974).

Attention: The act or state of attending through applying the mind to an object of sense or thought (Webster, 1971).

Blissymbolics: A system of over 1400 pictographic, ideographic, and arbitrary line drawings which stand for words and concepts. They are based on a rationale which, if understood, facilitates interpretation and retention of their meaning (Silverman, 1974).

Cerebral Palsy: A group of disorders due to brain injury in which motor coordination is especially affected (Holt and Reynell, 1967).

Compound Blissymbol: Groups of line drawings arranged to represent objects or ideas (Silverman, 1974).

Directionality: Ability to distinguish left and right, up and down.

Figure-Ground Discrimination: Refers to maximum number of visual stimuli presented simultaneously in one visual frame from which a child can select one stimulus; the ability to perceive a form and to sustain that perception in the face of other stimuli.

Ideographic Blissymbol: Line drawings that symbolize the idea of a thing rather than the name of it. An ideograph creates a graphic association between the symbol and the concept it represents.

Motivation: Incentive to learning new stimuli, or to attend to stimuli.

Nonverbal: Nonverbal refers to individuals who do not possess the language skills needed to produce oral speech (Howells, 1981).

Nonvocal: Nonvocal refers to individuals who do not possess the motor capacities to produce oral speech (Howells, 1981).

Pictographs: Drawings that resemble what they are intended to symbolize (Silverman, 1974).

Size Perception: Ability to observe and relate to various size differences of objects, pictures, and line drawings.

CHAPTER II

REVIEW OF THE LITERATURE

Normal Language Development and Speech Production

McDonald (1975) outlines normal language development in the following manner. During the first two weeks, an infant normally produces undifferentiated vocalizations. He cries and produces reflexive sounds. By the end of the first month, the vocalizations become differentiated. At two months, an infant will vary the pitch and loudness of a single vowel vocalization. At four months, he begins making consonant-vowel productions. Inspiration is performed rapidly and exhalation is prolonged at this stage. At five months, the child begins to vocalize in order to get attention. He now understands that vocalizations can be used to generate some type of reward. At six months, he produces several consonant-vowel syllables on an exhalation, and, at seven to nine months, the child practices inflections. At nine months, the child imitates vocalizations, and at twelve months, he has an average vocabulary of three words. At eighteen months, a child has about twenty words and, by two years, he makes two-word sentences and has a vocabulary consisting of about two-hundred words.

Menyuk (1977) outlines aspects of language development during infancy in the following manner. A child from zero to four months is able to discriminate feature differences in place, voice, and manner of syllables. He babbles and pays attention to the alternation in vocalizations. From four to eight months, a child is able to distinguish

questions from statements, to repeat consonant-vowel combinations, and to respond vocally to social interaction and play. From eight to twelve months, the shift from syllables to words is evident. The child pays attention to words and produces them.

According to McDonald and Schultz (1973), a communication cycle is begun early in life with parents and child. Parents' responses and imitations of the child's vocalizations reinforce the child's responses and encourage more vocalizations.

Development of Speech and Language in Cerebral Palsied Children

McDonald (1975) reports that many severely handicapped cerebral palsied children will not be able to develop intelligible speech regardless of how much speech training they are given. He also acknowledges that if parents do not reward the child's vocalizations with attention, he is less likely to continue vocalizing. Since the cerebral palsied child's speech may be "bizarre", his parents may not provide positive reinforcement for his attempts to vocalize.

According to Lehrhoff (1958), some 60 percent to 70 percent of cerebral palsied children manifest speech defects and disturbances in their ability to communicate.

The Blissymbol System as an Augmentative Form of Communication

McDonald (1980) reports that Blissymbols were not developed with the problems of the communicatively handicapped in mind, but, in 1971,

Shirley McNaughton "discovered" a symbol system which was originally meant to be a universal language. By 1975, "interest in Blissymbols was widespread and handicapped children in centers all around were learning to use Blissymbols".

Nature of Blissymbols

There are approximately one hundred basic symbols in the system invented by Charles K. Bliss. By a "symbol", Bliss means some sign which has meaning. "Blissymbols represent people, things, actions, feelings, relationships and ideas" (Silverman, 1974). Sometimes the symbols are used by themselves, but mostly they are used in combination with other symbols. There are three different symbol types. Pictographs are drawings which resemble what they are intended to symbolize. Ideographs are drawings which symbolize the idea of a thing rather than the appearance of it. Abritrary symbols are drawings which have no pictorial relationship between the form and what they are intended to symbolize. Most of the symbols are ideographic or abstract. Configuration, size, position, direction, and spacing help to determine symbol meaning. Indicators, pointers, and numbers along with the symbol help to establish meaning. There are many different indicators, such as a "concrete thing" indicator (to distinguish concrete from abstract nouns), an action indicator (for past, present, and future verbs),

and a "description or evaluation" indicator (for adjectives and adverbs), and a "plural" indicator (for plurals).

Among the symbols can be found concrete vocabulary for body parts, feelings, people, food, and clothing, and abstract symbols for the parts of speech, such as conjunctions, prepositions, and interjections. In order to reduce the number of symbols needed for a working vocabulary, an opposite meaning symbol is included along with a negative symbol.

Skills Required for Use of Blissymbols

The following outline identifies various component factors which appear to be pertinent in the learning of Blissymbolics as an augmentative form of communication. Most of the skills are mentioned in the Handbook of Blissymbolics (Silverman, 1974). Others are taken from literature pertaining to learning, and literature dealing with the visual system, since Blissymbolics is a visual system.

Attention

Gesell (1940) reports that at age two, a child builds a tower twice as tall as at 18 months. Instead of using three blocks, he now uses six. This denotes a gain in his span of attention. A child has attending behavior as early as 18 months. This attending behavior increases with age.

Motivation

According to Anthony (1956), emotional attitudes, motivational states, and acquired predispositions as to approaches to the environment can influence the attainment of concepts or learning. Stott (1961) reports that as early as infancy, motivation is in effect. Infants continually seek new modes of effective action in relation to their environment, and they abandon a mode once it has been explored to the point of mastery.

Visual Acuity

Fantz (1965) reported that infants can see stripes of 1 mm at a distance of 22.5 cm from the eyes. Pick and Pick (1970), in reviewing the literature on visual acuity in infants, reported that infants zero to one month have Snellen vision in the range of 20/150 and 20/400. By ten years, maximum acuity is attained for most children.

Visual Skills

Getman (1963) claims that 85 percent to 90 percent of a child's learning is acquired through visual processes. He outlines stages of development beginning with movement patterns, then discrimination, then concept formation.

Visual Tracking

Zaichkowsky and Zaichkowsky (1980) report that, at one month, the

infant is capable of following or tracking an object through an arc of 90 degrees. According to Cratty (1979), reflexive tracking behavior is seen at birth, and at six months, an infant tracks through 90 degrees in horizontal and vertical planes.

Visual Scanning

Vurpillot (1968) reports that children under six years of age scan only a limited amount of each stimulus. She performed a study on the scanning strategies of children and noted that they judged two pictures of houses to be alike, when in fact they were different.

Taylor (1961) noted selective scanning of pictures at age two. Doll (1965) reported that children at two years of age "discriminate" and make simple judgments in differentiation of pictures.

Size Perception

Long (1941) attempted to train children between the ages of four and seven years to discriminate a large stimulus from a small one. He found children required from five to 437 trials to succeed. "The concept of relative size seems to be a difficult one to learn even though form discriminations are possible early in life." The ability of children at two years six months to discriminate size in extreme cases was noted by Gesell (1948).

The degree to which children classify objects as biggest, middle-sized, and littlest was studied by Thrum (1935). Working with subjects

aged two to five years, she found the most difficult concept for children to select correctly was "middle-sized"; the next most difficult was "biggest", and the easiest was "littlest". The youngest child who chose all three of the relative sizes correctly was three years three months of age.

Terman and Merrill (1960) noted that children are able to distinguish between relatively small differences at three years six months. According to Gesell (1940), this ability is not acquired until age four. Breckenridge and Vincent (1965) state that confusion of size may persist even into the fifth year.

Object Recognition

In 1974, Evertson conducted a study involving the use of objects, photographs, and line drawings. She found that objects and photographs were easier for the subjects to recognize, and they did not differ significantly from one another.

Daehler (1976) reports that children as young as 24 months show remarkable good transfer to new forms and exemplars of stimuli. Objects and pictures are responded to equivalently at 24 months, 29 months, and 45 months.

Zimmerman (1969) notes that the ability to respond and attend to objects is one of the necessary steps to vocabulary building. According to her, object recognition is present at 18 months, while recognition of

reduced sized objects should be acquired by two years of age, according to Terman and Merrill (1937).

Picture Identification

Gesell (1940) found that children could identify two or more pictures by naming or pointing by the age of two. He also noted that children could point to five or more pictures from a ten-picture assortment at one year six months.

Taylor (1961) noted a child's ability to distinguish pertinent parts of pictures at three years. According to Kirk (1940), this skill is necessary in order to learn to label objects in pictures. At two years six months, a child is able to identify pictures of familiar objects when they are described in terms of their use (Terman, 1960; Haeussermann, 1958).

According to Mandler and Day (1971), meaningful pictures are remembered better by children than are abstract or nonsense pictures. A capacity to recognize familiar stimuli in pictures and to store their left-to-right orientation may be fully developed by second grade. Evertson (1974) reports that pictorial detail, or pictorial concreteness, appears positively related to learning with young children.

Line Drawing Recognition

Evertson (1974) found that children recognized objects and photographs earlier than they recognized line drawings. Emmerick (1976)

reports that detail may facilitate recall, but not recognition of pictures and line drawings in four-year-olds and five-year-olds.

Horizontal, Vertical and Diagonal Line Recognition and Circle Recognition

According to Cratty (1979), infants are able to discriminate between triangles and other geometric figures near birth. He also reports that, at two years, a child distinguishes vertical from horizontal lines. At five years, he distinguishes between lateral, vertical, and horizontal lines.

Nelson (1962) reports that children differentiate squares, circles and triangles first, with diamonds, crosses and more complicated shapes being differentiated later. Holt and Reynell (1967) reported that children first learn to recognize symbols made up of circles or straight lines, such as a square, cross, circle and "X".

Figure-Ground Discrimination

Figure-ground discrimination refers to the maximum number of visual stimuli presented simultaneously in one visual frame from which a child can select one stimulus; the ability to perceive a form and to sustain that perception in the face of other stimuli. Gesell (1940) noted that children could point to five or more pictures from a ten-picture assortment at eighteen months.

