Application of Blissymbolics to the non-vocal communicatively handicapped

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THE APPLICATION OF BLISSymbolics TO
THE NON-VOCAL COMMUNICATIVELY HANDICAPPED

by

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B.A., University of Montana, 1974

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the requirements for the degree of
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CHAPTER 1
I. INTRODUCTION

Blissymbolics, also called Semantography, is an international symbol system, developed by Charles K. Bliss as a bridge between concepts and their expression through traditional orthography. Mr. Bliss was attempting to improve international relations by creating an easily learned language for use by all people, and particularly by government officials, regardless of their native languages. The Chinese written language has enabled Chinese people who speak in different dialects to communicate using a common symbolic language. With his symbols, Mr. Bliss hoped to create a system of written communication which could be used universally. Although Mr. Bliss' system was never selected for international use, the symbols have been adopted by the Symbol Communication Research Project at the Ontario Crippled Children's Centre (O.C.C.C.) in Toronto, Canada. In October of 1971, during an attempt to find a communication system for non-vocal, non-reading cerebral palsy children, this symbol system was explored as a possible mode for use by children who are too physically handicapped to speak, too young to develop functional orthographic communication skills, and too intelligent to remain mute and unable to manipulate their environment.

The Symbol Communication Projects (S.C.R.P.) at the Ontario Crippled Children's Centre began in October of 1971 and is now spreading to other educational and rehabilitation centers in Canada, the United
States, and overseas. The Director of the S.C.R.P., Shirley McNaughton (1975), feels that Bliss symbols are one answer toward providing "a voice" for the non-vocal. The O.C.C.C. found that the most success in learning symbol communication is achieved by severely physically handicapped children who are intelligent (non-verbal or "observed" intelligent quotient above 85), highly motivated, and have a significant mismatch between their cognitive and receptive language abilities and their expressive communication skills. Speech pathologists from the Department of Speech and Language Development, Communication Disorders Service, Loma Linda University Medical Center, have attended symbol communication (beginning and advanced) workshops at the O.C.C.C.; and Blissymbolics training is being provided to selected non-verbal (child, adolescent and adult) patients on an experimental basis.

The present paper is a status of the clinical successes and failures of the Blissymbolics communication training program at Loma Linda University Medical Center. A brief introduction to the Philosophy of Blissymbolics will be provided, followed by a discussion of the modifications imposed by the S.C.R.P. at O.C.C.C. to change the system from its original design for international adult communication to a program which might provide a functional generative language system for physically handicapped children. Finally, a number of Blissymbolics case studies from the files of the Department of Speech and Language Development, Communication Disorders Service, Loma Linda University Medical Center, will be presented.

Definition of Terms

**Arbitrary** - Arbitrary means selected at random.
Blissymbolics - Blissymbolics, also called semantography, is a symbol system developed by Charles K. Bliss as a bridge between concepts and traditional orthography. (Bliss, 1965)

Bliss symbols - Bliss symbols are composed of visual elements which are related to meaning, sometimes through pictorial representation, sometimes through representing an idea related to the meaning, and sometimes arbitrarily. (McNaughton, 1974)

Communication aids - Communication aids are pre-established sets of display materials. The rationale, content and organization, and design of display board or table can differ. Selection of content item(s) is indicated by use of finger-pointing response, a dowel, a headstick, a mouthstick, a mechanical or electric controlled pointer. (Vicker, 1974)

Element - In this paper, element refers to parts of the symbol (i.e., the different lines that make up the complex symbol).

Generative - Generative means to create new things from something that already exists.

Ideographic - Ideographic means representation of ideas by graphic (written) symbols.

Mis-match - Mis-match refers to the difference or gap between receptive and expressive language abilities. (Vicker, 1974)

Non-vocal - This term refers to the child for whom oral speech is not now a functional means of meeting his communication needs. This does not necessarily mean that the child has no speech or vocalization, nor does it mean that the child may not develop functional speech in the future. Non-vocal was chosen over the terms non-verbal or non-oral because the term non-verbal refers to non-language, and non-oral to non-mouth. (Vanderheiden, 1975)
Non-verbal communication - Non-verbal communication refers to any means of expressing oneself or communicating without the use of speech (i.e., sign language, gestures, word boards, pictures, etc.) Non-verbal communication is not a replacement for speech, but is used when speech has not yet been acquired or is not functional and provides for an alternate means of communication. (Vanderheiden, 1975)

Observed vs. measured intelligence - Observed intelligence is what the person can do and knows that is informally evaluated by the observer; whereas, measured intelligence is obtained through standardized intelligence tests.

Orthography - Orthography means the art of writing words with the proper letters according to standard usage.

Pictographs - Pictographs refers to the use of pictures -- illustrated through pictures.

INTRODUCTION TO BLISS SYMBOLS

The Bliss symbol system consists of "100 elements" which are combined to form the symbols. Some symbols are pictographic, others are ideographic, and a few are arbitrary, which represent similar components (distinctive feature concepts). (For explanation of 100 symbol elements, see APPENDIX A.)

Bliss symbols sometimes look like the things they represent:

\[
\begin{align*}
\text{house} & \quad \text{car} & \quad \text{man} & \quad \text{woman} & \quad \text{person} & \quad \text{eye} & \quad \text{leg} \\
\text{before} & \quad \text{after} & \quad \text{happy} & \quad \text{sad} & \quad \text{come} & \quad \text{protection} \\
\text{(from roof symbol)} \\
\end{align*}
\]

can be combined:
Bliss symbols provide the non-vocal child with his own way of talking. They are not intended as a substitute for the written word. They provide the child with a mode of communication through which he can receive his education, which will include reading, typing, spelling, whenever these skills are appropriate to the child's learning capabilities. (Izzard, Kates, McNaughton, 1975)

Prior to the introduction of Bliss symbols, non-vocal cerebral palsy children were able to communicate by providing a "yes/no" response to "20 questions" or by pointing to pictures or objects desired. In some cases, adaptive instrumentation was available for those children who could not evoke a pointing response but could operate a switch to cause an electronic device (aid) to sequence from one picture or object to the next, until the correct target was reached. Pictures and objects represent concrete entities and did not allow the child the possibility of generating new responses by distinctive features from the existing visual stimuli to express a new idea.

Like pictures, Bliss symbols are most inexpensively displayed on sheets of tag board, either individually, in combinations appropriate
to the child's needs, or on standardized "boards"—100, 200 or 400 symbols, commercially provided by the O.C.C.C. (See APPENDIX B for sample of reduced boards.)

The system was originally designed for non-readers, and it has the advantage over reading that in order to express a new idea, a child need only to combine symbols from his repertoire—not learn a new abstract orthographic configuration. However, to facilitate the child's sight reading vocabulary, and in order to enable the child to communicate with non-symbol users, a word always appears under the symbol on the communication board. This is definitely an advantage over use of sign language for the deaf. The symbol system is entirely visual and, because they are, for the most part, pictographic or ideographic, they are easily assimilated by beginners in the "new language". Once the meaning of a symbol is provided, the symbol is easily learned and remembered. This learning is further supported by the presence of many cues to the meaning of the symbol contained in its component (distinctive feature) parts. The symbols usually selected for initial training are those deemed most meaningful and useful for the child. These are commonly referred to as "The Basic 30". (See APPENDIX B.) (McNaughton, 1975)
II. DEVELOPMENT OF ONTARIO CRIPPLED CHILDREN'S CENTRE SYMBOL COMMUNICATION PROGRAM

The rationale for the Symbol Communication Research Project (S.C.R.P.) program is based on the assumptions that it is important for the young, physically handicapped child to communicate in as broad a manner as possible at as early an age as possible and that the system used should be capable of being automatized as quickly as possible. Although a language in common with the others in the child's environment (words) was seen as desirable, it was felt that a common language was not as important as a common interest and some degree of understanding. (McNaughton, Kates, 1974)

Through utilizing the symbols of C. K. Bliss, direct representation of meaning is possible. Many of the Bliss symbols approximate the young child's experience. Through combining symbol and symbol elements, a total communication is available to the child. (McNaughton, Kates, 1974)

The original objective specified by the team was to develop a system of communication which would serve as a complement, or substitute, to speech for the pre-reading child. The system was intended for the young, physically handicapped child in whom disturbances of the respiratory, phonatory and articulatory systems were to severe as to prevent, or markedly retard, the development of functional speech. (McNaughton, Kates, 1974)

Prior to the work in symbol communication at O.C.C.C., the physically handicapped child had available to him communication of simple wants through pictures, the prospect of word boards (or spelling boards) when he had learned to read, and the hope of electronic typewriters. The two
areas of development—word boards and technical aids—left a gap in meeting the child's communication developmental needs. The young non-vocal child could communicate his immediate needs through pictures, but, until he learned to read, he was prevented from participating in a complex level of communication. Through utilizing the symbols of C. K. Bliss, the S.R.P. directed its attention to development of a communication system to bridge the gap between pictures and words. (McNaughton, Kates, 1974)

Children for whom the diagnosis of mental retardation was primary, and for whom special limitations were associated with retardation, were not included in the population of intended symbol users within the Ontario Crippled Children's Centre Symbol Communication Program. The program began with thirteen non-speaking children in attendance at the Ontario Crippled Children's Centre. They ranged in age from four years to sixteen years of age. By the end of the third year, the program expanded to include eighteen children, ranging from five years to sixteen years, grouped into three classes—a kindergarten class and two primary classes. The division of experienced symbol-using primary children was made on the basis of hand skills, with the pointing children forming the advanced class and using 400 symbols in the class requiring electronic equipment, utilizing the new 200 electronic symbol display. Throughout the program, the occupational therapists and rehabilitation engineers explored alternate means of pointing to symbols, apart from direct access with hands, for the children too physically impaired to point. Three electro-mechanical prototype displays were produced (displaying 100 and 200 symbols); a 512 symbol display was designed; and several functional interfaces (knobs, paddles, touchplates, joysticks) were produced. In
the kindergarten class, pointing and non-pointing (children who were not physically able to control their hands) were introduced to symbols through the basic 30 vocabulary, which led to the 100 symbol vocabulary. (McNaughton, Kates, 1974)

