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Implementing Augmentative Communication for Aphasic Patients in Convalescent Facilities

Susan H. McGann

Abstract

IMPLEMENTING AUGMENTATIVE COMMUNICATION FOR APHASIC PATIENTS IN CONVALESCENT FACILITIES

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A one-hour Blissymbol inservice training program was developed for presentation to staff members of a skilled nursing facility. The purpose was to determine whether the program would produce significant learning to justify its use in similar facilities to bridge the communication gap between nonspeaking/nonwriting aphasic patients who communicate with Blissymbols and their direct care personnel as well as family members and others who are significant in their lives.

After development, the inservice program was given two "dry-runs" in skilled nursing facilities similar to

the "study facility". It was then revised to improve clarity and to make it fit within time limitations. Following revision, it was presented to the study group of six participants preceded by a pretest and followed by a posttest.

Specific manner of measurement was the use of t test of matched pairs ($p<.05$). Results indicated that significant learning occurred with the sample population in this research study using the inservice training program ($p\leq.009$). This indicates that the Blissymbol inservice training program developed in this research was an instructive, target specific, beneficial teaching device.

LOMA LINDA UNIVERSITY

Graduate School

IMPLEMENTING AUGMENTATIVE COMMUNICATION FOR APHASIC PATIENTS IN CONVALESCENT FACILITIES

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Susan H. McGann

A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree Master of Science in the Field of Speech-Language Pathology

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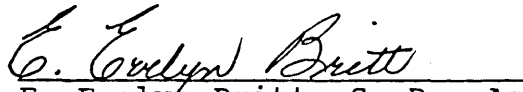
Each person whose signature appears below certifies that this thesis in his/her opinion is adequate, in scope and quality, as a thesis for the degree Master of Science.



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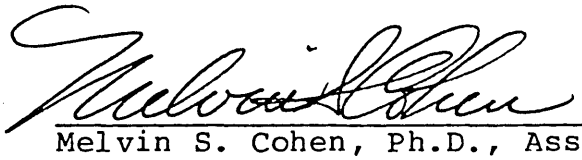

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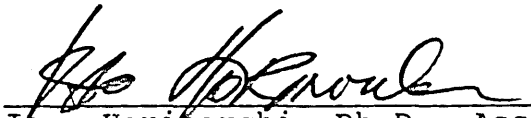

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Introduction

Geriatric patients who suffer cerebral vascular accidents have a number of handicaps to overcome during a rehabilitation program. Probably the most frustrating of these handicaps is the inability to communicate. The patient who has sustained Broca's aphasia frequently understands much more than he is able to communicate to others through speech. Alternative communication systems, such as the use of traditional orthography (reading and spelling), may be as impaired as the patient's speech. Reading and spelling are mediated through phonetic processing, and a lesion in Broca's area which interferes with speech may also disrupt reading and spelling (Agranowitz and McKeown, 1964:7).

For many of these patients, speech-language pathology services may be provided for several months or years. All too often, the brain damage is such that little success is achieved. Speech-language pathologists have considered themselves failures if they are unable to help the patient regain his ability to speak as his primary form of communi-

cation. Fortunately, technological advances now provide many new augmentative communication possibilities for patients who are unable to regain the ability to communicate through speech. Blissymbol communication is one example (Silverman, 1980). Blissymbolics is a visual-graphic form of communication which is based upon concepts rather than phonetic representation. It appears to be handled by the brain in a manner which is different from processing of speech and traditional orthography (Yamada and Steinberg, 1978).

Preliminary research conducted at Loma Linda University Medical Center (Deal, 1980; Nishikawa, 1980) indicates that the Blissymbol system of communication can provide improved expressive communication opportunities for those patients with Broca's aphasia who have a strong motivation to regain communication skills. The Blissymbol system provides flexibility for adult usage because each Blissymbol is paired with a written word which represents the conceptual meaning of the symbol. Intended message receivers are able to read the paired written word if they do not understand the Blissymbol system.