Directionality

Directionality refers to the ability to identify and relate to objects or people other than self, in terms of left and right. A child must first learn lateral awareness, with reference to his own body, to conceptualize about positions or directions of objects in space. Lateral awareness is mastered by most children by the age of seven, but directionality skills are not mastered until about nine years (Breckenridge, 1965).

Cause and Effect Relationships

The first two years of life have been described by Piaget (1954) as the sensorimotor stage. He reports that the child accomplishes the following tasks: he attains rudimentary knowledge that is the prototype of concepts; he establishes a differentiation of himself from objects; he localizes himself in space and establishes a beginning awareness of cause and effect.

Motor Skills

Provine (1979) noted that infants first contact objects in front of the ipsilateral shoulder, then at the midline, then in front of the contralateral shoulder. By four and one-half months, a child is able to reach objects across the body midline.

In relation to pointing skills, Lefford, et al.,(1974) noted that by one and one-half years, children can point to familiar pictures and

objects when asked to do so. According to Gesell's developmental schedules (1940), a two-year-old can imitate a vertical stroke, and by three years of age he can imitate a horizontal stroke.

Caregiver Support

Brody (1951) noted that infants who were handled more often were consistently more attentive visually than those who were not handled as much. Additionally, the infants who were handled more often exhibited a greater amount of visual motor behavior during the early weeks of life.

White (1958) conducted studies suggesting the probability that, with increased amounts of attention by adults, such as more handling and providing of an enriched visual environment, measurable changes could be elicited in visual and motor behavior of infants. He also suggests that visual attention will tend to delay onset of manual activity. An excess of external visual stimuli will increase visual attention by infants and in turn result in qualitative and quantitative changes in visual-motor behaviors early in life.

Color Perception

Gesell (1940) noted that, at four years of age, children can readily name one color, while only forty-one percent can name two colors. Doll (1965) mentioned that selecting or identifying colors comes earlier than the ability to name them. The ability to recognize colors is acquired at four years.

Johnson (1977) reports that the development of color perception in children begins with knowledge of the color red, then blue, yellow and green. These are developed before three years six months.

According to Brian and Goodenough (1929), children as young as twenty-one months of age tend to match various shaped and colored blocks on the basis of form rather than color. Color becomes preferred about the age of three; color preferences then gradually decrease until age six, when form again becomes dominant. For children seven to 11 years of age, color is not a meaningful basis of organization when the items are familiar and realistic.

Concrete Versus Abstract Concepts

According to Sigel (1953), high level abstract concepts (for example, "living things") have been found among seven-year-olds of average mental ability. Ames (1959) reports that the abstract concepts of yesterday, today, and tomorrow are clear to most four-year-old children.

Summary

Development of speech and language follows a fairly regular pattern with normal children, with the child beginning to vocalize at two weeks, and by two years, make two-word sentences with a vocabulary of about two hundred words. A cerebral palsied child may never develop intelligible speech. Because of this, development of language may be slow.

Blissymbols is an augmentative form of communication which has proved to be helpful to some cerebral palsied children in learning of language through a visual system. Blissymbols may be pictographs, or drawings which resemble what they are intended to symbolize; ideographs, or drawings which symbolize the idea of a thing rather than the name of it; or arbitrary symbols, drawings which have no pictorial relationship between the form and what they are intended to symbolize. Blissymbols may be simple, compound superimposed, compound sequenced, or compound mixed in composition. Examples of these types of Blissymbols appear on page 22.

Based on the author's survey of the literature, the following skills appear to be pertinent to the learning of Blissymbols. An explanation of why each skill appears to be pertinent is included with each skill:

1. Visual attending skills: Blissymbolics is a visual system (Silverman, 1974).

2. Auditory attending skills: The auditory mode is often needed as a child listens to verbal explanations of symbols.

3. Large object, miniature object, picture and line drawing identification skills: Often, the way in which a child responds to objects, pictures, and line drawings has a relationship to the way in which a child may respond to symbols (Silverman, 1974).

4. Receptive language: Language comprehension directly affects a child's communication skills with symbols, and the level at which the meaning of the symbols may be explained (Silverman, 1974).

5. Form discrimination: The Blissymbol system is composed of different geometrical configurations.

6. Size perception: In order for a child to tell the differences among some symbols, he may have to be able to perceive differences in size, since size may be the only distinctive feature in some symbols.

7. Visual sequential memory: Many of the symbols are composed of more than one symbol part in a certain order.

8. Number skills: Some of the Blissymbols are composed of a symbol plus an arabic number, which gives the symbol a different meaning.

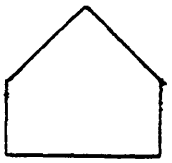
9. Directionality: Some of the Blissymbols are composed of a shape with an arrow, giving the symbol different meanings.

10. Caregiver support: A child spends more of his waking hours in the home situation with his caregiver than he spends in school.

11. Motivational skills: Interest and attitude are factors which have been found to affect Blissymbol communication (Silverman, 1974).

SYMBOL TYPES

house



pictographic

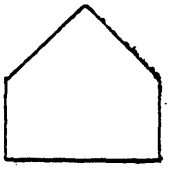
protection

ideographic

that

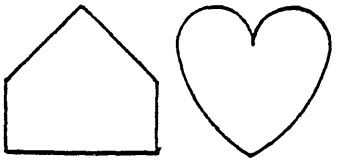
arbitrary

house



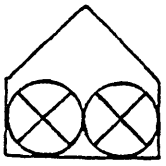
simple

home



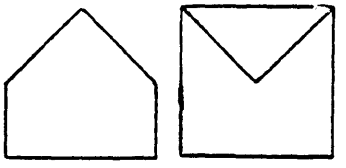
compound sequenced

garage



compound superimposed

post office



compound mixed

CHAPTER III

RESEARCH AND DESIGN PROCEDURES

The present study involved development of an evaluative questionnaire to assess supposed requisite skills for Blissymbolics, and development of a data checksheet to record each child's current knowledge of the Blissymbol system. These tools were pilot tested with a group of four cerebral palsied children. Raw data were analyzed for each child in the form of a case study in order to match acquired requisite skills to the child's current knowledge of pictographic, ideographic and arbitrary Blissymbols.

POPULATION AND SAMPLE

Four nonvocal children, ages five years seven months to eight years five months, were chosen as subjects. All were currently receiving, or had received Blissymbol training at the time of this study. The four subjects were chosen by two licensed and certified speech-language pathologists, who were currently working with the children. They were selected according to their mastery of Blissymbolics, which ranged from low to high.

MATERIALS AND SOURCES

The evaluative questionnaire for skills pertaining to Blissymbol learning was designed from an in-depth study of normal children's development in reading skills, picture identification skills, learning, and

the visual system. Items suggested for the evaluative questionnaire were as follow:

1. Toy -- new to child
2. Toy or object -- child's favorite
3. Toy or object which child does not like
4. A miniature reproduction of a real object
5. Child's Blissymbols and some extra Blissymbols
6. Photographed or pictured object
7. Line drawing of an object
8. Ruler
9. Watch or clock with second hand
10. Two "different" objects
11. Objects such as doll, car and cookie
12. A ball, block, and stick of the same color -- two sets
13. Pictures of a ball, block, and stick of same color -- two sets
14. Line drawings of a circle, square, and line -- two sets
15. Line drawings of a horizontal, vertical and diagonal line -- two sets
16. Line drawings of a plus sign, wavy line, and arc -- two sets
17. Two objects -- different in size only, identical object of one of the sizes
18. Two line drawings of one object -- different in size only, identical line drawing of one of the different sized objects
19. Two pictured objects -- different in size only, one identical picture of one of the different sized pictured objects

20. Several objects familiar to child -- two alike of one object

21. Picture containing several objects -- picture containing one of the objects

22. Sequenced symbol, such as mailbox; incorrectly sequenced symbol -- backward

23. Written numbers one through 12

24. Symbols containing arrows pointing up, down, right, and left; separate line drawings of arrows pointing up, down, right, and left

The objects and drawings listed in numbers 13 through 19, 22, and 24 were supplied by this researcher.

METHODOLOGY

The evaluative questionnaire and Blissymbol data checksheets were given to two speech pathologists, who were currently working with the four subjects. A direction sheet and materials to be used in conducting the survey were supplied with the evaluative questionnaire. The following directions were given:

> "The following survey is designed for children who are currently using Blissymbols. Each question is self explanatory. You may be able to answer some questions without actually having the child perform a task, since you may have already observed the child's behavior in the situation given in the question.
>
> It is suggested that you proceed through the entire survey and answer as many questions as possible. Those questions which will require direct observation or interaction with the child may be completed last. Many questions require an estimate in percentage of the child's correct responses. There is no need to observe the child's behavior ten times and

> compute an actual percentage, although you may observe the chid's behavior in a few instances and then estimate a percentage. If you feel confident that you can give a percentage which truly reflects the child's behavior as previously observed, then do so. If you are not confident of your answer, please observe or interact with the child as suggested in each question.
>
> On the last page of the survey, you will find a Blissymbol data sheet. Please write the name of each symbol of which the child currently has knowledge, and place a date when the symbol was introduced, as well as when the child was able to use the symbol in the ways identified by the heading above each column of blanks. If a date is not known, please place an "X" in each blank beside the symbol name, and under the appropriate column, for which the child has knowledge or use of the symbol."

After all four children were evaluated, a conference was held with the two speech-language pathologists who evaluated the tool. The purpose of the conference was to obtain a critique of the evaluative tool itself, and suggestions for improvement of the instrument to determine feasibility of its use in later studies. Each child's evaluative questionnaire and Blissymbol data checksheets were reviewed and compared in the form of case studies.

CHAPTER IV

RESULTS

An evaluative questionnaire to assess supposed requisite skills for Blissymbolics was pilot tested with a group of four nonvocal cerebral palsied children. Each child's current knowledge of the Blissymbol system was recorded on a data checksheet included with the evaluative questionnaire (refer to evaluative survey in Appendix A).

Each child's evaluative questionnaire and data checksheet were reviewed and compared in the form of case studies. The results of four case studies indicate that the children did not have to have all the skills evaluated in the survey in order to learn different Blissymbol types, specifically, number skills, and directionality skills. For example, two of the subjects had knowledge of Blissymbols which included numbers in their composition, but were unable to perform the suggested activities involving numbers. One subject was able to perform the suggested activities involving directionality of arrows (matching) with Blissymbols of which he had knowledge, but was unable to perform with Blissymbols of which he had no knowledge (refer to case studies in Appendix B).