The O.C.C.S.R.P. obtained information from a questionnaire on 150 symbols using children. Seventy-eight percent of the children used symbols as a substitute for speech, rather than a complement to speech. In over half of the cases (63%), no change was apparent in their vocalization, but improvement was noted for 30 percent of the children. Only two children's vocalizations decreased. The teachers' ratings of children's communication ability followed a normal distribution, with most of the children (68%) being rated as good or fair, a small number rated excellent or poor. Only 13 percent gave no support, and only one parent was reported as opposing the use of symbols. Regarding academic placement, the larger number of children were reported in either settings for retarded (39%) or in academic programs (53%). Within the population of symbol-using children located in institutions for retarded (43% of total symbol-using population), 44 percent of these children were reported by their instructors as learning symbols quickly—a characteristic not usually ascribed to the "retarded" child. With regard to the use of the alphabet, a sufficient number of symbol-using children were reported as using the alphabet (43%) to indicate that instructors were finding ways of continuing reading instruction and/or utilizing the alphabet to refine communication. There were eighteen children reported as failing to learn symbols. (McNaughten, Kates, 1974)

In December of 1975, information from interviews and questionnaires gave reasons as to their failures to learn symbols:
(1) Lack of interest in communicating;
(2) Unable to understand process of communicating through an alternative medium;
(3) Not ready developmentally—poorly assessed;
(4) Ability to communicate with speech equal to ability to communicate with symbols; due to physical limitations, child could not gain access to large enough number;
(5) Improved speech—symbols no longer needed;
(6) Lack of family support and cooperation;
(7) Behavior problems—too disturbed;
(8) Too low mentally;
(9) Too many physical problems;
(10) Above readiness level;
(11) Only child in the setting;
(12) Appearance of dyslexic symptoms;
(13) Deteriorating vision;
(14) Deaf child learning reading, typing, math and total communication—too much for that particular child to handle. (See APPENDIX C for complete data.)

Results of O.C.C.C. programs have generated an interest in the application of the Bliss symbols as an alternate communication mode for non-vocal mentally handicapped persons. One such application was carried out at an institution for the retarded in Wisconsin in 1974. Before initiating the project, the team realized that when selecting an alternate mode of communication for non-vocal children, a number of methods and techniques should be considered. Idiosyncratic systems, comprised of
sounds and gestures particular to a child, may be implemented and developed as a native or second language system. Picture boards, word boards and letter boards may be selected. Typing and handwriting skills may be utilized, or finger-spelling may be incorporated with manual signing. The success of any of these systems depends primarily upon the child's cognitive and physical abilities, as well as environmental applicability, effective language programming, and amenity to generalization. (Vanderheiden, et. al., 1975)

"Bliss symbols were viewed as the best approach for the children in this study for the following reasons:

(1) The children were non-verbal and in need of an effective mode of communication.
(2) It was felt that utilization of Bliss symbols (rather than pictures) would increase the generalizability of the child's communication.
(3) Bliss symbols were chosen over manual signing and finger-spelling, primarily because the children could not sign due to their motoric impairments. In addition, these approaches were considered to promote limited communication due to the selectiveness of the message receivers. It was the intention of the project to eventually fade the symbols, promote word recognition, and develop normal grammatical patterns.
(4) Bliss symbols always appear with the corresponding word, or words, which represent the concept displayed.
(5) Bliss symbols are less complex to learn than words, and the child would not be required to attain spelling or word recognition skills before using symbols for communication." (Vanderheiden, et. al., 1975)

The terminal objective (adapted from the 1971 Bliss symbol project) was "to teach each child to use a picture-symbol vocabulary which would serve as a supplement to his present attempts at vocal communication." (Vanderheiden, et. al., 1975)

Each child, prior to admission to the program, is required to demonstrate competent performance of skills associated with the six stages of sensory development, according to Piagetian theory. "Specifically, (1) he shall be able to demonstrate object-permanence concept; (2) he shall
be able to establish and maintain eye contact; (3) he shall be able to attend to a task for approximately five minutes; (4) he shall be able to follow directions upon oral command; (5) he shall demonstrate, in some manner, a desire to communicate; and (6) he shall be non-vocal or unable to produce intelligible, functional speech." (Vanderheiden, et. al., 1975)

Informal evaluation by Central Colony staff indicated that the Bliss symbol program was successful. Children who were on a five-year-old, cognitive ability level were expected by the staff to be able to pick up only a couple of concrete symbols. At the end of the program, some of them were using eighty symbols and four-symbol combinations to express themselves. Children who were on a two-year-old level were not expected to be able to learn symbols, but these children learned from seven to thirty symbols and used them in respondent communication. Some of the children who experienced visual confusion when a variety of unknown symbols are presented, were able to effectively utilize a smaller number of symbols for respondent communication. (Vanderheiden, et. al., 1975)

With the use of Bliss symbols, this was the first time some of these children had ever been able to control actions of others in a direct manner and was some of the children's first attempt to communicate with others without gestures. (Vanderheiden, et. al., 1975)
III. PROGRAM DESCRIPTION

Terminal Objective

The terminal objective of the Bliss symbol program at the Ontario Crippled Children's Centre is "to teach each child to use a picture-symbol vocabulary which would serve as a supplement to his present attempts at vocal communication." Intermediate objectives include successful attainment of the following levels:

1. Symbol identification;
2. Comprehension of symbols;
3. Use of symbols in respondent communication;
4. Use of symbols to initiate conversation;
5. Teacher-child communication;
6. Inter-peer communication;
7. Spontaneous communication in the classroom and home.

(Harris, 1974, adapted from the 1971 Bliss Project Objectives, Toronto, Ontario)
Before beginning a symbol program, there are two very important questions to be asked:

1. "Are symbols appropriate for this child at this time?" The following factors selected by the Symbol Communication Research Project Psycho-educational Consultant, Barbra Kates, and Speech Pathologist, Ester Timpany, should be considered with each child:

- level of functional speech and potential for speech
- present means of communication
- learning potential
- developmental level
- age
- hearing acuity and perception
- visual acuity and perception
- level of language comprehension
- desire to interact with others
- ability to make decisions (Does he have a consistent and reliable "yes/no" response?)
- extent of physical handicap and its effect upon access to a symbol display
- interest in symbols and anticipated motivation in using symbols as a mode of communication (of particular importance for the older child)
- degree of home and school capability and willingness to accept, teach and use symbols." (McNaughton, 1974)

"Based upon observation of children referred for a symbol instruction by the Ontario Crippled Children's Centre Communication Assessment Conference, it is thought that any one of the above factors is capable of negatively affecting the child's symbol readiness when severe limitations are present. Before deciding for or against symbol instruction, the clinician should be convinced that symbols are the most appropriate form of communication for the child at his present stage of development through appropriate diagnostic evaluation." (McNaughton, 1974)

2. "What period of time should be designated for initial training before deciding whether or not symbol usage is a realistic goal for this child? Because of the wide spectrum of situations and learning styles, the times selected will vary; but care should be taken not to judge progress too early. For a child inexperienced in actively initiating communication, several months may have to be allowed for adjustment to the new role required of him." (McNaughton, 1974)

Introducing Symbols to Children

It is important that a child's learning program be planned and that responsibility for it be taken by one person so a coordinated program be developed and evaluated. Initial planning by the teacher should
include arrangements for introducing and explaining the symbols to the adults and children who relate to the child. Their roles should involve enjoyable conversation with the symbol-using child, giving feedback to him as his symbol utterances are understood, and providing a model of spoken English as they relate naturally to the child. (McNaughton, 1974)

The teacher is responsible for providing the child with information regarding the potential of the symbol system in:

(1) formal, direct teaching experiences when introducing the child to symbol meanings. As the child gains in symbol fluency,
(2) the model provided by the teacher's symbol output, and
(3) the informal learnings which occur during conversations become more important. The on-going balance between the three approaches will be influenced by the child's previously acquired knowledge, his learning style, and his level of symbol proficiency. Symbol learning and conversation should be enjoyable, sociable, and at the child's interest level. If repetition is necessary, varied experiences should be planned in which the child has. (McNaughton, 1974)

Physical limitations which affect the child's communicative potential must be considered during the planning stage in order that realistic expectations can be made. The degree of physical handicap will dictate the type of symbol display and the number of symbols to which the child can have direct access. Decisions about the appropriateness and availability of electronic displays and the use of hand, foot, eyes, or head to indicate symbols, and decisions about the child independently indicating all the symbols available to him, versus utilizing the efforts of the person relating with the child to indicate some or all of the symbols, must be made. The anticipated number of symbols and speed of indicating
symbols will influence the direction of instruction. (McNaughton, 1974)

In introducing symbols to the child, the most relevant symbols should be introduced first; generally, start with concrete symbols (i.e., yes and no). These are used because a "yes/no" response is a prerequisite for symbol training, and everyone of the children had an effective yes and no response and understood these concepts. Introduce the symbol by pairing the child's manner of indicating yes and no with the symbols for yes and no to get the child used to the idea that the symbols have some meaning behind them and that it is a meaning that they understand and can express. The persons relating with the child need to supply them with a means of expressing things that they already know the meaning of and uses frequently. The next relevant symbols to teach are those which can be matched with an activity familiar to the child (i.e., eating and drinking). Introduce other symbols and initiate their use by having the child respond to questions (i.e., How would you tell me you want something to eat, drink, bathroom? or, How you feel?) The use of symbols need to be reinforced, and symbols need to be used and displayed on the objects they represent in the child's environment. Symbols which offer new communication possibilities to the child should also be taught early in the program. (McNaughton, 1974)

Suggested Steps to Follow in Introducing Symbols to the Child

1. "Become familiar with the symbols of the one-hundred vocabulary. Be aware of whether the symbol portrays meaning through looking like the object, or through representing an idea or through a combination of both, . Study the meaning
of the component parts and the manner in which the new meaning is derived in compound symbols.