A three-day workshop format was originally designed by the Blissymbolics Communication Institute in Toronto, Canada for training teachers of nonvocal, severely phys-

ically handicapped school age children to utilize the symbol system. For the adult nursing home environment, where many aphasic patients are transferred from acute care hospitals for rehabilitation services, it is not feasible to provide a three-day workshop training program for the nurses and aides who are involved with aphasic patients on a daily basis. The prohibitions to such a format include matters of staff coverage, funding, true level of interest, and staff turn-over. Nursing homes typically provide their employees with part-day inservice training courses as a method for introducing new treatment procedures and updated rehabilitation techniques. The focus of this project was to develop a Blissymbol training program which would fit the nursing home approach to staff development.

In reviewing the three-day Blissymbolics Elementary Workshop, it was apparent that many of the scheduled activities were directed toward training instructors to teach Blissymbols tc children rather than to adults. Because the current project design involved providing an augmented form of communication for adults who have lost their established speaking abilities, rather than for children who have never developed functional communication skills, an

abbreviated training program was considered more appropriate for nursing home employees.

Plan of Study

It was the purpose of this study to design an inservice training program which could be taught by speech-language pathologists to nurses and aides working in convalescent facilities which serve aphasic patients. The inservice training was designed to provide:

1. an introduction to communicative disorders of adults.
2. an overview of the different types of aphasia.
3. information concerning the application of Blissymbolics for adult aphasics experiencing a significant mismatch between their receptive and expressive communication skills.

Pre- and posttest questionnaires were developed, administered and evaluated to determine if the inservice training program yielded a significant change in the knowledge of the staff at convalescent facilities about the use of Blissymbolics with aphasic patients.

This investigator:

1. Studied strategies for adult inservice training, such as:

A. types of audio-visuals and handout materials to be used.

B. techniques for inducing participant motivation and interest.

2. Reviewed the current Blissymbol vocabulary and determined which existing symbols could be used.
3. Selected aspects of the existing Blissymbol training program which were pertinent to the use of Blissymbols with aphasic adults.
4. Developed an inservice training program which included:
   A. an introduction to the Blissymbol vocabulary and techniques for teaching Blissymbols to aphasic adults, family members, and significant others.
   B. strategies for communicating with Blissymbol users.
5. Developed pre- and posttests to measure the effects of the training program.
6. Field tested the training program.
7. Developed step-by-step instructions for administering the inservice program.
8. Developed overhead transparencies for visual reinforcement.

The Problem Statement

Skilled nursing facilities care for adult aphasic patients who may be able to communicate by using Blissymbols. The staff who work with these patients on a daily basis need to obtain a working knowledge of Blissymbolics for proper implementation of augmentative communication programs.

Purpose of the Study

The purpose of this study was to design an inservice training program which would be self-explanatory and applicable for use by any speech-language pathologist with background and training in Blissymbolics and augmentative communication. The program could be used by speech-language pathologists who service nursing home facilities on less than a daily basis. Under such circumstances, it is imperative that the direct care staff members provide ongoing transfer-of-learning for their communicatively handicapped patients. It is the speech pathologist's responsibility to make appropriate recommendations for this carry-over following his/her evaluation of the patient.

Null Hypothesis

Presentation of an inservice training program will

not yield a significant change in the staff's knowledge regarding the application of Blissymbol communication for aphasic adults who reside in extended care facilities.

Importance of the Study

Augmentative communication systems, such as Blissymbolics, recently have been introduced in clinical settings (Ross, 1979; Deal, 1980) and in convalescent facilities (Lane and Samples, 1980). Blissymbol materials may be purchased by anyone, but it is likely that they may not be used effectively to enhance the communication skills of nonvocal adults by a person who lacks formal training in their practical application. The inservice program in this study was designed to provide the needed fundamental training to nurses and aides who work in extended care facilities.

Limitations and Delimitations

The Blissymbol training program was conducted within the confines of extended care facilities and is available to the nurses and aides who work with communicatively handicapped patients on a daily basis. Because a possible limitation to the study would be true level of nurse/aide

interest in other than custodial type patient care, the course presenter obtained the hospital administrator's support prior to the beginning of training to facilitate paid release time and/or mandatory nurse/aide attendance.

A delimitation to the study could be staff turn-over. Regardless of the duration of their employment, however, the relatively brief inservice training program would enable each direct care staff member to readily implement augmentative communication systems for their nonvocal patients.

Definition of Terms

Aphasia - Aphasia is a reduction of language resulting from brain injury, which cuts across various language modalities, such as comprehension of spoken language, speech, reading, and writing, and upon which specific perceptual, motor, or sensorimotor deficits may or may not be superimposed (Schuell and Jenkins, 1972: 5).