A critique of the evaluative questionnaire was obtained from two licensed and certified speech-language pathologists who evaluated the four subjects. This conference was taped and statements regarding each section of the tool were summarized. This summary begins on page 28, and includes suggestions for revision of the evaluative questionnaire.

Sections of the evaluative questionnaire in which suggestions were made for revisions included:

1. Visual attending skills -- symbols
2. Auditory attending skills
3. Receptive language
4. Form discrimination
5. Figure-ground discrimination
6. Visual sequential memory
7. Number skills
8. Directionality

Time involved in conducting this evaluative questionnaire survey and the format, along with suggestions for revision of the tool, are as follows:

Time Involved in Use of Evaluative Survey

It was suggested that if a child had been seen continuously by a speech-language pathologist or teacher, the questionnaire may involve two and one-half to four hours in assessment, because the nature of the tool allows for estimation by recall of the child's behavior observed previously. If the child had not been seen previously by a teacher or speech-language pathologist, it might involve eight to 10 hours of testing over a period of two to three weeks at least, depending upon the child. It was suggested that a teacher

or speech-language pathologist be involved with teaching the child at least six months before attempting to complete the evaluative survey, for ease and time feasibility.

Format of Evaluative Survey

In some of the items, more than one interval was checked by the examiners. On further discussion with the two speech-language pathologists, it was decided that each of the questions involving numeric intervals should be widened for ease in evaluation. The format of the evaluative questionnaire was reported to make the evaluative procedure easier by being pre-coded and by allowing them to estimate the percentages involved in the survey. On questions in which more than one answer might apply, it should be stated that more than one answer may apply in the directions.

Visual Attention Skills -- Symbols

The speech-language pathologists who critiqued the questionnaire suggested that item number five which reads as follows: "Check one which most closely describes time and amount of symbols in which child will continue searching for a particular symbol until it is found", could be improved by dividing it into two questions such as: 1. "How long does it take the child to locate a symbol?" 2. How long will the child continue searching for a symbol which is not on his communication board?". This would provide more information.

Auditory Attending Skills

A similar suggestion involved item number four which reads as follows: "How long does child's attention stay diverted from a task which he is working on, when auditory distraction is present (such as children making noise?). The two speech-language pathologists suggested dividing this item into two questions to include types of auditory distraction present: interesting and noninteresting distractions to the child.

Receptive Language

It was suggested by the two speech-language pathologists that questions one through three which read as follows: "If the child is presented with two different objects and asked . . ." would be more specific if stated as follows: "If the child is presented with two different objects with which he is familiar . . ." It was also suggested that the jump between whether a child can discriminate between two objects and answering questions requiring negation is too large. This should be filled in with appropriate questions. It was suggested that items four and five be put together and worded as follows: "Does the child know the difference between 'yes' and 'no' at any level?", and "How often are the child's 'yes' and 'no' responses appropriate to the situation involved?".

Form Discrimination

In conducting the evaluative survey, one of the speech-language pathologists found that a subject turned the test materials to match the key item, instead of pointing to one of the three shapes given. It was then suggested that testing materials which consist of drawings on separate sheets should be constructed on one sheet for each question in order to eliminate the possibility of turning or manipulation of drawings by the child being evaluated.

Figure-Ground Discrimination

It was suggested that test item number four which reads as follows: "What is the maximum number of objects which could be placed in child's view, and he still find the object matching one which he is shown?" be restated to include the child's visual field. Placement of objects and their arrangement should be specified (such as in a row, or in four corners).

Visual Sequential Memory

Materials for items three and four included the word on the bottom of the Blissymbol. The word should always be placed above the symbol. It was suggested that items three and four be restated to eliminate any confusion. On item number three the child should not be allowed to look at the correct symbol for a given amount of time, but should just be asked to identify the symbol by name, otherwise, the question becomes a short-term visual memory matching task. The materials included for

questions three and four contained three parts to a symbol instead of the stated two. These materials should be reconstructed with only two parts for each symbol.

Number Skills

An additional question should be included such as: "Does the child have knowledge of symbols which include numbers in their composition?". It was suggested that this might give the researcher pertinent information for his study.

Directionality

It was suggested that a question be included in this section such as: "Was the child able to match arrows in symbols with which he possessed knowledge?", and a question should also be included: "Was the child able to match arrows in symbols with which he did not possess knowledge?". This would eliminate the task of the researcher personally asking these questions, as this information is pertinent to this section.

Evaluative Survey Revision

Revisions of the evaluative questionnaire were made according to the above suggestions. The revised tool may be found in Appendix C. The results of this study indicate that the revised evaluative questionnaire should be pretested and further evaluated by speech-language pathologists who are currently involved in use of Blissymbolics.

CHAPTER V

DISCUSSION

At this time, there have been no research studies testing the validity of prerequisite skills outlined in the Handbook of Blissymbolics (Silverman, 1974) for the learning of Blissymbols. The present study sought to pilot test an evaluative questionnaire designed through research in areas which appear to be pertinent to the learning of Blissymbols. Each section of the evaluative survey was reviewed by two licensed and certified speech-language pathologists who were involved in the assessment and by this researcher. Based on the critique, suggestions were made and a revision of the evaluative survey was completed (refer to Appendix C).

Case studies were made on the four cerebral palsied subjects who were assessed with the evaluative questionnaire. These were made in order to match acquired requisite skills to the child's current knowledge of pictographic, ideographic and arbitrary Blissymbols.

The first hypothesis stated that "it will not be possible to find what skills are necessary for a nonvocal cerebral palsied child to learn Blissymbolics". Because it was determined to be beyond the scope of the present study to pretest the revised evaluative questionnaire, it was not possible to obtain the statistical results needed in order to accept or reject this hypothesis.

The second null hypothesis which stated that "it will not be possible to design an evaluative questionnaire for the teacher and/or clinician, which is feasible in assessment of the skills which the child does

possess", was rejected in this study. The evaluative questionnaire which was designed in the present study assessed the skills which the child possessed and was feasible for use, although it was suggested that a teacher or speech-language pathologist be involved with the child for at least six months before attempting to complete the survey for ease and time feasibility. This was suggested since the two speech-language pathologists involved in the study had worked with each of the subjects at least one full year and were thereby able to complete many of the items without testing the child.

The third null hypothesis which stated "the learning of different types and levels of Blissymbols cannot be placed in hierarchical order according to the amount and/or complexity of skills required for each particular type or level of Blissymbolics" was not confirmed. In order to have tested this hypothesis, the questionnaire would have needed to be pretested, tested, and considered to be valid before attempting to find whether this hypothesis would be accepted or rejected.

Summary and Conclusions

The present study sought to pilot test an evaluative questionnaire designed through research in areas which appeared to be pertinent to the learning of Blissymbols. Suggestions for changes in the evaluative questionnaire were made by two speech-language pathologists, after they conducted four evaluative surveys with cerebral palsied subjects. Case studies were made on the four cerebral palsied subjects who were

assessed with the evaluative questionnaire. The results of this study indicated that the evaluative questionnaire and data protocol are ready to be prestested and are feasible for further research. The length of the evaluative tool is a drawback, although further research studies may utilize the questionnaire to track the child's progress with Blissymbols over a long period of time. This would spread the evaluative procedure over a longer period, and permit the examiner to complete the survey with little time constraint.

Implications for Further Research

The evaluative questionnaire and Blissymbol data checksheet should be pretested and further evaluated by appropriately qualified speech-language pathologists who are knowledgeable in the use of Blissymbolics. Revision and pretesting should continue until the instrument is demonstrated to be valid in ascertaining skills of nonvocal children. Once the evaluative questionnaire has been refined, a study should be conducted with this tool to determine what skills are necessary for a nonvocal cerebral palsied child to learn Blissymbolics, as stated in the first hypothesis of the present study. The dates on the Blissymbol data checksheet would be important in gathering information regarding the child's acquisition of the different Blissymbol types and levels of usage. This information would be important, and follow the child throughout school.

A grid type analysis should be constructed once the prerequisite skills for learning of Blissymbolics are found. The grid would

include all of the skills necessary for learning Blissymbols along the horizontal axis, and different types and levels of Blissymbolics on the vertical axis. For each type and/or level of Blissymbolics, the skills necessary could be denoted by shading in of the area intersecting the type and/or level of Blissymbol, and the skill necessary for learning it. A sample grid analysis such as this may be found in Appendix D. A grid analysis such as the above would enable a speech-language pathologist who is just beginning to work with Blissymbols to know which skills a child should have in order to learn different Blissymbols. The speech-language pathologist could then test the child with the evaluative tool to determine which skills the child does possess, and those which need to be taught before the child will be able to effectively learn different Blissymbols.

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APPENDICIES

APPENDIX A

APPENDIX A

SURVEY OF SKILLS FOR BLISSYMBOL USE
PILOT STUDY

CHILD'S NAME _____ DOB _____

AGE _____ SEX _____ DATE _____ EXAMINER _____

The following survey is designed for children who are currently using Blissymbols. Each question is self explanatory. You may be able to answer some questions without actually having the child perform a task, since you may have already observed the child's behavior in the situation given in the question.

It is suggested that you proceed through the entire survey and answer as many questions as possible. Those questions which will require direct observation or interaction with the child may be completed last. Many questions require an estimate in percentage of the child's correct responses. There is no need to observe the child's behavior ten times and compute an actual percentage, although you may observe the child's behavior in a few instances and then estimate a percentage. If you feel confident that you can give a percentage which truly reflects the child's behavior as previously observed, then do so. If you are not confident of your answer, please observe or interact with the child as suggested in each question.

On the last page of the survey you will find a Blissymbol data sheet. Please write the name of each symbol of which the child currently has knowledge, and place a date when the symbol was introduced, as well as when the child was able to use the symbol in the ways identified by the heading above each column of blanks. If a date is not known, please place an "X" in each blank beside the symbol name, and under the appropriate column, for which the child has knowledge or use of the symbol.