2. Select two symbols of the basic thirty or individually selected symbols to introduce to the child. Present them in large form (playing card size) on the child's tray or give to the child to carry with him. Choose nouns, adjectives, "yes/no" as first symbols. Select on the basis of interest, immediate usefulness to the child, and ease of recognition.

3. Explain and demonstrate the meaning of symbols and give the child an immediate opportunity to use the symbols to enter into conversation with you (e.g., 1). If the first symbols are \(\circlearrowleft\) and \(\circlearrowright\):
   a. Go for a walk and have the child indicate the sex of each person he meets.
   b. Look through photo album.
   c. Say names of persons known by child; have him state \(\circlearrowleft\) or \(\circlearrowright\).

If symbols are \(\uparrow\) and \(\downarrow\):
   a. Ask the child, "How do you feel if...?"
   b. Look at a picture book; describe feelings of persons viewed.
   c. Tell the child a story; at intervals in the story, stop and ask how the character is feeling. Be sure the child understands the object, feeling, or action which the symbol represents. Provide experiences to teach the child the concept whenever this is necessary (e.g., In teaching the symbol for man, present the child with enough examples of man.
that he knows the symbol represents more than one man.

4. Provide opportunities for frequent practice and review of the new symbols.

5. If the child successfully distinguishes between the first two symbols and uses them correctly the following day, introduce two more symbols, in the manner described in (3).

6. Review and use all symbols introduced. If the child has difficulty distinguishing the first two symbols, postpone their use and introduce two other symbols. If the child continues to have difficulty, reassess his readiness for symbols.

7. When the child has a vocabulary of eight to twelve nouns or adjectives, introduce pronoun "I" and the verb "to want" or "to like". Demonstrate how he can sequence three symbols to make a full sentence (e.g., "I want food". and encourage him to make a sentence whenever possible. Write the sentences of graph paper, blackboard, or overhead projector so the child will see the sequence on symbols.

8. Introduce the body parts, and then the action indicator. Demonstrate to the child how a body part is able to represent the action of a part of the body when the action indicator is indicated prior to the symbol. When writing these symbols, place the action symbol over the body part to conform with other verbs. Give the child many experiences to use the action words.

9. Show the child the symbols in location other than on his tray to be sure he is not remembering them by position only. There should be consistency in the location of symbols on the tray for communication
purposes; however, minor modifications in the arrangements of the symbols is to be expected as new symbols are introduced.

10. If the child is able, encourage him to manipulate cards, placing them in sentence form.

11. When the child uses correctly twenty to thirty symbols, introduce the one-hundred symbol vocabulary." (McNaughton, 1974)

Introducing the 100 Symbol Vocabulary

1. "Give the child practice in locating the position of the symbols already learned.

2. Continue to have conversations using three symbols. Continue writing the child's symbol sentences for him to see.

3. Once the known symbols are located, plan lessons in which one or two new symbols will be introduced. Incorporate them immediately into conversation.

4. Each lesson, give the child the opportunity to ask for a new symbol of his choice.

5. Adjust pace of introducing new symbols to the child's learning ability.

6. Plan to give special attention to the following teaching units in attaining mastery of the 100 symbol vocabulary:

   - questions
   - manners
   - feelings
   - use of "opposite"
   - use of plural
   - use of action symbol for form verbs
   - pronouns: I; you
   - importance of direction of arrow
   - importance of size

7. Provide the child with demonstrations of the way in which symbols represent a range of meanings through examples. Translate
symbols using their different meanings (e.g., big, huge, large)." (McNaughton, 1974)

After mastery of the 100 symbol vocabulary, the 200 symbol vocabulary is introduced. The 200 symbol vocabulary was designed to serve as a functional vocabulary for children for whom access to a larger number of symbols was not feasible, due to either physical or mental limitations, and as a transitional vocabulary for children needing a bridge from 100 symbols to 400 symbols. The 200 symbol vocabulary expands the number of adjectives, verbs, nouns, introduces tenses, the negative, some prepositions and adverbs, the alphabet, "yuk" and "wow", the conjunction "and", two geometric shapes, the possessive, and symbols which can be expressed "symbol", "part", "like", "similar to", "combine". (McNaughton, 1974)

The 400 symbol vocabulary attempts to provide an expanded vocabulary which through use of symbol strategies, a supplementary personal dictionary and alphabet skills will allow the child to express himself fully. (McNaughton, 1974)

As the child becomes fluent with Bliss symbols, there are certain levels through which he progresses:

1. He learns through experience that symbols can fulfill the same function as speech by:
   a. Testing how adults organize their words (e.g., "Am I naming, classifying, or describing as you would?")
   b. Testing communication medium: "Can you understand when I say it this way?"
   c. Communicating: "I want to tell you this."

2. He learns the symbol-meaning relationship for each symbol in
the vocabulary.

3. He learns that one symbol represents a range of meanings.

4. He develops speed in locating the symbols.

5. He learns to use symbols effectively and purposefully to communicate.

6. He learns morphology recognition and utilization of symbol components.

7. He learns to create individual symbols; learning to play with, explore and enjoy language.

8. Developing the ability to utilize a variety of symbol strategies, the methods of combining symbols—both Blissymbolics and the alphabet.

Throughout the symbol learning, the child is gaining skill in becoming spontaneous and automatic in his symbol responses. In conjunction with the instructor, he is exploring and developing techniques of symbol presentation which will enable the child to improve his ability to transmit his meaning to others. He is also being continuously exposed to an adult model of English syntax through the speech of others and through the symbols being pointed to or written by others. (McNaughton, 1974)

To enable the child to progress in his level of symbol output, the teacher must be aware of and move through different levels of responding. She must remember that there is a distinction between teaching and communicating. The teacher is concerned in the child's development of skill in symbol output. It is important to help the child to move through the stages which follow—avoid placing him in a situation where the response level is too difficult for him. (McNaughton, 1974)
a. When introducing and working with separate symbol cards, accompany every symbol indicated by the child with your saying of the word--each time you say a word, accompany it with pointing or writing the symbol.

b. When the child is beginning to indicate short sentences:
   1. Say the meaning which is printed on the display as the child indicates each symbol.
   2. Repeat the meanings of the individual symbols in a series (e.g., Man sees mother.).
   3. Expand the meaning to give an English sentence, "The man sees mommy."
   4. Refine the sentence to a form which is acceptable to the child, "A man saw mommy."
   5. Ask for further information through symbols or "yes/no" replies and expand the sentence more, if appropriate.

The child needs feedback as to symbol meanings, the added meanings imparted as the symbol becomes part of a sentence, and the use which the teacher can make of context in order to arrive at an expanded meaning. As soon as the child is familiar with the word-symbol association presented on the display, alternate meanings should be expressed so the child will learn to relate to the range of meanings expressed by the symbol.

c. As the child becomes secure in symbol-meaning relationships, the teacher can begin to wait for a phrase unit to be completed by the child and then verbalize the child's output utilizing context and syntax clues to arrive immediately at the expanded sentence form. The teacher
must be sensitive as to the time when each child no longer requires reinforcement of the individual symbol-meaning relationship. An alternate response by the teacher, at this stage, is refraining from any verbalized repetition of the child's output and proceeding immediately to a reply to what the child has said.

d. All stages of relating with the child, a written record of the child's symbol output, can be useful, both for the teacher and the child. Seeing the sequence of symbols can relieve the strain on short-term memory and can free the teacher to concentrate on context and syntax clues.

e. On appropriate occasions, the teacher can utilize symbols to converse with the child, either through using the child's symbol display or through writing the required symbols. Speech, on the part of the teacher, should always remain an integral part of communication with the child, however, due to its speed, clarity and naturalness for the teacher.

f. When the child is unable to make himself understood, it is important for the teacher, in a non-critical way, to make the child aware of the need for improved output. It does not help the child if the teacher pretends to understand or begins guessing as to the child's intent. The teacher can begin by asking the child to tell her in another way. If this is not successful, then the teacher can structure the situation so that the child's output gives relevant information. The teacher can suggest alternatives,
such as, "What kind of a thing is it?", "What is it used for?", "What is the most important thing about it?", or, with regard to an event, "Tell me what happened?", etc. Working together on clarifying the child's symbol output can help the child arrive at independent use of symbol strategies and will strengthen the child's ability to select alternate levels of communication when he relates with persons differing in their knowledge of the symbol system. (McNaughton, 1974)

Symbol Strategies

The first symbol which allows the child to expand his vocabulary is the "opposite" symbol. It can be used with adjectives and adverbs and can help clarify many concepts for the child as he uses it. Care should be taken when the child uses "opposite" in conjunction with nouns, for he may not know the full meaning of the noun and may be using the opposite to relate to a feature which is not a criterial feature for the adult. This could lead to ambiguity (e.g., If the child says "opposite of car" to refer to "bicycle", he may be relating the "opposite" to the size feature, thinking opposite of car would be two-wheeled vehicle bicycle. The adult would tend to relate the "opposite" to the classification feature of vehicle.). "Like" or "similar to", "same as" and "part of" are other symbols which the child can learn to use effectively to expand his vocabulary.

e.g.: To refer to a robot: "like a man and a machine"
To refer to a blast: "loud the same as thunder"
To refer to one's finger: "part of hand, beginning with f"
A very useful strategy which allows the child to create new symbols is made available through the "combine" symbol. By pointing to this symbol, the child can indicate he is about to use several symbols to form a new symbol combination, which will represent a new meaning. The "combine" symbol is indicated both before and after the sequence of symbols to enclose the new combined symbol. "Wumbol part" and symbol position" may prove useful on the rare occasions when a child requires the meaning of a symbol which is part of a compound symbol (e.g., To say "note", the child could point to "music" and "symbol part" or, when he requires a change in a symbol position in order to arrive at a new meaning; e.g., "little", "water", "symbol position", "earth" could indicate "puddle"). "Sounds the same" can be used to indicate that one is utilizing a symbol to indicate a meaning represented by a word which sounds the same, rather than to refer to the range of meanings represented by the symbol (e.g., "sea" sounds the same as "see"; "flour" sounds the same as "flower"). (McNaughton, 1974)
IV. CASE STUDIES AT LOMA LINDA UNIVERSITY
MEDICAL CENTER, COMMUNICATION DISORDERS SERVICE

The Loma Linda University Medical Center, Communication Disorders Service is, at the present time, using Blissymbolics with four individuals, based on the program designed by the Ontario Crippled Children's Centre.