Apraxia - Apraxia is a disorder of neurological programming for voluntary movement which is not due to paralysis or muscular weakness (Perkins, 1977).

Blissymbolics - Blissymbolics, also called Semantography, is a visual-graphic communication system based on meaning rather than phonics. The system original-

ly was developed by Charles K. Bliss in the late 1940's as an international written language (Cohen, 1978).

Blissymbols - Blissymbols 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 (Jones, 1977).

Broca's Aphasia - Broca's aphasia or expressive aphasia is a disturbance of speech due to a brain lesion, in which the major difficulty is the inability to remember the pattern of movements required to produce words even though the patient knows what he wants to say (Travis, 1971).

Functional Speech - Functional speech is that speech which is sufficiently intelligible to be easily understood by an untrained listener (stranger) (Cohen, 1978).

Mismatch - Mismatch, as used in this research, refers to the differences or gaps between receptive and expressive language abilities (Jones, 1977).

Nonvocal - Nonvocal refers to the inability to produce functional speech because of severe oral-motor dysfunction (Cohen, 1978).

Pictographs - Pictographs are graphic representations which illustrate concepts or meaning (Cohen, 1978).

Receptive Aphasia - Receptive aphasia, also referred to as Wernicke's aphasia or sensory aphasia, is a communicative disorder in which articulation and grammar are intact, but speech lacks content and meaning. It is due to a posterior cerebral lesion in the dominant hemisphere, where auditory comprehension abilities are likely to be worse than expected (Perkins, 1977).

Traditional Orthography - The basic elements in the system of traditional orthography (T.O.) are the letters of the alphabet, A through Z. All symbols (words) in the T.O. system are formed from combinations of these 26 elements (Vanderheiden and Vanderheiden, 1975).

Chapter II

REVIEW OF THE LITERATURE

Differential Diagnostic Categories

The adult aphasic who has become nonvocal and physically handicapped may receive extensive speech and language therapy to reestablish oral communication (Agranowitz and McKeown, 1964). Through that process, however, some patients may not be able to make any appreciable improvement in language and "it has been observed that there is little if any relationship between the severity of brain damage and the degree of recovery" (Eisenson, 1971:346). There is a general language deficit in the aphasic patient, but specific symptomatology may differ from one patient to another. Aphasia manifests itself through varied symptoms and, therefore, therapeutic intervention must be based on a differential diagnosis (Schuell and Jenkins, 1972).

Occasionally, the speech-language pathologist may receive a referral for a communicatively handicapped patient whose primary need is psychological or psychiatric treat-

ment rather than direct speech-language intervention. Dementia or language of generalized intellectual impairment is subdivided into presenile (present before age 65) and senile (occurring after age 65). The classic features of dementia may include some degree of disorientation, impaired memory, defective calculation, and labile affect (Roth and Meyers, 1975). The language of generalized intellectual impairment is characterized by deficits on more-difficult language tasks--those requiring retention, close attention, abstraction, and generalization (Darley, 1969). The patient speaks less often and says less when he does talk (Horenstein, 1971). His utterances are typified as stereotyped, perseverative, and concrete. On open-ended language tasks, orientation tasks, and tasks requiring general information, demented patients tend to express an inability to perform, through statements such as "I don't know" (Wertz, 1978).

Language of confusion appears as a language disorder (Wertz, 1978). Confusion may follow neurogenic damage, frequently from head trauma. The confused patient has normal syntax and vocabulary and adequate ability in naming objects or describing their functions, but shows difficulty in understanding and recognizing his environment, plus

faulty memory, muddled thinking, incorrect orientation for time and place, and confusion in irrelevant and confabulated responses (Wertz, 1978).

The mentally retarded adult has difficulty experiencing abstract thinking as a result of subaverage general intellectual functioning which originated during the developmental period and is associated with impairment in adaptive behavior. The mentally retarded individual has trouble understanding and/or producing sentences of any length or complexity. Expressively, single words and phrases predominate, and the overall language is delayed (Perkins, 1977). In the post-stroke patient who premorbidly was mentally retarded, rehabilitation can, at best, reestablish the pre-stroke communication skills.