For questions which you will be following the recommended procedure, you may use the following suggested materials:

1. Toy -- new to child
2. Toy or object -- child's favorite
3. Toy or object which child does not like
4. A miniature reproduction of a real object
5. Child's Blissymbols and some extra Blissymbols
6. Photographed or pictured object
7. Line drawing of an object
8. Ruler
9. Watch or clock with second hand
10. Two "different" objects

11. Objects such as doll, car and cookie
12. A ball, block, and stick of the same color -- two sets
13. Pictures of a ball, block, and stick of same color -- two sets
14. Line drawings of a circle, square, and line -- two sets
15. Line drawings of a horizontal, vertical and diagonal line -- two sets
16. Line drawings of a plus sign, wavy line, and arc -- two sets
17. Two objects -- different in size only, identical object of one of the sizes
18. Two line drawings of one object -- different in size only, identical line drawing of one of the different sized objects
19. Two pictured objects -- different in size only, one identical picture of one of the different sized pictured objects
20. Several objects familiar to child -- two alike of one object
21. Picture containing several objects -- picture containing one of the objects
22. Sequenced symbol, such as mailbox; incorrectly sequenced symbol -- backward
23. Written numbers one through 12
24. Symbols containing arrows pointing up, down, right, and left; separate line drawings of arrows pointing up, down, right, and left.

SURVEY OF SKILLS FOR BLISSYMBOL USE

VISUAL ATTENDING SKILLS -- OBJECTS	Hardly at all (0-15%)	Sometimes (16-50%)	Most times (51-85%)	Almost Always (86-100%)
Rationale: Blissymbolics is a visual system according to Silverman (1974).	( )	( )	( )	( )
1. When an object such as a new toy is placed in child's view, does he indicate awareness or attend to toy?	( )	( )	( )	( )
2. When the child's favorite toy or object is placed in his view, does he attend to it?	( )	( )	( )	( )
3. When an object is placed in the child's view which he does not like, does he attend to it?	( )	( )	( )	( )
4. When an object which is a miniature reproduction of a real object, such as toy furniture, is placed in child's view, does he attend to it?	( )	( )	( )	( )

5. Check one/s which most closely describe child's visual attending behavior for objects.

( ) child looks at object or toy
( ) child reaches for or attempts to get toy
( ) child manipulates object or toy
( ) other _____
(please specify)

6. Describe the size of child's favorite toy.

( ) small (0-3") ( ) medium (4-11") ( ) large (12-18") ( ) other (_____)

7. Check one which most closely describes the child's visual attending behavior for objects.

( ) child looks at object randomly, or only when his eyes "happen" to pass over it
( ) child attends to object for 0-10 seconds
( ) child attends to object for 11-30 seconds
( ) child attends to object for 30 seconds to 3 minutes
( ) other _____
(please specify)

VISUAL ATTENDING SKILLS -- SYMBOLS

	Hardly at all (0-15%)	Sometimes (16-50%)	Most times (51-85%)	Almost Always (86-100%)
1. When a new symbol is placed in child's view, does he indicate awareness of symbol?	( )	( )	( )	( )
2. When the child's favorite symbol is placed in his view, does he attend to it?	( )	( )	( )	( )
3. When the child's communication board, or a set of symbols which the child already knows is placed in his view, does he continue searching for a particular symbol which you ask him to find, until he finds it?	( )	( )	( )	( )

4. Check one/s which most closely describe child's visual attending behavior for symbols.

( ) child looks at symbol
( ) child points to symbol while looking at it
( ) child seems to be looking elsewhere, but finds symbol
( ) other _____
(please specify)

5. Check one which most closely describes time and amount of symbols in which child will continue searching for a particular symbol until it is found.

( ) child finds symbol in 0-10 seconds
( ) child finds symbol in 11-30 seconds
( ) child finds symbol in 30 seconds to 3 minutes
( ) other _____
(please specify)

( ) child finds symbol in an array of 3-10 symbols
( ) child finds symbol in an array of 11-30 symbols
( ) child finds symbol in an array of 31-75 symbols
( ) other _____
(please specify)

AUDITORY ATTENDING SKILLS

Rationale: The auditory mode is often used, when a child is required to listen to a verbal explanation of symbols

	Hardly at all (0-15%)	Sometimes (16-50%)	Most times (51-85%)	Almost Always (86-100%)
1. Does the child attend to auditory stimuli, i.e. language which he enjoys such as story time, or records?	( )	( )	( )	( )

2. Does the child attend to auditory stimuli, i.e., language which the teacher uses in therapy for Blissymbols? ( ) ( ) ( ) ( )

3. The child indicates awareness of auditory stimuli around him, such as children talking, or footsteps coming does the hall by: ( ) ( ) ( ) ( )

   ( ) turning head in direction of auditory stimuli
   ( ) sitting still and "concentrating"
   ( ) widening eyes
   ( ) reflex action
   ( ) other _____
   (please specify)

4. How long does child's attention stay diverted from a task which he is working on, when auditory distraction is present (such as children making noise)?

   ( ) 1-5 seconds
   ( ) 6-15 seconds
   ( ) 16-30 seconds
   ( ) until distraction is no longer present
   ( )other _____
   (please specify)

5. How often is child distracted or interrupted from a task, when noise or auditory distraction is present?

   ( ) 0-2 times per twenty minute session?
   ( ) 3-5 times per twenty minute session?
   ( ) 5-10 times per twenty minute session?
   ( ) other _____
   (please specify)

6. For how long will child attend to auditory stimuli which he enjoys, such as story time or records?

   ( ) 0-15 seconds
   ( ) 16-60 seconds
   ( ) 2-5 minutes
   ( ) 6-15 minutes
   ( ) other _____
   (please specify)

LARGE OBJECT, MINIATURE OBJECT, PICTURE, AND LINE DRAWING IDENTIFICATION SKILLS

Rationale: Often, the way in which a child responds to objects, pictures, and line drawings has a relationship to the way in which he may respond to symbols.

	Hardly at all (0-15%)	Sometimes (16-50%)	Most times (51-85%)	Almost Always (86-100%)
1. Does the child indicate recognition of a large object such as a school bus?	( )	( )	( )	( )
2. Does the child indicate recognition of a miniature object such as a toy school bus?	( )	( )	( )	( )
3. Does the child indicate recognition of a photographed object, such as a school bus?	( )	( )	( )	( )
4. Does child indicate recognition of a line drawing of an object such as a school bus?	( )	( )	( )	( )

5. The child indicates recognition of an object by:

( ) manipulating or interacting with object in an appropriate manner
( ) getting excited
( ) gesturing toward object
( ) pointing to symbol for object
( ) other _____
(please specify)

RECEPTIVE LANGUAGE

Rationale: Language comprehension directly affects a child's communication skills with symbols, and the level at which the meaning of the symbols may be explained (Silverman, 1974).

	Hardly at all (0-15%)	Sometimes (16-50%)	Most times (51-85%)	Almost Always (86-100%)
1. If the child is presented with two different objects and asked to identify a specific one, given the name, how often will his responses be correct?	( )	( )	( )	( )
2. If a child is presented with two idfferent objects and asked to identify a specific one, given the function, how often will his responses be correct?	( )	( )	( )	( )

3. If the child is presented with two different objects and asked to identify a specific one, given a description (adjective such as "big" or "little"), how often would his responses be correct? ( ) ( ) ( ) ( )

4. If the child is asked a question such as, "Is your name (his name)?", "Do you want a cookie?", or "Is this a doll" (show child a doll), how often would a "yes" response be obtained? (pertaining only to questions requiring a "yes" response) ( ) ( ) ( ) ( )

5. If child is asked a question such as, "Is your name (someone else's name)?" or, "Is this a doll?" (show child a another object), how often would a "no" response be obtained? (pertaining only to questions requiring a "no" response) ( ) ( ) ( ) ( )

6. Estimate the number of objects the child could identify by:

name	( )1-15	( )16-50	( )51-100	( )101-200	( )other _____
function	( )1-15	( )16-50	( )51-100	( )101-200	( )other _____
adj. desc.	( )1-15	( )16-50	( )51-100	( )101-200	( )other _____

7. Child indicates a "yes" response by:

( ) smiling
( ) shaking his head
( ) pointing to symbol
( ) other _____
(please specify)

8. Child indicates a "no" response by:

( ) frowning or crying
( ) shaking his head
( ) pointing to symbol
( ) other _____
(please specify)

FORM DISCRIMINATION

Rationale: The Blissymbol system is composed of different forms.

	Hardly at all (0-15%)	Sometimes (16-50%)	Most times (51-85%)	Almost Always (86-100%)
1. If a ball, block and stick of the same color is placed in child's view, and he is shown another ball matching the one in his view, how often could he identify the matching ball?	( )	( )	( )	( )
2. If a ball, block and stick of the same color is placed in child's view, and he is shown another block matching the one in his view, how often could he identify the matching block?	( )	( )	( )	( )
3. If a ball, block and stick of the same color is placed in child's view, and he is shown another stick matching the one in his view, how often could he identify the matching stick?	( )	( )	( )	( )
4. If a picture of a ball, block and stick of the same color is placed in child's view, and he is shown another picture of a ball, how often could he identify the matching picture?	( )	( )	( )	( )
5. If a picture of a ball, block and stick of the same color is placed in child's view, and he is shown another picture of a block, how often could he identify the matching picture?	( )	( )	( )	( )
6. If a picture of a ball, block and stick of the same color is placed in child's view, and he is shown another picture of a stick, how often could he identify the matching picture?	( )	( )	( )	( )
7. If line drawings of a circle, square, and straight line are placed in child's view, and he is shown another line drawing of a circle, how often could he identify the matching line drawing?	( )	( )	( )	( )
8. If line drawings of a circle, square and straight line are placed in child's view, and he is shown another line drawing of a square, how often could he identify the matching line drawing?	( )	( )	( )	( )
9. If line drawings of a circle, square, and straight line are placed in child's view, and he is shown another line drawing of a straight line, how often could he identify the matching line drawing?	( )	( )	( )	( )

10. If line drawings of a lateral ine, vertical line and diagonal line is placed in child's view, and he is shown another lateral line, how often could he identify the matching line? ( ) ( ) ( ) ( )

11. If line drawings of a lateral line, vertical line, and diagonal line are placed in child's view, and he is shown another vertical line, how often could he identify the mathcing line? ( ) ( ) ( ) ( )

12. If line drawings of a lateral line, vertical line, and diagonal line are placed in child's view, and he is shown another diagonal line, how often could he identify the matching line? ( ) ( ) ( ) ( )

13. If line drawings of a plus sign, wavy line, and an arc are placed in child's view, and he is shown another plus sign, how often could he identify the matching plus sign? ( ) ( ) ( ) ( )

14. If line drawings of a plus sign, wavy line, and an arc are placed in child's view, and he is shown another wavy line, how often could he identify the matching wavy line? ( ) ( ) ( ) ( )

15. If line drawings of a plus sign, wavy line, and an arc are placed in child's view, and he is shown another arc, how often could he identify the matching arc? ( ) ( ) ( ) ( )

SIZE PERCEPTION

Rationale: In order for a child to tell the difference among some symbols, he may have to be able to perceive differences in size, since this is the only difference in some of the symbols.