Cases Studied

Subject A - Subject A is a twenty-three year old male, medically diagnosed as cerebral palsy and with a history of heart and kidney disease. Before beginning the Bliss program, the following diagnostic results were obtained. Administration of the Illinois Test of Psycolinguistic Abilities (ITPA), on February 11, 1975, found that his visual and auditory reception skills were at the ten-year level, his auditory association ability at the nine-year, two-month level, and his visual association at the seven-year, seven-month level. These test results were based on his mental age. His auditory memory was found to be at the three-year level; while his visual memory tested out at the six-year, ten-month level. Administration of the Peabody Picture Vocabulary Test revealed a reception vocabulary age of nine years, one month of age. From August 10 to August 17, 1976, a battery of tests were administered. On the Northwestern Syntax Screening Test, he received a receptive score below the 10th percentile for children between seven and one-half and eight years of age. Expressively, a percentile score of zero was obtained. Results of the Miller-Yoder Comprehension Test indicated a transitional stage for comprehension of the present-progressive tense, and in the use of word order, with the passive transformation and reversability. He demonstrated comprehension problems in the remainder of the test.
The Carrow Test of Auditory Comprehension of Language yielded an age equivalency of six years, seven months. Administration of the Fisher-Logemann Test of Articulation and the Goldman-Fristoe Test of Articulation revealed numerous distortions, omissions, and substitutions of speech sounds. He was not stimulable for correct production of 90 percent of his articulation errors at the sentence level. His attempts at verbal communication consisted mainly of single-word, generally unintelligible, utterances, which were thought to be related to a verbal apraxia.

Program

He began therapy on January 6, 1976, with the use of Bliss symbols. He was seen twice weekly, for thirty-minute sessions each. The symbols selected were either for their concrete communicative value or because they were vocabulary items being used with the Mecham Program. By February of 1976, he was able to receptively and expressively use forty symbols. Although he was able to identify all forty symbols, he was unable to spontaneously chain more than two or three symbols; and he usually relied upon single symbol responses to express meaning. He was having difficulty understanding the concepts or pronouns, verb tenses, and the idea that symbols are used in place of words. At that time, he was not using the symbols to communicate at home.

Therapy, using Bliss symbols, continued utilizing the Apple Tree program and the Fokes Sentence Builder program to stimulate syntactic expansion. At the present time, the therapy program involves: (a) introduction of a new symbol; (b) review of previous symbols; (c) construction of a sentence when provided with one stimulus word; and (c) construction of a spontaneous sentence.
By November 30, 1976, he understood and used approximately 150 to 200 symbols on a 400 symbol board. When given a stimulus word, he was able to construct a grammatically and syntactically correct sentence using the article "the" noun + verb + object or phrase. He was having difficulty using prepositions and word order in phrases. The following are examples of sentences he has constructed when given a word:

(big) - The bus is big.
(tool) - The tool is new.
(soup) - The soup is hot.
(day) - She go school day.
(milk) - The man drinks milk.
(weekend) - The child go in hill weekend. (when prompted)

The child go to hill on weekend.

At the present time, he uses the symbols only in therapy and when he is unable to get his point across at home. He does not use it for spontaneous communication. He is ambulatory and carries a reduced 400 board with him, which he seldom uses.

Conclusion

The clinician feels that at the present time, the case does not have a need to communicate extensively. The symbols are not used by anyone at the workshop he attends, so he has no model or peers to associate using symbols with outside of the therapy situation.

Due to the progress he has made using the symbols, it is thought that he would be a proficient symbol communicator if he was motivated to use them and had a need for better communication skills and better modeling.
Subject B - Subject B is an eight-year-old male, diagnosed as moderately mentally retarded, with a severe speech delay, which appears to be part of the generalized retardation. Administration of the Peabody Picture Vocabulary Test yielded a receptive vocabulary age of two years, three months. Administration of the Pre-School Language Scale yielded an auditory comprehension age of two years, three months. Observation of the child's communicative behavior found him saying "hi" frequently and situationally inappropriately. The majority of his verbalizations were humming and unintelligible monosyllabic utterances.

Program

Subject B began Bliss symbol training on July 28, 1976, twice weekly, four fifteen minutes each, as a supplement to a forty-five minute language training program. It is hoped that training the child in the use of symbols will facilitate an increase in his verbal communication skills.

At the present time, he is able to receptively use approximately six symbols with 60 to 70 percent accuracy, when asked to match a picture to the symbol.

Conclusion

The clinician feels that if this child were in a group of Bliss symbol users, he would learn the symbols at a faster rate and, also, understand the meaning. He does not understand that the symbols are a way of communicating. His mother works with him at home, using the symbols on occasion; and they are not used in the classroom. His vocalizations have increased but this is thought to be the result of now attending school. In order for the Bliss symbols to become a means of communication for this child, longer therapy sessions are needed with consistent use
of the symbols at home and at school.

**Subject C** - Subject C is a seven-year-old, severely physically involved, cerebral palsy child. Administration of the *Peabody Picture Vocabulary Test*, on May 30, 1974, revealed a receptive vocabulary ability at a two-year level. She responded by placing her hand on the object pictured in the desired square. She is able to produce a few vowels and bilabial consonants.

From January of 1974 to January of 1975, therapy had focused upon a moto kinesthetic approach to articulation training. The use of formal sign was also used in the training program. Although she was able to accurately retain most of the signs taught and demonstrated the ability to use a few phrases spontaneously, it was thought that a manual communication was not adequate for her needs. The reasons for this determination included:

1. Few individuals, other than her parents, were able to understand her attempts at production of manual signs. The signs were grossly modified, due to her hemiparesis, so that even a person competent in sign language would have a difficult time interpreting her manual communication system.

2. Sign language is a temporally bound communication system, in that it cannot be written down or recorded, except via video tape. This necessitates the presence of an observer to serve as "transcriber", in the event that she has homework to complete or wants to record a message in written form.

3. The manual sign language system, with the above-mentioned limitations, would cause her to remain dependent upon her family, with
respect to daily needs. She would also need her family to interpret her ideas and wants to others.

Program

Based on the above factors, the use of Bliss symbols was initiated. This system is generative, in that two or more symbols may be used to form a new word. Therefore, she is not limited to the vocabulary which is present on her communications board. The Blissymbolic system is also readily adaptable to computerized communication aids—such as the Auto-Com, which is currently available from the Trace Research Center at the University of Wisconsin, Madison. If this instrumentation were available to her, she would be able to produce written messages or complete homework assignments without the assistance of a second party, thereby enabling her to become more independent.

In July of 1975, she began a program of Bliss symbols. As of August of 1976, the clinician reported that she had a recognition vocabulary of over 100 Bliss symbols. She seemed to be primarily a respondent communicator and did not typically initiate spontaneous communication using her symbol board. She was beginning to use symbol communication as a means of manipulating her environment, especially at home, in instances such as when she wanted a hug or a kiss.

Her present clinician reported that she only has mastery of approximately ten symbols; and these include symbols that give her immediate rewards—such as, hug, kiss, clap, and the symbols for some games she enjoys. The use of symbols have been discontinued at the present.

Conclusion

The present clinician does not feel the child has the prerequisite skills to learn symbols, a consistent "yes/no" response or that she has
a desire or a need to communicate. At the present time it seems as though this child is provided with her wants or needs; and the use of Bliss is not reinforced or used at home or school. The clinician feels that the symbols and phrases she did learn were the result of memorization of position of the symbols and knowing the symbol want always came after I, and that she did not understand the meaning of the symbols or that they were a means of communication.

Subject D - Subject D is a five-year-old, severely involved, non-vocal, spastic, cerebral palsy boy who appears to have normal intelligence. In January and February of 1975, attempts to administer standardized speech and language tests were unsuccessful, due to the child's severe motor involvement and inability to provide pointing responses.

Program

He began receiving training, using Bliss symbols, at the Communication Disorders Service on July 2, 1975. As of August 12, 1975, the clinician reported that he was able to use thirty-six symbols on a respondent level, when provided with the instruction to: "Show me the symbol for _______," when the function of an object was described--such as: "Show me the symbol for the one used to _______," and to answer questions. His method of communication consisted of directing his visual gaze toward the desired Bliss symbol.

From November of 1975 through April of 1976, he did not achieve any progress, due to less than 50-percent attendance and lack of parent cooperation.

Beginning in April of 1976, he was assigned to a new clinician and is currently scheduled for therapy four times weekly, for thirty
minutes each. In June of 1976, therapy with a SI/COMM head wand was attempted. The next five sessions involved using the head wand, with the child practicing touching the clinician's hand in different locations, locating symbols in each corner and in the central area of the communication board, and locating pictures from the SI/COMM board in each of the corner and central areas. It was tentatively determined that he had the best control of the head wand for the upper half of the communication board. Problems encountered with the head wand itself included its slipping down over his eyes and triggering a mandibular spastic reflex with the chin strap. Because of this, the use of the head wand has been discontinued.

As of November 30, 1976, the child is using a modification of Etran board, with the Bliss symbols placed in the center of the plastic and a number and color code being used. The clinician reports that he knows and is able to use thirteen symbols to answer questions such as "What do you do after school?" He uses these thirteen symbols (play, read, brother, toilet, wheelchair, T.V., food, want, I, mother, daddy, teacher, therapist) with 100-percent accuracy. The child understands he has to look at the symbol and then at the clinician. As soon as he learns the system of the numbers and colors to match the symbols, an Etran communication board is to be made and attached to his wheelchair. This model will allow him to have a 64 symbol vocabulary and, also, will provide him with a way to produce sentences.