Personality and emotional disturbances include neurotic and psychotic dysfunctions. One of the points of differentiation between the two symptoms is the way in which the individual uses speech for communicative purposes (Wood, 1964). The neurotic individual may refuse to talk except when he is alone with his family. Neurotic symptoms, evidenced either by covert or overt signs, include anxiety reaction, conversion reaction, dissociative reaction, phobic reaction, obsessive-compulsive reaction, and depressive reaction (Perkins, 1977). The etiology of psy-

chosis may be organic, functional or a blend of the two. Organic psychosis may result from disease or injury of the central nervous system, from malnutrition, or from glandular deficiency, and tends to be permanent. Functional psychoses are classified as those for which organic pathology cannot be demonstrated. The psychotic individual may make guttural sounds or vocal noises, or he may yell, grunt, or use some similar vocal means of attracting attention to himself, but he usually does not use speech (Wood, 1964). The psychotic reactions develop quite suddenly and result in social isolation (Perkins, 1977).

Aphasic impairments may be manifested in various types of communicative difficulties depending on the location and severity of the neurologic damage. The three broad categories of aphasic involvement are the:

1. Global Aphasic - marked losses in all areas of language. The patient will acknowledge greetings, can smile appropriately, and may be alert to the telephone, but does not know the alphabet by sight or sound. He cannot read orally or comprehend single words that may be seen or heard. The patient appears rational and retains the sum of his experiences and his judgment.

2. Amnesic Aphasic - talks around the subject; of-ten cannot recall the names of objects, places or people; uses the wrong words; transposes word order; and experiences varying degrees of reading, spelling, and formulation losses.
3. Motor Aphasic - does not know how to place his lips, tongue, and/or teeth in order to form words. He has to relearn motor patterns to form words (Agranowitz and McKeown, 1964).

Carson, et al. (1972) studied 64 aphasics and 64 normal subjects in four different experiments, one of which involved the usage of digit symbols. The results showed significant regularities in the subjects' ability to learn new tasks, to retain the skills over time, and to handle a wide range of complexity in stimulus material. The patients were able to concentrate on the task of abstracting properties of the stimuli. The implied indication is that aphasics are able to respond favorably to symbol learning, and continual practice could enhance improvement.

Sasanuma (1975) investigated the ability of Japanese aphasics to use Kana characters (phonetic symbols for syllables) and Kanji characters (essentially nonphonetic logographic symbols). The subjects were divided into

three groups or types:

Type 1: Broca's Aphasia = 75 percent
Wernicke's Aphasia = 25 percent

Type 2: Mixed form of Transcortical Aphasia of Goldstein

Type 3: Schuell's Simple Aphasia

Of the Type 1 patients, those with Broca's Aphasia made almost twice as many errors on Kana (phonetic) words as on Kanji (logographic) symbols; of those with Wernicke's Aphasia, most showed more impairment with Kana than Kanji characters. Type 2 patients, whose aphasia involves semantic confusion of words, with marked perseveration of phonological function, portrayed a perfect score on Kana while missing 80 percent of the Kanji items. The Kanji characters were treated as if they were phonetic symbols, with the subjects showing complete disregard for their meaning. Type 3 patients had relatively mild aphasic involvement and portrayed a mild impairment, with the patterns of Kana versus Kanji errors not being significantly different.

The overall conclusions of this study indicate that an impairment in Kana processing parallels an impairment in the phonological aspect of language. Impairment of Kanji symbol manipulation reflects problems with the non-

phonological aspects of language, involving lesions outside of the speech area.

Yamada and Steinberg (1978) studied the relative difficulty of Japanese children in learning Kana and Kanji symbols. They found that Kanji were more easily learned despite being more complex. Of the Kanji characters, 15 percent were learned on the first trial; 37 percent were learned within 3 trials. Most of the Kana symbols were not learned at all by the children. They concluded that the differences in performance may be related to the meaningfulness of the symbol or word and that this relates to the relative ease of learning by children regardless of the symbol's visual complexity. While this research focused on children, similar factors may apply to the ease of symbol learning in adults.