Hardly at all (0-15%) | Sometimes (16-50%) | Most times (51-85%) | Almost Always (86-100%)

1. If two like objects are placed in child's view, with only a size difference, and he is shown another object matching one of those placed in his view, how often could he identify the matching size? ( ) ( ) ( ) ( )

2. If two like pictures of objects are placed in child's view, with only a size difference of objects, and he is shown another picture matching one of those placed in his view, how often could he identify the matching size object in the picture? ( ) ( ) ( ) ( )

3. If two like line drawings of objects are placed in child's view, with only a size difference, and he is shown another line drawing matching one of those placed in his view, how often could he identify the matching size line drawing? ( ) ( ) ( ) ( )

4. How small of a difference in size of objects could there be, and still obtain a correct response from the child? ( ) ( ) ( ) ( )

( ) 1/4" to 1/2"
( ) 3/4" to 1 1/2"
( ) 2" to 4"
( ) 5" to 10"
( ) other _____
(please specify)

FIGURE GROUND DISCRIMINATION, SCANNING, SELECTION

Rationale: If the child is presented with an array of symbols, he will need to be able to discriminate among those by scanning the array, and selecting one out of the array.

Hardly at all (0-15%) | Sometimes (16-50%) | Most times (51-85%) | Almost Always (86-100%)

1. If several objects with which the child is familiar are placed in his view, and he is shown another object matching one of those, how often could he choose the matching object in his view? ( ) ( ) ( ) ( )

2. If a picture with several objects with which the child is familiar is placed in his view, and he is shown a single object matching one of those, how often could he choose the matching object from the picture? ( ) ( ) ( ) ( )

3. If a set of symbols is placed in child's view, with which he is familiar (could possibly be child's own communication board), how often could the child select a symbol which he knows, either by matching one shown by the teacher, or by auditory stimuli, when symbol is not in usual place or order? ( ) ( ) ( ) ( )

4. What is the maximum number of objects which could be placed in child's view, and he still find the object matching one which he is shown?

( ) 2-5 ( ) 6-10 ( ) 11-20 ( ) 21-35 ( ) other

5. The above task (question #4) would take the child _____ seconds to complete:

( ) 2-5
( ) 6-10
( ) 11-20
( ) 21-45
( ) 46-100 seconds
( ) other

6. Check which one/s apply regarding the child's scanning abilities.

( ) child scans horizontally with eyes
( ) child scans vertically with eyes
( ) child scans randomly with eyes
( ) child uses finger as reference point while scanning
( ) child follows his finger with his eyes
( ) child follows teacher's finger with his eyes
( ) other _____
(please specify)

VISUAL SEQUENTIAL MEMORY

Rationale: Many of the symbols are composed of more than one symbol part in a certain order.

	Hardly at all (0-15%)	Sometimes (16-50%)	Most times (51-85%)	Almost Always (86-100%)
1. If two objects are placed in a horizontal row in child's view, and he is instructed to look at them for a given amount of time (please time), then they are covered, how often could the child choose the set of objects matching those which he saw, if he is given two sets of objects with same number in each set, with one set of objects being put in a different order?	( )	( )	( )	( )
2. If two pictured objects are placed in a horizontal row in the child's view, and he is instructed to look at them for a given amount of time (please time), then they are covered, how often could the child choose the set of pictured objects matching those which he saw, if he is given two sets of pictured objects with same number in each set, with one set of pictured objects being put in a different order?	( )	( )	( )	( )

3. If a symbol is placed in child's view with which he is familiar, and having two sequenced parts to the symbol, such as symbol for mailbox, how often could the child choose the correctly sequenced symbol from a set of two symbols (one correctly sequenced, the other incorrectly sequenced), after having looked at a correctly sequenced symbol for a given amount of time (please time)? ( ) ( ) ( ) ( )

4. If a symbol with which the child is not familiar is placed in child's view, and having two sequenced parts to the symbol such as symbol for mailbox, how often could the child choose the correctly sequenced symbol from a set of two symbols (one correctly sequenced, the other incorrectly sequenced), after having looked at a correctly sequenced symbol for a given amount of time (please time)? ( ) ( ) ( ) ( )

5. What is the minimum length of time the child would need to look at the set of obejcts, in order to do the above tasks?

#1 ( ) 1-10 seconds
( ) 11-20 seconds
( ) 21-45 seconds
( ) 46-180 seconds
( ) other _____

#2 ( ) 1-10 seconds
( ) 11-20 seconds
( ) 21-45 seconds
( ) 46-180 seconds
( ) other _____

#3 ( ) 1-10 seconds
( ) 11-20 seconds
( ) 21-45 seconds
( ) 46-180 seconds
( ) other _____

#4 ( ) 1-10 seconds
( ) 11-20 seconds
( ) 21-45 seconds
( ) 46-180 seconds
( ) other _____

NUMBER SKILLS

Rationale: Some of the Blissymbols are composed of a symbol with a number, giving the symbol a different meaning.

	Hardly at all (0-15%)	Sometimes (16-50%)	Most times (51-85%)	Almost Always (86-100%)
1. If the child is presented with groups of 1-12 objects, how often could he choose the correct group when asked to choose the group with "1" . . . "12" objects?	( )	( )	( )	( )
2. If the child is presented with written numbers, 1-12, how often could he choose the correct number when asked to identify a number?	( )	( )	( )	( )

3. The child could do the above tasks with numbers:

#1 ( )1 ( )2 ( )3 ( )4 ( )5 ( )6
( )7 ( )8 ( )9 ( )10 ( )11 ( )12

#2 ( )1 ( )2 ( )3 ( )4 ( )5 ( )6
( )7 ( )8 ( )9 ( )10 ( )11 ( )12

DIRECTIONALITY

Rationale: Some of the Blissymbols are composed of a symbol with an arrow, giving the symbol different meanings.

	Hardly at all (0-15%)	Sometimes (16-50%)	Most times (51-85%)	Almost Always (86-100%)
1. If an arrow pointing "up" were shown to the child, how often could he match the arrow to a symbol containing an arrow pointing "up", when shown a symbol containing an arrow pointing "up", and a symbol containing an arrow pointing "down"?	( )	( )	( )	( )
2. If an arrow pointing "down" were shown to the child, how often could he match the arrow to a symbol containing an arrow pointing "down", when a symbol containing an arrow pointing "up" and a symbol containing an arrow pointing "down", were shown to him?	( )	( )	( )	( )
3. If an arrow pointing to the "right" were shown to the child, how often could he match the arrow to a symbol containing an arrow pointing to the right when shown a symbol containing an arrow pointing "right", and a symbol containing an arrow pointing "down"?	( )	( )	( )	( )
4. If an arrow pointing to the "left" were shown to the child how often could he match the arrow to a symbol containing an arrow pointing to the left, when shown a symbol containing an arrow pointing "right" and a symbol containing an arrow pointing "left"?	( )	( )	( )	( )

CAREGIVER SUPPORT

Rationale: A child spends more of his waking hours in the home situation with his caregiver, than he spends in school.

	Hardly at all (0-15%)	Sometimes (16-50%)	Most times (51-85%)	Almost Always (86-100%)
1. How often does the child's caregiver spend individual time with him during the day?	( )	( )	( )	( )

	Hardly at all (0-15%)	Sometimes (16-50%)	Most times (51-85%)	Almost Always (86-100%)
2. How often does the child's caregiver inform the teacher or therapist of new symbols which might be useful to the child?	( )	( )	( )	( )
3. How often does the child's caregiver use his present symbols with him?	( )	( )	( )	( )
4. How often does the child's caregiver work directly with the child in teaching new symbols?	( )	( )	( )	( )

MOTIVATIONAL SKILLS

Rationale: Interest and attitude are factors which have been found to affect Blissymbol communication (Silverman, 1974).

1. How often does the child begin a conversation with someone using Blissymbols?	( )	( )	( )	( )
2. How often does the child try to follow directions during therapy session?	( )	( )	( )	( )
3. How often does the child work consistently throughout the entire Blissymbol session or therapy session?	( )	( )	( )	( )
4. How often does the child ask for his symbols, (if they are not with him constantly)?	( )	( )	( )	( )

GENERAL

1. What size symbols are presently being used with this child?

2. Approximately how much time per day does this child use his symbols outside the therapy situation in interaction with others?

3. How many days a month does this child typically miss school and subsequently miss therapy for Blissymbols?

4. For how long has this child been involved in the learning of Blissymbols?

5. Give a description of the child's physical capabilities, and mode of indicating symbols. Specifically, child's reflex action, general muscular tonus, mobility, working position, hand function (if applicable).

6. Give a description of child's expressive vocabulary (oral). Does he use sound for communication, vocalize, have intelligible single words, or phrases?

SYMBOL	INTRO DATE	MATCH OBJECT TO SYMBOL	MATCH PICTURE TO SYMBOL	MATCH SYMBOL TO SYMBOL	I.D. OF SYMBOL BY NAME	I.D. OF SYMBOL BY FUNCT.	USE OF SINGLE SYMBOL IN RESP. TO QUESTIONS	USE OF SINGLE SYMBOL TO INI-TIATE CONVERS.	USE OF SYMBOL IN SENTENCES WITH OVER TWO SYMBOLS

SYMBOL	INTRO DATE	MATCH OBJECT TO SYMBOL	MATCH PICTURE TO SYMBOL	MATCH SYMBOL TO SYMBOL	I.D. OF SYMBOL BY NAME	I.D. OF SYMBOL BY FUNCT.	USE OF SINGLE SYMBOL IN RESP. TO QUESTIONS	USE OF SINGLE SYMBOL TO INITIATE CONVERS.	USE OF SYMBOL IN SENTENCES WITH OVER TWO SYMBOLS

APPENDIX B

CASE STUDY I -- R.V.

History

R.V., age six years six months, has been involved in learning Blissymbols for over one and one-half years. At the time of this study, R.V. was using 7/8" Blissymbol stamps. R.V. used Blissymbols 75 percent of each day outside the therapy situation in interaction with others.

R.V. had no hand control, but good head control. He worked at a desk in his wheelchair and used a lightbeam indicator which was attached on his head to indicate symbols on his communication board. R.V. had no oral vocabulary, although he made random sounds which were not intended for communication.

Visual Attending Skills -- Objects

R.V. attended to objects by looking at, reaching for or attempting to get the object, or manipulating the object if he could. R.V. was described as having favorite toys ranging from less than one inch to 18 inches in size. If R.V. was interested, he would attend to an object for 30 seconds to three minutes.