Conclusion

The clinician feels that this child's lack of progress and slow acquisition of a symbol vocabulary can be contributed to the following
factors: (1) Inconsistent attendance; (2) lack of parent and school cooperation; (3) inability to find an appropriate method for the child to respond or show the desired symbol; and (4) a number of different clinicians working with him.

His clinician, at the present time, feels that he will be able to use the Etran successfully and has shown significant progress since it was initiated. He is beginning to have both parent and teacher cooperation, and his mother has begun to realize that this is a way in which the child will be able to communicate so is now reinforcing the symbols at home. The child is motivated to use the symbols and is pleased with himself at the way he can now tell the therapist about what he does.

The staff of the Communication Disorders Service feel, at the present time, it is of the utmost importance for this child to learn a communication system with which he is able to interact with others.

Discussion

The clinicians working with the four above-mentioned children think that the use of Bliss symbols has not been as effective a means of communication for these children as it could be for the following reasons:

1. Each child is seen individually, so does not have the model of other Bliss symbol users.

2. They are the only ones in their environment, in school, at work, or at home who use the Bliss symbols; so, to them, when they use the symbols, they are different from others.

3. The parents of these children do not see other children using the symbols, so are not as motivated as they might be if they had other parents of symbol users to talk with and support them.
4. Some parents continue to believe that their child will talk "in time", and do not see Bliss symbols as expressive communication, a complement, or substitute for speech.

5. The clinicians' contact with these children is limited; and, because the clinicians are unable to make visits to school and home, it is difficult to monitor or know how much the Bliss symbols are used as a means of communicating outside of therapy.

6. At the present time, Loma Linda University Medical Center, Communication Disorders Service, is unable to obtain funding for electronic devices and does not have access to an engineering staff to develop electronic devices for the children who are too physically involved to point.

In order for Bliss symbols to become a way for these children to communicate effectively, it is the clinicians' opinions that group situations and parent and teacher cooperation is very important. The parents and child need to be shown that this is an effective way of communicating, as well as being motivated to use the symbols.
V. ADVANTAGES AND DISADVANTAGES OF BLISS SYMBOLS

Advantages

One of the principal advantages of the Bliss symbols is that they are easily learned by the physically handicapped, non-vocal children at the Ontario Crippled Children's Centre. This is, in fact, one of the reasons why the Ontario Crippled Children's Centre utilizes the Bliss symbols. Another important advantage of the symbols is that they seem to be more generalizable than pictures or words. When the children only have a limited number of words or symbols which they can fit on their tray and point to, this becomes very important. The children are able to use the Bliss symbols to communicate on a much wider variety of topics than with an equivalent number of words. Another advantage is that the symbols contribute to the child's total development, whether it is social, emotional...his self-image. The children see themselves as capable, active persons, able to become involved in their world. (McNaughton, 1975)

Shirley McNaughton (1975) reported that the attitude of other people, on the whole, becomes positive. They are impressed that these symbols--that appear to an adult, at the beginning, to be difficult--are being handled capably by the children. It changes the concept that they have of the children's intellectual capabilities. They begin to realize that the thinking child can be a creative child. The children get more attention directed toward them because they are now able to communicate.

Generally, most of the children in Ontario Crippled Children's Centre have been able to learn the symbols quite readily. It also made learning to read easier. Six of the children (who had received no intensive reading program) were tested at the end of the third year. Three
of the children had learned seventy percent of the sight words (words printed under the symbols) in the 400 symbol set. They had lived with these words in print. They had been looking at them and finding their own way of recognizing those words. These words were then used as a base for their sight vocabulary. Within the reading program, the children are being transferred from symbols to words by gradually increasing the number of words in symbol sentences. First, the children read Bliss symbols; gradually, they begin to read conventional orthography. (McNaughton, 1975)

Disadvantages

One of the principal disadvantages of teaching a child with Bliss symbols is that they are not used by other people in their environment. This causes a problem providing adequate models for the children. They do not see the adults around them using the symbols for everyday communication, so it is hard for them to find the easiest and quickest way to do things. They have to develop skills themselves and with each other. (McNaughton, 1975)

Some parents, who want their children to be vocal and do not want their child to "look different" than other children, feel threatened by the system. McNaughton (1975) states that there are very few people, over time, who do not come to accept it. For some parents, the introduction of symbols or an alternative communication system is seen as a confirmation that the child will never develop speech.

Another disadvantage thought by some people working with children, that is also common to other communication boards, is that there is not as much eye contact from the child. The communication board is in
front of the child; and he, therefore, must look down. (McNaughton, 1975)

Throughout the O.C.C.C. Symbol Research Program, many questions and misconceptions were generated. Shirley McNaughton has responded to these common misconceptions regarding Blissymbolics (see APPENDIX D).
VI. SUMMARY

Blissymbolics are not the answer for every non-speaking child. Blissymbolics is only one means of non-vocal communication. Speech therapy, picture boards, should all be thoroughly investigated; and a professional assessment of each child's needs, capabilities and social environment should be made before deciding upon the most appropriate program for each child.

Although the Bliss symbol program is new, it is thought by the O.C.C.C. to be a very effective way in providing a communication outlet for non-vocal physically handicapped children. A two-year Formative Evaluation from September of 1974 to August of 1976 will continue studying symbol communication in many settings. One of its objectives will be the production of a handbook for teachers, parents and administration. (McNaughton, 1975)

The symbol program is also at an experimental stage at the Loma Linda University Medical Center, Communications Disorders Service. Bliss symbols are new for both clinicians and non-vocal clients. Some of the problems now encountered may be worked out as the clinicians become more proficient in introducing symbols and more children are using them. Bliss symbols, themselves, have been an effective means of expressive communication for non-vocal children at the O.C.C.C., as well as Loma Linda University Medical Center, Communication Disorders Service. Bliss symbols have made it possible for these children to communicate and interact with their environment.

The author thinks that most of the disadvantages are not with the symbols themselves because they have been effective for the user in developing expressive language. The problems encountered are from the
environment and non-symbol uses, such as parents, schools, etc., and not the symbol user.

Through the collective data experience of many instructors, it is hoped that a body of knowledge regarding symbol communication can be made available to all symbol users. (McNaughton, 1975)
APPENDIX A

THE 100 SYMBOL ELEMENTS

The first element are symbols which are already in use in most parts of the world.

The Mathematical Numbers

\[ \text{1 2 3 4 5 6 7 8 9 0} \]

These symbols are the first ten elements of semantography. These symbols are combined in different ways to get different meanings. Different positions of the symbol elements and, sometimes, different size of the same element will indicate different meanings.

Symbols for Mathematical Operations, Etc.

\[ \begin{array}{cccccc}
\text{+} & \text{-} & \times & \div & = & > \\
\text{addition} & \text{subtraction} & \text{multiplication} & \text{division} & \text{equal} & \text{relation}
\end{array} \]

Combination examples:

The same symbols, written smaller in size, shall have the following meanings:

\[ \begin{array}{cccccc}
\text{+} & \text{+} & \text{-} & \times & \times & \times \\
\text{and} & \text{etc.} & \text{minus} & \text{many} & \text{very many} & \text{plural}
\end{array} \]

too, also furthermore without much very much (on top of other symbol)

Interpunctuation Symbols

\[ \begin{array}{cccc}
. & , & ? \\
\text{dot} & \text{comma} & \text{question mark}
\end{array} \]

Combination examples:

\[ \begin{array}{cccccc}
; & ; & \text{'} & \text{'} & \text{'} & \text{'}
\end{array} \]

colon semi-colon quotation marks apostrophe exclamation mark

41
The Arrow

It is one of the oldest international symbols dating back to the cave man. In semantography, it should denote a movement (action) in a certain direction. As the arrow is written forward from left to right, this direction should indicate:

- forward
- backward

An important "grammar rule" of semantography taken from astronomy is that "in the spaces of the universe, there is no direction favoured from any other direction." "Forward" has no meaning in empty space. It is a relative meaning, depending on a system of reference. Forward from where? and where to?

This symbol, coupled with the symbol for metaphor, indicates advance, progress again a relative meaning. Whenever an arrow is seen, one must search for the system of reference. Combination examples:

- to and fro
- up and down
- pointer

(The arrowhead will be used to point out details on other symbols.)

The Symbol for Medical Service

The rod of Aesoulapius, Roman God of Medicine. A symbol displayed on hospitals, pharmacies, allegoric murals, etc.
The simplified outline will stand before any meaning connected with medical service.

![medical service]

![hospital]

The Symbol for Money and Business

The rod of Mercurius, messenger of Jupiter, God of the Merchants, an age old symbol displayed on banks, business houses, bank notes, etc., is used. A simplified outline stands for money and, in connection with another symbol, for business in general:

![money]

The Symbol for Music

The outline of a note indicating anything connected with music:

![music]

The Oblique Line Which is Used to Cross Out a Writing

![slash]

to cross out, to blot out, destroy, eradicate, extinguish

Combination examples:

![house destroyed]

house destroyed

ruin

![not equal]

not equal
The Symbol for the Opposite Meaning

\[ \uparrow \]

opposite meaning

It resembles an arrow pointing into opposite directions and is to be used to point out the opposite of meaning: Love-hate.

The Symbol for Chemical Thing

\[ \square \]

chemical thing

It follows the outline of the most symmetrical form of a crystal already formed at a time, when the hardening earth crust was in utter chaos.

An important "grammar rule" of semantography taken from chemistry is that the notion of the "noun" is abandoned, and the notion of the chemical thing is introduced.

The Symbol for the Physical Action

\[ \nearrow \]

physical action

It indicates in its outline one of the most primeval actions on earth--the forming of volcano cones and the thrusting up of mountains. It may also indicate the capital letter "A" in the Latin word "Actus," a doing, an action.

Another important "grammar rule" is that the chemical things in our universe perform actions. In conventional grammar, all words pertaining to actions fall in the class
of verbs and verb forms. The above symbol form is used to indicate actions.