Blissymbolics

When traditional speech-language intervention is ineffective, augmentative communication should be considered for use (Silverman, 1980) in rehabilitating the nonvocal aphasic adult. In consideration of the Japanese research to support the contention that meaningful symbolic characters can provide the aphasic patient with an ability to relearn communication skills, there is an indication that

Blissymbols may be appropriate for use with those aphasic adults who are experiencing a significant mismatch between their receptive and expressive communication skills.

Blissymbolics is a visual-graphic language system which is capable of providing total, comprehensive communication. Semantically, Blissymbols represent people, things, actions, feelings, relationships, and ideas (McDonald, 1980). The founder of the system, Charles K. Bliss, had intended for the system to serve as a universal written language and a solution to international communication problems. Being initially influenced by the Chinese character writing, Bliss's ideographic writing was supposed to make it possible for people who speak different languages to communicate because they could read identical symbols, regardless of the different languages they spoke (McDonald, 1980).

The Blissymbol system consists of 1400 pictorial, ideographic and arbitrary symbols which may be used singly or in various combinations to produce a desired message. Most Blissymbols encode information on a semantic level (Silverman, 1980), with each symbol representing a general idea or concept which then can be translated into English (or any other spoken language) by one or more words.

There are four types of symbols:

1. Pictographs - drawings which visually resemble the concept they are intended to symbolize.
2. Ideographs - drawings which symbolize an idea or a thing rather than the name of it. An ideograph creates a graphic association between the symbol and the concept it represents.
3. Arbitrary symbols - drawings which have no pictorial relationships between the form and what they are intended to symbolize.
4. Compound symbols - groups of individual symbols arranged to represent new ideas or objects (McDonald, 1980).

Bliss had not intended for his symbols to be used by the communicatively handicapped; however, since 1971, Blissymbolics has effectively provided communication opportunities for a number of nonvocal cerebral palsied children (Archer, 1977). Now the system's potential is being studied with the mentally retarded (Harris-Vanderheiden, 1977), the deaf-cerebral palsied (Howells, 1981), and with the aphasic adult population (Nishikawa, 1980; Lane and Samples, 1980; Deal, 1980).

Chapter III

Research Design and Procedures

The present one-hour Blissymbol training program was developed for presentation to the staff members of a skilled nursing facility. It was designed for direct care personnel who work with nonvocal aphasic adults. A speech-language pathologist had begun teaching Blissymbols to aphasic patients being treated at that facility.

This inservice training was presented in an effort to bridge the communication gap between direct care personnel and those nonspeaking/nonwriting patients who do communicate with Blissymbols. By teaching nurses and aides to transfer into the communicatively handicapped adult's activities of daily living the skills which already had been taught by the facility's itinerant speech-language pathologist, the patient would be able to actively communicate with his direct-care staff.

Materials

1. The complete inservice training program was developed by this researcher. Great care was used

in wording the lecture and handout materials so that they would match the participants' educational level. It was anticipated that the greater portion of the participants would be aides because the ratio of aides to nurses in such facilities is high. The typical aide would be expected to have a twelfth grade education, very little knowledge of the communicative problems of the aphasic patient in general and even less background in the use of Blissymbolics.

2. Handouts.
   A. An agenda was used to indicate the subject areas to be covered and the order of their presentation.
   B. A comparison sheet of Blissymbols and Spence Symbols demonstrating the difference in difficulty between learning the two types of symbols.
   C. Pretests and posttests were used to determine the learning which occurred as a result of the inservice training program. The tests were identical in content, consisting of twelve questions, each with five multiple-choice answers from which to select the

correct response. The questions were typed on bond paper with triple spacing between questions and double spacing between answer selections. White paper was used for the pretest, and green paper was used for the posttest.

D. Sharpened pencils were passed out for use in the Blissymbol/Spence Symbol demonstration, the pretest and posttest.

E. Numbered slips of paper were placed in a 6" X 6" cardboard box. A number drawn by each participant was used for pretest and posttest identification to maintain participant anonymity.

Population and Sample

The sample was composed of nurses and aides in a skilled nursing facility. Typical facilities of this kind provide their staff with part-day training courses as a method for introducing new treatment procedures and updating rehabilitative techniques. Staff attendance at the Blissymbolics inservice program was required by the facility. Personnel were notified of the subject to be presented and the time and date for the presentation. Sample size was set for 15 to 20 subjects.