Visual Attending Skills -- Symbols

R.V. attended to symbols by looking at the symbol or pointing to the symbol with a lightbeam indicator. It is reported that he was able to find a symbol in less than one to 30 seconds in an array of 350 to 500 symbols.

Auditory Attending Skills

R.V. indicated awareness of auditory stimuli around him by turning his head in the direction of the auditory stimuli. When an auditory distraction was present, attention was diverted from the task on which he was working for one to five seconds, or until the distraction was no longer present, depending on the distraction and his interest. R.V. was distracted from a task less than one to two times per twenty minute session, and for auditory stimuli which R.V. enjoyed, attention could be held for six to 15 minutes.

Large Object, Miniature Object, Picture, and Line Drawing Identification

R.V. indicated recognition of an object by manipulating or interacting with the object in an appropriate manner. He also got excited, gestured toward the object and/or pointed to the symbol for the object with his lightbeam indicator.

Receptive Language

R.V. indicated a "yes" response by smiling, shaking his head, or pointing to the Blissymbol for "yes", and indicated a "no" response by shaking his head, or pointing to the Blissymbol for "no". He was able to identify more than 200 objects by name, 16 to 50 objects by function, and 16 to 50 objects by adjective description.

Figure Ground Discrimination, Scanning, and Selection

R.V. was able to find an object in an array of over 35 objects in one to 20 seconds. He was able to scan horizontally, vertically and randomly with his eyes, and followed his lightbeam.

Symbol Skills and Usage

R.V. has knowledge of 228 pictographic, ideographic, and arbitrary symbols. He uses almost all of these symbols in sentences with more than two symbols. He is able to match objects to symbols, match pictures to symbols, match symbols to symbols, and identify symbols by name and function. He uses symbols in response to questions, and to initiate conversation. R.V. has knowledge of simple symbols, compound superimposed symbols, compound sequenced and compound mixed sequenced symbols. Refer to summary on page 67 for a review of R.V.'s skills for Blissymbol use.

CASE STUDY II -- K.C.

History

K.C., age five years seven months, has been involved in learning of Blissymbolics for one year. At the time of this study, K.C. was using 7/8 inch color coded stamp Blissymbols. K.C. used Blissymbols approximately 90 percent of each day at home, in class, and in therapy.

K.C. ambulated by use of a walker with a symbol board attached. He sat unsupported. Diagnosis was spastic cerebral palsy with athetoid

tendencies. He was able to point to 7/8" size Blissymbol stamps accurately by using either right or left index finger and was able to cross the midline with either hand. Balance was difficult, and his best position was sitting upright with a table in front of him.

K.C. vocalized frequently with two recognizable words -- more and mom. He used head nods for yes and no, which were easily recognizable. K.C. used symbols constantly for communication and initiated conversations. It is reported that he preferred to tell about things in his life than to work in therapy. He was able to ask for symbols not on his board by giving clues. Symbol utterances were usually from two to five symbols in length, and he occasionally repeated the subject twice in his utterances, i.e. "Mom come mom school today".

Visual Attending Skills -- Objects

K.C. attended to objects by looking at the object, reaching for or attempting to get the object and/or manipulating the object or toy. K.C. was described as having many favorite toys from more than one inch to 18 inches in size. If K.C. was interested he would attend to an object for 30 seconds to three minutes.

Auditory Attending Skills

K.C. indicated awareness of auditory stimuli around him by turning his head in the direction of auditory stimuli, sitting still and "concentrating", and/or reflex action if there was a sudden, loud noise present.

When an auditory distraction was present, attention was diverted from the task on which he was working for one to five seconds, and usually he would come back to the task when asked. Interruptions occurred from three to five times per 20 minute session, and for auditory stimuli which K.C. enjoyed, attention could be held for two to 15 minutes.

Large Object, Miniature Object, Picture, and Line Drawing Identification

K.C. indicated recognition of an object by manipulating or interacting with an object in appropriate manner, getting excited, gesturing toward the object, and/or pointing to the symbol for the object if he had the symbol on his communication board.

Receptive Language

K.C. indicated a "yes" response by smiling and/or shaking his head, and indicated a "no" response by shaking his head. He was able to identify 101 to 200 objects by name, 16 to 50 objects by function and 16 to 50 objects by adjective description.

Figure Ground Discrimination, Scanning, and Selection

K.C. was able to find an object in an array of 11 to 20 objects in one to 20 seconds, and he was able to scan horizontally and vertically with his eyes. At times he used his own finger as a reference point while scanning, followed his finger with his eyes, or followed the teacher's finger with his eyes. Refer to summary on page 67 for a review of K.C.'s skills for Blissymbol use.

CASE STUDY III -- C.B.

History

C.B., age eight years five months, has been involved in learning Blissymbols off and on for over five years. At the time of this study, C.B. was using 7/8 inch Blissymbol stamps. C.B. used Blissymbols outside the therapy situation in interaction with others 25 to 50 percent of the time during the day.

C.B. used a lightbeam indicator to point to symbols on his Blissymbol board. He had no hand control, but head and trunk control. He worked in a ski chair at his desk, in wheelchair and on prone wedge.

C.B. had no intelligible speech except "yeah" for "yes". He used vocalizations to get attention, to argue, and to indicate anger and pleasure.

Visual Attending Skills -- Objects

C.B. attended to objects by looking at the object or reaching for and attempting to get the object. He was unable to manipulate any object. C.B. was described as having favorite toys ranging in size from less than one inch to 18 inches. He attended to objects from 30 seconds to 3 minutes, depending on his interest in the object.

Visual Attending Skills -- Symbols

C.B. attended to symbols by looking at the symbol or pointing to

a symbol with his lightbeam indicator while looking at it. It is reported that he was able to find a symbol in less than one to 10 seconds in an array of 31-75 symbols.

Auditory Attending Skills

C.B. indicated awareness of auditory stimuli around him by turning his head in the direction of the auditory stimuli, or reflexive action. When an auditory distraction was present, attention was diverted from the task which he was working on for six to 15 seconds, or until the distraction was no longer present, depending on what the distraction was. C.B. was distracted from a task from five to 10 times per 20 minute session, and for auditory stimuli which C.B. enjoyed, attention could be held for six to 15 minutes.

Large Object, Miniature Object, Picture, and Line Drawing Identification

C.B. indicated recognition of an object by manipulation or interaction with the object in an appropriate manner. He also got excited, gestured toward object, or pointed to the symbol for the object with his lightbeam indicator.

Receptive Language

C.B. indicated a "yes" response by vocalizing "yeah", and a "no" response by vocalizing "uh-uh". He was able to identify more than 200 objects by name, 51 to 100 by function and 16 to 50 by adjective description.

Figure Ground Discrimination, Scanning, and Selection

C.B. was able to find an object in an array of six to 10 objects in 11 to 20 seconds. He was able to scan horizontally with his eyes, vertically, and randomly while following his lightbeam indicator.

Symbol Skills and Usage

C.B. has knowledge of 116 pictographic, ideographic, and arbitrary symbols. He uses approximately one half of these symbols in sentences with over two symbols. He was able to match objects to symbols, match pictures to symbols, match symbols to symbols, and identify symbols by name and function. He did not use many of his symbols to initiate conversation. C.B. has knowledge of simple symbols, compound superimposed symbols, compound sequenced and compound mixed sequenced symbols. Refer to summary on page 67 of C.B.'s skills for Blissymbol use.

CASE STUDY IV -- S.H.

S.H., age seven years six months has been involved in learning Blissymbolics one and one-half years, including pre-Blissymbol skills. At the time of this study, S.H. was not using Blissymbols, but was using a picture communication board.

Diagnosis is severe athetoid cerebral palsy, with extensor thrust reflex, and asymmetrical tonic neck reflex. S.H. has poor head control, although he uses an eye gaze system for communication because he has minimal use of his hands. He is currently under medication and is wheelchair bound.

Visual Attending Skills -- Objects

S.H. attended to objects by looking at the object or vocalizing. He attended to objects randomly, or only when his eyes "happened" to pass over the object, looking from one object to the other several times, or looking directly at the object. He attended to an object from less than one second to 30 seconds.

Visual Attending Skills -- Symbols

S.H. attended to symbols by looking at the symbol. It is reported that he was able to find a symbol in less than one to 30 seconds in an array of three to 10 symbols.

Auditory Attending Skills

S.H. indicated awareness of auditory stimuli around him by turning his head in the direction of the auditory stimuli, widening his eyes, reflex action, or by putting his head up or down. When an auditory distraction was present, attention was diverted from the task at which he was working for 16 to 30 seconds or until the distraction was no longer present. It was reported that he might not attend at all. S.H. was distracted from a task from three to five times per 20 minute session, and for auditory stimuli which S.H. enjoyed, attention could be held from less than one minute to 15 minutes.

Large Object, Miniature Object, Picture, and Line Drawing Identification

S.H. indicated recognition of an object by getting excited. He also indicated recognition by reflexive action or by looking at the object and vocalizing.

Receptive Language

S.H. indicated a "yes" response by smiling, or looking at a picture of himself smiling with the Blissymbol for "yes" on the picture, and a "no" response by frowning or crying or looking at a picture of himself pouting with the Blissymbol for "no" on the picture. He was able to identify 16 to 50 objects by name, one to 15 objects by function, and from one to 15 objects if given the adjective description.

Symbol Skills and Usage

S.H. had knowledge of 14 pictographic and ideographic Blissymbols. He was able to match picture to symbol and symbol to symbol with these Blissymbols, although this behavior was inconsistent. S.H. was able to perform the above tasks inconsistently with simple symbols, compound superimposed symbols, compound sequenced and compound mixed sequenced symbols. Refer to summary on page 67 of S.H.'s skills for Blissymbol use.