The Symbol for Time

As the meaning of time has no outline available for its indication, an arbitrary symbol is used—the outline of two parabolical mirrors, the one turned backward to mirror the past; the other turned forward to focus the future. In between past and future is the present—a fleeting glance, a moment:

\[
\begin{array}{ccc}
) & )( & ( \\
past & present & future \\
\end{array}
\]

These combinations, in a smaller size, indicate the particles:

\[
\begin{array}{ccc}
) & )( & ( \\
then & now & then \\
ago & & \\
\end{array}
\]

Another "grammar rule" taken from physics is that in every action, which is observed, time is involved. Every action occurs during a certain time. Consequently, these symbols should be added to every action indicator (which is put on top of a symbol) to indicate past, present and future. However, it would be unnecessary to have two indicators on top of a symbol to indicate the action. One indicator, for instance, for the past, will be sufficient to indicate an action in the past:

\[
\begin{array}{ccc}
) & ) & \\
have added & will add & to add \\
\end{array}
\]
The Symbol for Human Evaluation

Symbols indicating human evaluations usually indicate meanings which we do not find in nature but only in our heads. Words belonging to this group are, for instance, beautiful, ugly, good, bad, etc.

As these evaluations vary from one individual to the other, their lability is indicated by the following symbol:

\[ \checkmark \]

human evaluation

The symbol shows the outline of a cone standing on its top, indicating a very labile position. The cone may instantly topple over when pushed, and it takes a lot of balancing to keep it in this precarious position. Just with many evaluations of ours, which we hold, and which topple over, when challenged.

The Symbol for Creation

This symbol is wholly arbitrary. Man can grasp this universe with his mind, and the limitations of his mind will limit his grasp of this meaning. They are alphabetical symbol combinations. In the English language, they are Universe, Nature, Creation, Creator, God, and many others. The symbol which has been displayed on churches and temples for thousands of years will represent creation:

\[ \triangle \]

nature, creation
We can vary this symbol, making it smaller, to indicate a smaller meaning; double and heighten it to indicate a heightened meaning, and so forth:

creation \hspace{1cm} man-made \hspace{1cm} supra-natural

The Symbol for the Human Mind

The symbol for mind is the outline of the encasing of the upper skull, seat of the brain:

mind, brain

An important "grammar rule" of semantography taken from psychology is that the philosophers of old and with them bygone generations have divided the mind (seat of the soul) into three "partitions," interwoven and without clear boundaries.

(1) seat of the emotions, feelings, passions, impulses, instincts, etc.
(2) seat of rational thought, reason, etc.
(3) seat of conscience.

The third partition, "conscience," was accorded the highest place. It is bound up with the meaning of "good" and "evil," "ethics," "morality" and God.

The symbols of semantography are written between two lines. The symbols are written for the three partitions of the human mind in three different places, distinguished by different heights:
Another "grammar rule" taken from psychology is the meanings of unconscious, subconscious, preconscious and conscious. With the use of the following symbols:

- Enclosed
- Open

The following symbols are derived:

- Unconscious
- Subconscious
- Preconscious
- Conscious

Asleep, fainted
Awake
(Opening up)
Of emotions

Three simple symbols for ordinary writing:

- Emotion
- Reason
- Conscience

Passion, impulse
Rational thought
Super-Ego

Simple combinations:

- Feeling of doubt
- Uplifting joy
- Down-heartedness
- Love

Another important "grammar rule" taken from physiology is that the brain is that part of the human body in which our thoughts originate. Besides this function, the brain coordinates all our other "senses." These senses are operated
by different organs—the eye, the ear, the nose, etc. These symbols, besides the mind symbol, are the most important symbols in semantography. These symbols follow the outline which children draw in their scribbling.

The Symbol for Eye

\[
\begin{align*}
\text{eye} & \quad \text{vision, to see} \\
\text{thing} & \quad \text{action}
\end{align*}
\]

This symbol shall stand before any symbol compound indicating any meaning, which refers to vision—such as insight, to see, visual, etc.

The Symbol for Ear

\[
\begin{align*}
\text{ear} & \quad \text{hearing}
\end{align*}
\]

This symbol shall stand before any symbol compound, denoting meanings in connection with our sense of hearing—such as to hear, to listen, sound, noise, tone, music, bang, crash, etc.

The Symbol for Nose

\[
\begin{align*}
\text{nose} & \quad \text{smell} \\
\text{thing} & \quad \text{action}
\end{align*}
\]

This symbol shall stand for any meaning referring to our sense of smell. To indicate the meaning of taste, we shall combine the symbol for the nose with the symbol for the mouth. We know that the sense of taste is exercised by the working
cells on the inner surface of the mouth and the nose.

The Symbol for Mouth

\[
\text{mouth} \quad \text{speech}
\]

This symbol shows the outline of the mouth, which organ performs a series of activities—eating, tasting, breathing, but, above all, speaking.

Combination examples:

\[
\text{taste} \quad \text{discussion} \quad \text{language} \quad \text{song}
\]

nose and mouth to and fro mouth and ear mouth and note

The Symbol for Hand

\[
\text{hand}
\]

This outline indicates the thumb and index finger of the right hand.

In connection with the symbol for chemical thing, we get the meaning of tool = a thing in hand.

indicator

\[
\text{hand} \quad \text{to touch} \quad \text{thing} \quad \text{tool}
\]

thing action thing thing in hand

The Symbol for Male and Female Human Beings

\[
\text{male human} \quad \text{female human}
\]

The outlines represent more than indicated at first sight (man = outstretched legs; woman = skirt). The symbol for man
contains the symbol for action \( \uparrow \). The symbol for woman contains the symbol for creation \( \triangle \). For the man action endeavors and success, this is what makes life worth living. Woman in the Trustee of Creation. Within her own body, a wonderful miracle takes place—a new creation comes to life. A baby has been built to wonderful specifications of a divine masterplan, and it comes to life.

Outline Symbols

With the symbol to depict time and the use of the outline of a dial, we get the symbol for time:

\[
\text{time}
\]

The symbol for house is self-explanatory:

\[
\text{house}
\]

From the earth symbol, we derive the counterpart—sky and its components:

\[
\text{sky} \quad \text{earth} \quad \text{walls} \quad \text{roof}
\]

Instead of drawing a circle to stand for the meaning for sun, a compound symbol is written with the foregoing symbol elements, depicting a thing in the sky, which enables to see:

\[
sun
\]
Moon is a simple outline of the moon in its first quarter:

\[ \text{moon} \]

Star is the adoption of the children's symbol for star:

\[ \text{star} \]

Mountain is symbolized by a triangle:

\[ \text{mountain} \]

If we diminish the symbol in size, we derive the symbol for stone:

\[ \text{stone} \]

Water is the outline of a wave:

\[ \text{water} \]

Fire is the outline of a flickering flame:

\[ \text{fire} \]

The meaning of a writing tool is so important that a special symbol was made for this meaning—the outline of a tool in a slanting position:

\[ \text{writing tool} \]
Paper is a simple outline of a paper leaf:

\[ \text{paper} \quad \text{book} \]

Letter is depicted by the combination of the paper leaf and an arrow, meaning paper for forwarding, or paper moving in a direction, or the simple outline of a letter envelope:

\[ \text{letter} \]

The symbol for sword or knife is the simple outline of a sword with a handle, as children draw it, or make it from two pieces of wood. Crossing of swords is an old symbol standing for war, fight, military, etc.:

\[ \text{sword, knife} \]

Wheel is a simple outline of a wheel. Combinations of this will give the meaning of vehicle, car, etc.:

\[ \text{wheel} \quad \text{car} \quad \text{wheelchair} \]

The symbol for vessel, bowl, or hold is the outline of a bowl:

\[ \text{vessel, hold, bowl} \]

The symbol for human being is an erect, standing person (feet slightly apart). When combined to other meanings or altering the outline slightly, it will stand for other things:
individual
I
you
he
we
standing

weak
lying
sick
needy
(knees bent)
(knees up)
(need of support)

From the symbol man, showing an erect biped, we can, by simple derivation, develop the symbol for quadruped and for insect, most of which have six legs:

animal
(four-legger)

animal
(six-legger)

Bird is symbolized by the shown outline:

bird

fish

Plant is symbolized by a stem, a bulb, or fruit, and a leaf:

plant

Electricity is symbolized by using the internationally used outline of lightning:

electricity

Line Letters

above, over
below, under
before, in front
behind, after

In the above words, two letters have been used (dot and line). In the words for in and out, the line and dot have been used in different numbers and positions. The line letter used four times is used when writing "enclosed," and omit one letter for "open:"

enclosed  open

The following symbols are line symbols pictorial of the object they represent:

- table
- chair
- bed
- chest of drawers
- wardrobe
- shelf
- window
- easy chair
APPENDIX B

BASIC 30

<table>
<thead>
<tr>
<th>hello</th>
<th>l</th>
<th>wash</th>
<th>eye</th>
<th>l</th>
<th>toilet</th>
</tr>
</thead>
<tbody>
<tr>
<td>good-bye</td>
<td>me</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>question</th>
<th>l</th>
<th>like</th>
<th>hand</th>
<th>o</th>
<th>food</th>
</tr>
</thead>
<tbody>
<tr>
<td>you</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>no</th>
<th>man</th>
<th>want</th>
<th>mouth</th>
<th>o</th>
<th>drink</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>yes</th>
<th>woman</th>
<th>sad</th>
<th>legs</th>
<th>o</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>brother</th>
<th>mother</th>
<th>happy</th>
<th>big</th>
<th>o</th>
<th>animal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>sister</th>
<th>father</th>
<th>angry</th>
<th>little</th>
<th>o</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

make action in the present
<table>
<thead>
<tr>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>e</th>
<th>f</th>
<th>g</th>
<th>h</th>
<th>i</th>
<th>j</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td><strong>hello</strong></td>
<td><strong>good-bye</strong></td>
<td>question</td>
<td>I, me (my)</td>
<td><strong>like</strong></td>
<td>happy</td>
<td><strong>make</strong></td>
<td>action</td>
<td><strong>food</strong></td>
</tr>
<tr>
<td>1</td>
<td><strong>please</strong></td>
<td>why</td>
<td><strong>you</strong> (your)</td>
<td><strong>want</strong></td>
<td>angry</td>
<td><strong>mouth</strong></td>
<td><strong>drink</strong></td>
<td>paper, page</td>
<td><strong>GOD</strong></td>
</tr>
<tr>
<td>2</td>
<td>thanks</td>
<td>how</td>
<td><strong>man</strong></td>
<td><strong>come</strong></td>
<td>afraid</td>
<td><strong>eye</strong></td>
<td>sleep</td>
<td>book</td>
<td>house</td>
</tr>
<tr>
<td>3</td>
<td>I'm sorry</td>
<td>who</td>
<td><strong>woman</strong></td>
<td>give</td>
<td>funny</td>
<td>legs</td>
<td>toilet</td>
<td>table</td>
<td>school</td>
</tr>
<tr>
<td>4</td>
<td><strong>opposite</strong></td>
<td>what thing</td>
<td>father</td>
<td>make</td>
<td><strong>good</strong></td>
<td><strong>hand</strong></td>
<td>pain</td>
<td>television</td>
<td>hospital</td>
</tr>
<tr>
<td>5</td>
<td>much, many</td>
<td>which</td>
<td>mother</td>
<td>help</td>
<td>big</td>
<td>ear</td>
<td>clothing</td>
<td>news</td>
<td>store</td>
</tr>
<tr>
<td>6</td>
<td><strong>music</strong></td>
<td>where</td>
<td>brother</td>
<td>think</td>
<td><strong>young, new</strong></td>
<td>nose</td>
<td>outing</td>
<td>word</td>
<td>show</td>
</tr>
<tr>
<td>7</td>
<td>when</td>
<td>sister</td>
<td>know</td>
<td>difficult</td>
<td>head</td>
<td>car</td>
<td>light</td>
<td>room</td>
<td>week-end</td>
</tr>
<tr>
<td>8</td>
<td>how many</td>
<td>teacher</td>
<td>wash</td>
<td><strong>hot</strong></td>
<td>name</td>
<td>wheelchair</td>
<td>game, toy</td>
<td>street</td>
<td>birthday</td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SURVEY OF SYMBOL-USING CHILDREN

JUNE 1974

This preliminary survey of Ontario Crippled Children Symbol Communication Programme users was conducted for the purpose of obtaining information re the present extent and effect of symbol communication for non-speaking physically-handicapped children.

I. SURVEY RESPONSE

Total number of settings invited to participate.........................60
Total number of settings responding.................................40
Percentage of responding settings to total number of settings invited........66%
Total number of symbol-using children reported.........................150

II. TOTAL NUMBER OF SYMBOL-USING CHILDREN REPORTED

Age levels of symbol-using children:

- 0-5 yrs..................14........9.3%
- 6-12 yrs.................83.......55.33%
- Teen.....................40........26.66%
- 20 yrs & over.........12.......8.00%
- not stated...............1........0.66%
- Total..................150.......99.98%

III. LENGTH OF TIME ON SYMBOLS: of symbol-using children

- (i) 6 mos. & under..............59...39.33%
- (ii) over 6 mos., under 1 yr...54...36.8%
- (iii) 1 yr. to 1 yr. 11 mos.....30...20.0%
- (iv) 2 yrs. & over...............6...4.0%
- (v) not stated..................1...0.66%
- Total..................150.......99.99%
### IV. Degree of Disability: of symbol-using children

<table>
<thead>
<tr>
<th>Description</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild</td>
<td>5</td>
<td>3.33%</td>
</tr>
<tr>
<td>Moderate</td>
<td>40</td>
<td>26.66%</td>
</tr>
<tr>
<td>Severe</td>
<td>54</td>
<td>36%</td>
</tr>
<tr>
<td>Needs electronic equipment</td>
<td>47</td>
<td>31.33%</td>
</tr>
<tr>
<td>Using electronic equipment</td>
<td>3</td>
<td>2%</td>
</tr>
<tr>
<td>Not stated</td>
<td>1</td>
<td>0.66%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>150</strong></td>
<td><strong>99.98%</strong></td>
</tr>
</tbody>
</table>

### V. Vocabulary Level: of symbol-using children

<table>
<thead>
<tr>
<th>Description</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 symbols &amp; under</td>
<td>23</td>
<td>15.33%</td>
</tr>
<tr>
<td>31-99 symbols</td>
<td>38</td>
<td>25.33%</td>
</tr>
<tr>
<td>100-199</td>
<td>39</td>
<td>26%</td>
</tr>
<tr>
<td>200-399</td>
<td>19</td>
<td>12.66%</td>
</tr>
<tr>
<td>400-699 &amp; over</td>
<td>30</td>
<td>20%</td>
</tr>
<tr>
<td>Not stated</td>
<td>1</td>
<td>0.66%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>150</strong></td>
<td><strong>99.98%</strong></td>
</tr>
</tbody>
</table>

### VI. Learning Capability: of Symbol-using children as described by teacher

<table>
<thead>
<tr>
<th>Description</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trainable retarded-drill</td>
<td>36</td>
<td>24%</td>
</tr>
<tr>
<td>Trainable retarded - learns quickly</td>
<td>29</td>
<td>19.33%</td>
</tr>
<tr>
<td>Slow learner</td>
<td>26</td>
<td>17.33%</td>
</tr>
<tr>
<td>Average</td>
<td>16</td>
<td>10.66%</td>
</tr>
<tr>
<td>Learns quickly</td>
<td>42</td>
<td>28%</td>
</tr>
<tr>
<td>Not stated</td>
<td>1</td>
<td>0.66%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>150</strong></td>
<td><strong>99.98%</strong></td>
</tr>
</tbody>
</table>

### VII. Programme Placement of Symbol Using Children

<table>
<thead>
<tr>
<th>Description</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retarded</td>
<td>58</td>
<td>38.66%</td>
</tr>
<tr>
<td>Opportunity</td>
<td>6</td>
<td>4%</td>
</tr>
<tr>
<td>Academic</td>
<td>80</td>
<td>53.33%</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>2%</td>
</tr>
<tr>
<td>No programme</td>
<td>3</td>
<td>2%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>150</strong></td>
<td><strong>99.99%</strong></td>
</tr>
</tbody>
</table>
VIII. MAXIMUM UTTERANCE LENGTH: of symbol-using children

(i) 1 symbol .................... 26 17.33%
(ii) 2 " 24 16. %
(iii) 3 " 22 14.66%
(iv) 4 " & over 66 44. %
(v) not stated ..................... 12 8. %

Total 150 99.99%

IX. LEVEL OF SYMBOL OUTPUT: of symbol-using children

(i) 1 single symbol ................... 25 16.66%
(ii) 2 or 3 symbols
   (not sentence form) ............ 46 30.66%
(iii) single sentence ................. 23 15.33%
(iv) full syntax ..................... 3 2. %
(v) random order, over 3 symbols ....... .66%
(vi) type not stated (*) ............. 52 34.66%

Total 150 99.97%

X. PARENTAL ATTITUDE

(i) opposed to symbols ............... 1 13.33%
(ii) no support ...................... 20 13.33%
(iii) some support .................. 65 43.33%
(iv) strong support ................... 29 19.33%
(v) not applicable .................... 33 22. %
(vi) not stated ....................... 2 1.33%

Total 150 99.98%

XI. TEACHERS RATING OF SYMBOL-USING CHILDREN'S COMMUNICATION ABILITY

(i) excellent ....................... 20 13.33%
(ii) good ........................ 42 28. %
(iii) fair ........................ 60 40. %
(iv) poor ........................ 27 18. %
(v) not stated ....................... 1 1.33%

Total 150 99.99%

(*) This question had a low response due to the inadvertent omission of the symbol level summary sheet which should have accompanied the questionnaire.
XII. TEACHERS RATINGS OF VOCALIZATION CHANGE IN SYMBOL-USING CHILDREN

<table>
<thead>
<tr>
<th>Rating</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) less vocalization</td>
<td>2</td>
<td>1.33%</td>
</tr>
<tr>
<td>(ii) no change</td>
<td>94</td>
<td>62.66%</td>
</tr>
<tr>
<td>(iii) some improvement</td>
<td>36</td>
<td>24%</td>
</tr>
<tr>
<td>(iv) marked improvement</td>
<td>9</td>
<td>6%</td>
</tr>
<tr>
<td>(v) not stated</td>
<td>9</td>
<td>6%</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td>99.99%</td>
</tr>
</tbody>
</table>

XIII. USE OF THE ALPHABET BY SYMBOL-USING CHILDREN

<table>
<thead>
<tr>
<th>Use of Alphabet</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>65</td>
<td>43.33%</td>
</tr>
<tr>
<td>No</td>
<td>82</td>
<td>54.66%</td>
</tr>
<tr>
<td>Not stated</td>
<td>3</td>
<td>2%</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td>99.99%</td>
</tr>
</tbody>
</table>

XIV. ARE SYMBOLS USED BY THE CHILD AS A SUBSTITUTE OR COMPLIMENT TO ANOTHER MODE OF COMMUNICATION?

<table>
<thead>
<tr>
<th>Mode of Communication</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) substitute</td>
<td>117</td>
<td>78%</td>
</tr>
<tr>
<td>(i) compliment</td>
<td>31</td>
<td>20.66%</td>
</tr>
<tr>
<td>not stated</td>
<td>2</td>
<td>1.33%</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td>99.99%</td>
</tr>
</tbody>
</table>
XV. CHILDREN WITH WHOM SYMBOLS WERE ASSESSED AS INEFFECTIVE

a) Total number of children - 18

b) Age distribution of children for whom symbols were ineffective

<table>
<thead>
<tr>
<th>Age Distribution</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 5</td>
<td>5</td>
</tr>
<tr>
<td>6-12 years</td>
<td>2</td>
</tr>
<tr>
<td>Teen</td>
<td></td>
</tr>
<tr>
<td>20 &amp; Over</td>
<td>1</td>
</tr>
<tr>
<td>Not stated</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>18</strong></td>
</tr>
</tbody>
</table>

c) Teacher evaluation of cause of failure

<table>
<thead>
<tr>
<th>Child No.</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
<th>16</th>
<th>17</th>
<th>18</th>
</tr>
</thead>
<tbody>
<tr>
<td>i) Auditory visual problems</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ii) Retardation</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>iii) Degree of involvement</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>iv) Learning problems</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
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<td>v) Behavior/emotional</td>
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<td>vi) Too young</td>
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<td>vii) Not stated</td>
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DISCUSSION OF FINDINGS

From the 66% response of the questionnaire, information is given for 150 children. Of this number, 55% are between ages 6 and 12; 27% are in their teens. The use of symbols with the kindergarten and prekindergarten child and with adults is minimal and remains an important area for future exploration.