TABLE I - Summary of Four Subjects' Skills for Blissymbol Use

Visual Attention Skills -- Objects	S.H.	C.B.	K.C.	R.V.
1. new toy	3	4	4	4
2. favorite toy	3	4	4	4
3. disliked toy	3	2	4	4
4. miniature object	3	4	4	4
Visual Attention Skills -- Symbols				
1. new symbol	3	4	4	4
2. favorite symbol	-	4	4	4
3. symbol search	3	2	4	4
Auditory Attention				
1. language enjoyed	3	4	4	4
2. directional language	3	4	4	4
Large Object, Miniature Object, Picture, Line Drawing Identification				
1. large object recognition	3	4	4	4
2. miniature object recognition	3	4	4	4
3. picture recognition	3	4	4	4
4. line drawing recognition	3	4	4	4
Receptive Language				
1. identification by name	4	4	4	4
2. identification by function	4	4	4	4
3. identification by description	1	4	4	4
4. yes	1	3	4	4
5. no	1	3	4	4
Form Discrimination -- Matching				
1. object -- ball	3	4	4	4
2. object -- block	1	4	4	4
3. object -- stick	2	4	4	4
4. picture -- ball	3	4	4	4
5. picture -- block	3	4	4	4
6. picture -- stick	2	4	4	4

* 1 = zero to 15 percent; 2 = 16 to 50 percent; 3 = 51 to 75 percent; 4 = 76 to 100 percent; "-" is not testable

TABLE I - Continued

7. line drawing -- circle	-	4	4	4
8. line drawing -- square	-	4	4	4
9. line drawing -- line	-	4	3	4
10. horizontal line	-	4	2	4
11. vertical line	-	4	1	4
12. diagonal line	-	4	2	4
13. plus sign	-	4	4	4
14. wavy line	-	4	4	4
15. arc drawing	-	4	4	4
Size Perception				
1. identification -- object size difference	-	4	4	4
2. identification -- picture size difference	-	4	3	4
3. identification -- line drawing size difference	-	4	3	4
Figure Ground Discrimination, Scanning, Selection				
1. matching of one object to one in several objects	-	4	4	4
2. matching of one picture to one in several	-	4	4	4
Visual Sequential Memory				
1. matching two objects to set	-	4	4	4
2. matching two pictured objects	-	4	4	4
3. correct sequencing with familiar symbol	-	2	4	3
4. correct sequencing with unfamiliar symbol	-	3	4	3
Number Skills				
1. number objects	-	1	1	1
2. identification of written numbers	-	1	1	2

TABLE I - Continued

Directionality				
1. arrow -- up	-	4	4	4
2. arrow -- down	-	4	4	4
3. arrow -- right	-	4	3	2
4. arrow -- left	-	3	3	3
Caregiver Support				
1. individual time during day	-	4	3	4
2. use of symbols with child	-	3	4	4
3. informs teacher of symbols	-	3	4	4
4. teaches child symbols	-	2	4	4
Motivational Skills				
1. initiates conversation	-	2	4	4
2. follows directions -- tries	-	3	4	4
3. works consistently	-	2	4	4
4. conveys need for symbols	-	2	4	4

APPENDIX C

SURVEY OF SKILLS FOR BLISSYMBOL USE

VISUAL ATTENDING SKILLS -- OBJECTS

Rationale: Blissymbolics is a visual system according to Silverman (1974).

	Hardly at all (0-15%)	Sometimes (16-50%)	Most times (51-85%)	Almost Always (86-100%)
1. When an object such as a "new" toy is placed in child's view, does he indicate awareness or attend to toy?	( )	( )	( )	( )
2. When the child's favorite toy or object is placed in his view, does he attend to it?	( )	( )	( )	( )
3. When an object is placed in the child's view which he does not like, does he attend to it?	( )	( )	( )	( )
4. When an object which is a miniature reproduction of a real object, such as toy furniture, is placed in child's view, does he attend to it?	( )	( )	( )	( )

5. Check one(s) which most closely describe child's visual attending behavior for objects.

( ) child looks at object or toy
( ) child reaches for or attempts to get toy
( ) child manipulates object or toy
( ) other _____
(please specify)

6. Describe the size of the child's favorite toy:

( ) small (1-3") ( ) medium (4-12") ( ) large (12-18") ( ) other (_____) specify

7. Check one which most closely describes the child's visual attending behavior for most objects

( ) child looks at object randomly, or only when his eyes "happen" to pass over object
( ) child attends to object for 1-30 seconds
( ) child attends to object for 30 seconds to 3 minutes
( ) other _____
(please specify)

VISUAL ATTENDING SKILLS -- SYMBOLS

	Hardly at all (0-15%)	Sometimes (16-50%)	Most times (51-85%)	Almost Always (86-100%)
1. When a new symbol is placed in child's view, does he indicate awareness of symbol?	( )	( )	( )	( )
2. When the child's favorite symbol is placed in his view, does he attend to it?	( )	( )	( )	( )
3. When the child's communication board, or a set of symbols which he already knows is placed in his view, does he continue to search for a particular symbol which you ask him to find, until he finds it?	( )	( )	( )	( )

4. Check one(s) which most closely describe child's visual attending behavior for symbols.

( ) child looks at symbol
( ) child points to symbol while looking at it
( ) child seems to be looking elsewhere, but finds symbol
( ) other _____
(please specify)

5. How long does it take the child to locate a symbol?

( ) 1-15 seconds
( ) 30 seconds to 3 minutes
( ) other _____
(please specify)

6. If the symbol is not on the child's communication board, how long will he continue a search for it?

( ) 1-15 seconds
( ) 30 seconds to 3 minutes
( ) other _____
(please specify)

(Revised)

AUDITORY ATTENDING SKILLS

Rationale: The auditory mode is often needed as a child listens to verbal explanations of symbols.

	Hardly at all (0-15%)	Sometimes (16-50%)	Most times (51-85%)	Almost Always (86-100%)
1. Does the chid attend to auditory stimuli, i.e. language, which he enjoys such as story time, or records?	( )	( )	( )	( )
2. Does the child attend to auditory stimuli, i.e. language, which the teacher uses in therapy for Blissymbols?	( )	( )	( )	( )

3. The child indicates awareness of auditory stimuli around him, such as children talking, or footsteps coming down the hall by:
   - ( ) turning head in direction of auditory stimuli
   - ( ) sitting still and "concentrating"
   - ( ) widening eyes
   - ( ) reflex action
   - ( ) other _____ (please specify)

4. How long does child's attention stay diverted from a task which he is working on, when auditory distraction is present which is interesting to him?
   - ( ) 1-15 seconds
   - ( ) 16 seconds to 3 minutes
   - ( ) until distraction is no longer present
   - ( ) other _____ (please specify)

5. How long does child's attention stay diverted from a task which he is working on, when auditory distraction is present which is non-interesting to him?
   - ( ) 1-15 seconds
   - ( ) 16 seconds to 3 minutes
   - ( ) until distraction is no longer present
   - ( ) other _____ (please specify)

6. For how long will child attend to auditory stimuli which he enjoys, such as story time, or records?
   - ( ) 1-15 seconds
   - ( ) 16 seconds to 3 minutes
   - ( ) 3 minutes to 15 minutes
   - ( ) other _____ (please specify)

LARGE OBJECT, MINIATURE OBJECT, PICTURE, AND LINE DRAWING IDENTIFICATION SKILLS

Rationale: Often, the way in which a child responds to objects, pictures, and line drawings has a relationship to the way in which a child may respond to symbols (Silverman, 1974).

	Hardly at all (0-15%)	Sometimes (16-50%)	Most times (51-85%)	Almost Always (86-100%)
1. Does the child indicate recognition of a large object such as a school bus?				
2. Does the child indicate recognition of a miniature object such as a toy school bus?	( )	( )	( )	( )
3. Does the child indicate recognition of a photographed or pictured object, such as a school bus?	( )	( )	( )	( )
4. Does the child indicate recognition of a line drawing of an object such as a school bus?	( )	( )	( )	( )

5. The child indicates recognition of an object by:
   - ( ) manipulating or interacting with object in appropriate manner
   - ( ) getting excited
   - ( ) gesturing toward object
   - ( ) pointing to symbol for object
   - ( ) gesturing toward object
   - ( ) pointing to symbol for object
   - ( ) other _____ (please specify)

RECEPTIVE LANGUAGE

Rationale: Language comprehension directly affects a child's communication skills with symbols, and the level at which the meaning of the symbols may be explained (Silverman, 1974).

	Hardly at all (0-15%)	Sometimes (16-50%)	Most times (51-85%)	Almost Always (86-100%)
1. If the child is presented with two different objects with which he is familiar and asked to identify a specific one, given the name, how often would his responses be correct?	( )	( )	( )	( )
2. If a child is presented with two different objects with which he is familiar and asked to identify a specific one, given the function, how often will his responses be correct?	( )	( )	( )	( )
3. If the child is presented with two different objects with which he is familiar and asked to identify a specific one, given the description, how often would his responses be correct?	( )	( )	( )	( )
**				
4. How often does the child know the difference between "yes" and "no" at any level?	( )	( )	( )	( )
5. How often are the child's "yes" and "no" responses appropriate to the situation involved?	( )	( )	( )	( )

6. Estimate the number of objects the child could identify by

name	( )1-15	( )16-50	( )51-100	( )101-200	( )other _____
function	( )1-15	( )16-50	( )51-100	( )101-200	( )other _____
adj. desc.	( )1-15	( )16-50	( )51-100	( )101-200	( )other _____

7. Child indicates "yes" response by:
   - ( ) smiling
   - ( ) shaking his head
   - ( ) pointing to symbol
   - ( ) other _____ (please specify)

8. Child indicates "no" response by:
   - ( ) frowning or crying
   - ( ) shaking his head
   - ( ) pointing to symbol
   - ( ) other _____ (please specify)

FORM DISCRIMINATION -- WITH MATCHING EXERCISES

Rationale: The Blissymbol system is composed of different geometrical configurations.

	Hardly at all (0-15%)	Sometimes (16-50%)	Most times (51-85%)	Almost Always (86-100%)
1. If a ball, block and stick of the same color is placed in child's view, and he is shown another ball matching the one in his view, how often could he identify the matching ball?	( )	( )	( )	( )
2. If a ball, block and stick of the same color is placed in child's view, and he is shown another block matching the one in his view, how often could he identify the matching block?	( )	( )	( )	( )
3. If a ball, block and stick of the same color is placed in child's view, and he is shown another stick matching the one in his view, how often could he identify the matching stick?	( )	( )	( )	( )
4. If a picture of a ball, block and stick of the same color is placed in child's view, and he is shown another picture of a ball, how often could he identify the matching picture?	( )	( )	( )	( )
5. If a picture of a ball, block and stick of the same color is placed in child's view, and he is shown another picture of a block, how often could he identify the matching picture?	( )	( )	( )	( )
6. If a picture of a ball, block and stick of the same color is placed in child's view, and he is shown another picture of a stick, how often could he identify the matching picture?	( )	( )	( )	( )

** It was suggested that appropriate items be inserted between items three and four (refer to body of paper, page 31).

7. If line drawings of a circle, square, and straight line are placed in child's view, and he is shown another line drawing of a circle, how often could he identify the matching line drawing? ( ) ( ) ( ) ( )

8. If line drawings of a circle, square and straight line are placed in child's view, and he is shown another line drawing of a square, how often could he identify the matching line drawing? ( ) ( ) ( ) ( )

9. If line drawings of a circle, square, and straight line are placed in child's view, and he is shown another line drawing of a straight line, how often could he identify the matching line drawing? ( ) ( ) ( ) ( )

10. If line drawings of a horizontal, vertical and diagonal line is placed in child's view, and he is shown another horizontal line, how often could he identify the matching line? ( ) ( ) ( ) ( )

11. If line drawings of a horizontal, vertical, and diagonal line is placed in child's view, and he is shown another vertical line, how often could he identify the matching line? ( ) ( ) ( ) ( )

12. If line drawings of a horizontal, vertical and diagonal line is placed in child's view, and he is shown another diagonal line, how often could he identify the matching line? ( ) ( ) ( ) ( )

13. If line drawings of a plus sign, wavy line, and an arc are placed in child's view, and he is shown another plus sign how often could he identify the matching plus sign? ( ) ( ) ( ) ( )

14. If line drawings of a plus sign, wavy line, and arc are placed in child's view, and he is shown another arc, how often could he identify the matching arc? ( ) ( ) ( ) ( )

SIZE PERCEPTION

Rationale: In order for a child to tell the differences among some symbols, he may have to be able to perceive differences in size, since size may be the only distinctive feature in some symbols.

	Hardly at all (0-15%)	Sometimes (16-50%)	Most times (51-85%)	Almost Always (86-100%)
1. If two like objects are placed in child's view, with only a size difference, and he is shown another object matching one of those placed in his view, how often could he identify the matching size?	( )	( )	( )	( )
2. If two like pictures of objects are placed in child's view, with only a size difference in objects, and he is shown another picture matching one of those placed in his view, how often could he identify the matching sized object in the picture?	( )	( )	( )	( )
3. If two like line drawings of objects are placed in child's view, with only a size difference, and he is shown another line drawing matching one of those placed in his view, how often could he identify the matching sized line drawing?	( )	( )	( )	( )

4. How small of a size difference in objects could there be, and still obtain a correct response from the child? (check one)

( ) 1/4" to 1"
( ) 2" to 5"
( ) 5" to 10"
( ) Other _____
(please specify)

FIGURE GROUND DISCRIMINATION, SCANNING, AND SELECTION

Rationale: If the child is presented with an array of symbols, he will need to be able to discriminate among those by scanning the array, and selecting one out of the array.

	Hardly at all (0-15%)	Sometimes (16-50%)	Most times (51-85%)	Almost Always (86-100%)
1. If several objects with which the child is familiar are placed in his view, and he is shown another object matching one of those, how often could he choose the matching object in his view?	( )	( )	( )	( )
2. If a picture with several objects with which the child is familiar is placed in his view, and he is shown a single object matching one of those, how often could he choose the matching object from the picture?	( )	( )	( )	( )

3. If a set of symbols is placed in child's view, with which he is familiar (could be the child's own communication board), how often could the child select a symbol which he knows, either by matching one shown by the teacher, or by auditory stimuli, when the symbol is not in usual place or order? ( ) ( ) ( ) ( )

4. What is the maximum number of objects (2"-5" in size and spaced 2" apart) which could be placed in front of child, in his visual field, and he still find the object matching one which he is shown?
   ( ) 2-5
   ( ) 6-15
   ( ) 15-35
   ( ) other _____
   (please specify)

5. Above task would take the child ____ seconds to complete.
   ( ) 1-10
   ( ) 15 seconds to 3 minutes
   ( ) other _____
   (please specify)

6. Check which one(s) apply regarding the child's scanning abilities
   ( ) child scans horizontally with eyes
   ( ) child scans vertically with eyes
   ( ) child scans randomly with eyes
   ( ) child uses finger as reference point while scanning
   ( ) child follows his finger with eyes
   ( ) child follows teacher's finger with his eyes
   ( ) other _____
   (please specify)

VISUAL SEQUENTIAL MEMORY

Rationale: Many of the symbols are composed of more than one symbol part in a different order.

	Hardly at all (0-15%)	Sometimes (16-50%)	Most times (51-85%)	Almost Always (86-100%)
1. If two objects are placed in a horizontal row in the child's view, and he is instructed to look at them for a given amount of time (please time), then covered, how often could the child choose the set of objects matching those which he saw, if he is given two sets of objects with same number in each set, with one set of objects being put in a different order?	( )	( )	( )	( )
2. If two pictured objects are placed in a horizontal row in the child's view, and he is instructed to look at them for a given amount of time (please time), then they are covered, how often could the child choose the set of pictured objects matching those which he saw, if he is given two sets of pictured objects being put in a different order?	( )	( )	( )	( )
3. If a symbol is placed in child's view with which he is familiar, and having two sequenced parts to the symbol, such as a symbol for mailbox, how often could the child choose the correctly sequenced symbol from a set of two symbols (one correctly sequenced, the other incorrectly sequenced)?	( )	( )	( )	( )
4. If a symbol with which the child is not familiar is placed in his view, and having two sequenced parts to the symbol such as symbol for mailbox, how often could the child choose the correctly sequenced symbol from a set of two symbols (one correctly sequenced, the other incorrectly sequenced), after having looked at a correctly sequenced symbol for a given amount of time (please time)	( )	( )	( )	( )

5. What is the minimum length of time the child would need to look at the set of objects in order to do the above tasks?

1. ( )1-15 seconds
   ( )16-60 seconds
   ( )other _____

3. ( )1-15 seconds
   ( )16-60 seconds
   ( )other _____

4. ( )1-15 seconds
   ( )16-60 seconds
   ( )other _____

NUMBER SKILLS

Rationale: Some of the Blissymbols are composed of a symbol plus an arabic number, which gives the symbol a different meaning.

	Hardly at all (0-15%)	Sometimes (16-50%)	Most times (51-85%)	Almost Always (86-100%)
1. If the child is presented with groups of one to 12 objects, how often could he choose the correct group when asked to choose the group with "1" . . . "12" objects?	( )	( )	( )	( )
2. If the child is presented with written numbers, 1-12, how often could he choose the correct number when asked to identify a number?	( )	( )	( )	( )

3. The child could do the above tasks with the following numbers:
   #1 ( )1 ( )2 ( )3 ( )4 ( )5 ( )6 ( )7 ( )8 ( )9 ( )10 ( )11 ( )12
   #2 ( )1 ( )2 ( )3 ( )4 ( )5 ( )6 ( )7 ( )8 ( )9 ( )10 ( )11 ( )12

4. Does the child have knowledge of symbols which include numbers in their composition? If so, which numbers?
   ( )1 ( )2 ( )3 ( )4 ( )5 ( )6 ( )7 ( )8 ( )9 ( )10 ( )11 ( )12

DIRECTIONALITY

Rationale: Some of the Blissymbols are composed of a shape with an arrow, giving the symbol different meanings.

	Hardly at all (0-15%)	Sometimes (16-50%)	Most times (51-85%)	Almost Always (86-100%)
1. If an arrow pointing "up" were shown to the child, how often could he match the arrow to a symbol containing the arrow pointing "up", when shown a symbol containing an arrow pointing "up", and a symbol containing an arrow pointing "down"?	( )	( )	( )	( )
2. If an arrow pointing "down" were shown to the child, how often could he match the arrow to a symbol containing an arrow pointing "down", when shown a symbol containing an arrow pointing "up, and a symbol containing an arrow pointing "down"?	( )	( )	( )	( )
3. If an arrow pointing to the "right" were shown to the child, how often could he match the arrow to a symbol containing an arrow pointing to the "right", when shown a symbol containing an arrow pointing "right", and a symbol containing an arrow pointing "down"?	( )	( )	( )	( )
4. If an arrow pointing to the "left" were shown to the child how often could he match the arrow to a symbol containing an arrow pointing to the left, when shown a symbol containing an arrow pointing "right" and a symbol containing an arrow pointing "left"?	( )	( )	( )	( )
5. How often was the child able to match arrows in symbols with which he possessed knowledge?	( )	( )	( )	( )
6. How often was the child able to match arrows in symbols with which he did not possess knowledge?	( )	( )	( )	( )

CAREGIVER SUPPORT

Rationale: A child spends more of his waking hours in the home situation with his caregiver than he spends in school.

	Hardly at all (0-15%)	Sometimes (16-50%)	Most times (51-85%)	Almost Always (86-100%)
1. How often does the child's caregiver spend individual time with him during the day?	( )	( )	( )	( )
2. How often does the child's caregiver use his present symbols with him?	( )	( )	( )	( )
3. How often does the child's caregiver inform the teacher or therapist of new symbols which might be useful to the child?	( )	( )	( )	( )
4. How often does the child's caregiver work directly with the child in teaching new symbols?	( )	( )	( )	( )

MOTIVATIONAL SKILLS

Rationale: Interest and attitude are factors which have been found to affect Blissymbol communication (Silverman, 1974).

	Hardly at all (0-15%)	Sometimes (16-50%)	Most times (51-85%)	Almost Always (86-100%)
1. How often does the child begin a conversation with someone using Blissymbols?	( )	( )	( )	( )
2. How often does the child try to follow directions during the therapy session?	( )	( )	( )	( )
3. How often does the child work consistently throughout the entire Blissymbol session or therapy session?	( )	( )	( )	( )
4. How often does the child ask for his symbols, (if they are not with him consistently)?	( )	( )	( )	( )

GENERAL

1. What size symbols are presently being used with this child?

2. Approximately how much time per day does this child use his symbols outside the therapy situation in interaction with others?

3. How many days a month does this child typically miss school and subsequently miss therapy or work with Blissymbols?

4. For how long has this child been involved in learning of Blissymbols?

5. Give a description of the child's physical capabilities, and mode of indicating symbols. Specifically, child's reflex action, general muscular tonus, mobility, working position, hand function (if applicable).

6. Give a description of child's expressive vocabulary (oral). Does he use sound for communication, vocalize, have intelligible single words, or phrases?

"GRID ANALYSIS"

SKILLS	BLISSYMBOLS			
	Simple	Compound-Superimposed	Compound-Sequenced	Compound-Mixed
Visual Attending				
Auditory Attending				
Large Object Identification				
Miniature Object Identification				
Picture Identification				
Line Drawing Identification				
Receptive Language				
Form Discrimination				
Size Perception				
Figure Ground Discrimination				
Scanning				
Selection				
Visual Sequential Memory				
Number Skills				
Directionality				

APPENDIX D