The population of reported symbol users is still a very new one with 75% of the children having spent less than 1 year with symbols. Few mildly disabled children are receiving instruction. At the present time, 27% are moderately involved children; 36% are described as severely involved but able to indicate symbols without using an electronic display. Thirty-one per cent of the total population require electronic equipment; this points out the need for attention continuing to be directed toward setting up the means of production of communication technical aids and for further research into interface alternatives.

Information regarding advanced symbol usage remains to be discovered. At the present time, the majority of children, 67%, are using under 200 symbols with the maximum utterance length reported as 3 symbols or more for 59% of the children.

It may prove helpful to summarize the remainder of the results by giving a general description of the symbol-using population. Seventy-eight per cent of the children use symbols as a substitute for speech rather than as a compliment to speech. In over half the cases (63%) no change is apparent in their vocalization, but improvement has been noticed for 30% of the children. (It is reassuring to note that a decrease in vocalization was reported for only 2 children.) The teachers' ratings of children's communication ability follows a normal distribution, with most of the children (68%) being rated as good or fair, and small numbers rated as excellent or poor. Parents generally support the programme. Only 13% give no support and only 1 parent is reported as opposing the use of symbols. Regarding academic placement, the larger number of children are reported in either settings for retarded (39%) or in academic programs (53%). It is particularly interesting to note that within the population of symbol-using children located in institutions for retarded, (43% of total symbol-using population), 44% of these children
ere reported by their instructors as learning symbols jickly - a characteristic not usually ascribed to the retarded" child! With regard to use of the alphabet, sufficient number of symbol-using children are reported as using the alphabet (43%) to indicate that instructors are finding ways of continuing reading instruction and/or utilizing the alphabet to refine communication. This is an interesting area for further investigation and development.

Little information is available regarding children ith whom symbols have been ineffective. Of the 18 children reported as failing to learn the symbols, reasons were not stated for 6 of the children. When reasons were stated, several factors usually were given contributing to the failure, among them - retardation, learning-problems, age (see Item 14). More detailed information should be sought regarding reasons for failure in the future.

Although this first survey is limited in the amount of information it has been able to collect and organize, it has been valuable in defining the extent of symbol usage, in providing preliminary information regarding the effect of symbol usage, and in indicating areas for further development and exploration. A two-year formative Evaluation funded by the Ontario Ministry of Education and undertaken by the O.C.C.C. Symbol Communication Programme, September 1974 to August 1976, will continue studying symbol communication in many settings. One of its objectives will be the production of a Handbook for teachers, parents and administrators. Through the collective experience of many instructors, it is hoped that a body of knowledge re Symbol Communication can be made available to all potential symbol users.

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Ontario Crippled Children's Centre.
Symbol Communication Research Project
APPENDIX D
RESPONSE
TO
COMMON MISCONCEPTIONS
REGARDING
BLISSSYMBOLICS
AS A
COMMUNICATION MEDIUM
FOR
NON-SPEAKING PHYSICALLY-HANDICAPPED CHILDREN

BY: SHIRLEY McNAUGHTON, DIRECTOR
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STATEMENT ONE:

"Why not teach him to read instead?" If a child is bright enough to learn symbols, it would be better to devote attention to teaching him words which everyone else uses and thus spare the child the time and effort involved in learning two different systems.

RESPONSE ONE:

This argument is based on the following premises:

1. words and symbols are organized in the same way;
2. words and symbols require the same learning abilities;
3. communication facility utilizing each system can be acquired with an equal amount of effort and time;
4. words and symbols fulfil the same function.

However:

1. written words are composed of visual elements (letters and groups of letters) which are related to sound. Blissymbols are composed of visual
elements which are related to meaning --
sometimes directly through pictorial representation;
sometimes indirectly through representing an idea
related to the meaning; sometimes arbitrarily.

2. When the young child first learns words, he must
remember an abstract visual configuration; any
clue relating this configuration to other parts
of the system are based on sound-shape relation­
ships. When the young child first learns
Blissymbols he must remember a pictorial
representation which refers by its outline directly
to the object it portrays.

3. Communication facility utilizing the word system
is dependent upon skill in spelling - for which
training and practice is required. Facility
utilizing the Blissymbol system is dependent upon
the ability to select the meaning elements
(essential characteristics) required to transmit
meaning - for which the abilities to classify and
describe are required.

4. Both systems do indeed share the common function
of providing a vehicle for communication; however,
the degree of communication comprehensiveness of
each system which can be acquired by the young child
and the additional functions served by each system
are different and should be recognized.

a. Words prepare the child for reading and typing
(the physically-handicapped child's potential
written output medium). Words also provide the
child with a communication medium which can
gradually expand as he masters a growing vocabulary

b. Blissymbols equip the child with a complete
communication system (accessible to the bright
child within a four to fifteen month period).
Blissymbols also provide the child with a
medium which facilitates creative thinking,
inductive processing and concept clarification.
Utilization of the medium involves a conceptual
framework which gives the child another
perspective in viewing and relating to his world.
Blissymbols provide experience in the processing of visual information and thus contribute to learning to read. Incidental experience with words is provided through the child's constant access to the words which appear under each symbol on his display.

In Summary:

**Words** provide early limited communication which gradually expands; they prepare for reading and typing. **Blissymbols** provide earlier comprehensive communication and contribute to creativity and cognitive development; they prepare for reading through experience with the process but not directly with the content of the written English system.

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**STATEMENT TWO:**

"Words can do as much as symbols can do." If a child has 100 spaces which can be clearly indicated by him, he will be able to communicate as fully with 100 words in the spaces as he would do with 100 symbols occupying the spaces.

**RESPONSE TWO:**

This statement fails to recognize the communication potential arising from the structure of the Blissymbol System. Each symbol, whether it be a simple or compound symbol, represents a concept which can encompass a range of meanings and be translated by many words, e.g. The symbol for "building" can be interpreted as house, home, structure, hotel, garage, shack, palace, office, tent, etc., through utilizing information from the situational context or by responding to additional symbol clues.

Secondly, each symbol element can be combined and recombined with other elements to form new concepts.

One hundred symbols can lead to an infinite number of words - as many as the child's creative ability will allow. Only through the ability to spell could the word system provide the same communication potential.
It can be argued that a broad meaning can also be taken from individual words and that symbols are not necessary. This can certainly be done by those skilled in relating with the children but it involves mis-using a system which is based upon precision and accuracy of word meaning. One feels that the child is using a rudimentary form of the word system (e.g. pidgin English); whereas with symbols, the child is creatively using a device which is an integral part of the system. The child is indicating a mastery of the symbol system which gains him recognition rather than utilizing an inferior form of the word system which tends to minimize his capabilities as perceived by others.

STATEMENT THREE:

"Symbols emphasize that the child is different and present a negative image to others."

RESPONSE THREE:

Our experience has been just the opposite. When open-minded new-comers meet symbol-using children for the first time, they are intrigued by the uniqueness of the children's communication mode. They are impressed with the children's ability to relate with others and to communicate unanticipated information. As they become aware of the children's ability to create new symbols and the manner in which the symbol output is integrated with gesture, early alphabet skills and vocalization, most persons become highly motivated to interact with the children and to learn enough about the symbols to communicate at a level which utilizes the many strategies inherent in the structure of the system.

STATEMENT FOUR:

"Symbols restrict the number of persons with whom the children can communicate, for one must know the symbol system before one can understand the children's output.

RESPONSE FOUR:
A WORD APPEARS UNDER EVERY SYMBOL on the child's display. Those persons who do not have the time or the desire to learn the symbols can communicate at the word level with every symbol-using child. Basic communication is possible with everyone.

STATEMENT FIVE:

"Blissymbols are best suited to serve as a communication medium for the mentally retarded child. The bright child should learn words." OR CONVERSELY "Blissymbols are too difficult for the mentally retarded child; only the child with average or above average intellectual ability should be introduced to the symbols."

RESPONSE FIVE:

There is need for exploration of symbol use by children at differing intellectual levels. The child's intellectual ability will determine the use he makes of the symbols. The child with limited mental ability will require a teaching approach suited to his needs and will limit his communication to basic needs and immediate situations. The brighter child can become involved with the organization and strategies of the system and can become proficient at communicating at various levels, dependent upon the symbol expertise of the person with whom he is communicating. Inherent in the Blissymbol system is a complex, comprehensive, creative communication potential, (the details of which are outlined in C. K. Bliss' text Semantography - Blissymbolics, Semantography-Blissymbolics Publications) which can serve the symbol-user into adulthood, should he wish to continue an involvement with the system.

STATEMENT SIX:

"Blissymbols are only useful as a bridge to reading."

RESPONSE SIX:

Blissymbols do provide an excellent preparation for learning to read (see response number 1). They are however, composed of an independent communication medium and deserve recognition in this capacity. The symbol system, Blissymbolics, contains an organization and structure which makes it a valuable communication medium with potential application to a wide range of children and adults with communication
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