Procedures

The Blissymbolics inservice program was designed to provide introductory training to nurses and aides working with aphasic patients who might be able to use Blissymbols for communication. The organizational pattern utilized was one group session. This is the most common arrangement in such facilities; all participants are together in one large group and all receive the same program (Grimes, et al. 1975).

The Blissymbolics program was developed from this researcher's review of pertinent literature, and through personal communication with speech pathologists who specialize in augmentative communication, and from meetings with skilled nursing facility administrators (Personal Communication, Cohen, 1980; Nishikawa, 1982; Smith, 1982). Information obtained from the facility administrators indicated that it would be unrealistic to schedule an inservice training program for a longer period of time than one hour. Other Blissymbol training programs were reviewed, and the information deemed to be the most important for direct care personnel was incorporated into the inservice program. The topics included were:

1) An introduction to aphasia -- its definition, symptoms, and causes.
2) An introduction to the Blissymbol System, its development and implementation.
3) A demonstration of how the Blissymbol system works.

Following development of the program content, the pretest/posttest questions were written. The program was reviewed to be sure the questions covered only the content presented.

Five skilled nursing facilities were then contacted as possible sites for presentation of the program. All were in southern California; four were within the Riverside-San Bernardino area and one was in Montclair. Criteria for selecting the facility which would receive the inservice presentation were the facility's:

1. Availability of patients who were using Blissymbols.
2. Willingness to have staff participate.
3. Availability of funding for inservice programs.
4. Ability to provide space for the program.
5. Ability to schedule the program within the researcher's time limitations.

The program was taped by the researcher on sixty min-

ute Scotch cassette tape using a Wollensack, model 2620AV, cassette tape recorder prior to use in any of the facilities. The reason for this was to "time" and to critique the presentation. Following this, two "dry-runs" were given at two separate facilities to refine the program, to fit it within the time limitation set by the facility, and to allow for revision of difficulties within the context of the presentation.

The "dry-runs" indicated that the program was too long for one hour, in that enough time was not available for questions, discussion and pre- and posttests. The inservice was then revised and retaped to allow for time as suggested by the "dry-runs".

The revised inservice program was presented to the study group at a third facility. The program was delivered in an adequately large, quiet conference room with tables and chairs and space for screen and overhead projector.

The actual sample contained only six subjects. Possible reasons for the poor attendance were difficulties in maintaining staff coverage, funding problems, true level of interest and staff turn-over. To ensure a high percentage of employee attendance, adequate funding would have to be provided for payment of off-duty staff.

Although the facility did have funding for inservice programs, each staff member is required to attend only a certain number of sessions. It is possible that many had already achieved their quota and were not sufficiently interested or financially able to include another inservice program into their schedule. Staff turn-over and ability to provide adequate staff coverage is a typical problem in nursing facilities.

The presentation began with a welcome to the group and a brief explanation about the program. The agenda was then passed out so the participants would know what was occurring at all times and could follow the sequence of events. The pretest was then administered, followed by the lecture presentation. Overhead transparencies were projected for visual reinforcement of the information discussed. The presentation was again tape recorded to ensure that all information had been presented as planned and that any discrepancies between pretest and posttest performance were not due to omission of content material. Immediately after the lecture presentation, the posttest was administered, followed by a discussion period.

The inservice lecture, plus the discussion period, took one hour. The entire text of the presentation along

with copies of overhead projections, presentor's notes, and instructions to participants comprise Appendix A.

Chapter IV

Results

Presentation of the one-hour Blissymbolics inservice training program showed significant learning results as evidenced by pre- and posttest measurements. Specific manner of measurement was the use of t-tests of matched pairs ($p<.05$). The pretest mean was 45.8%; the posttest mean was 66.7% with standard deviations of 18.0379 and 18.2611 respectively. Range of scores was 25% to 75% for the pretest and 33% to 83% for the posttest. The t value was 3.49 with $p\leq.009$. (Table I.)

The null hypothesis that "there would be no significant difference in learning of Blissymbolics as evidenced by subjects' pre- and posttest scores" is therefore rejected since the difference in the mean scores is significant to $p<.05$. As can be seen in Table I, the t-distribution was skewed because of the small sample size. This, however, does not negate the value of the results; specifically that learning occurred and at a significant level ($p\leq.009$). Although the sample size

was small, the t-test of matched pairs is capable of handling such a sample.

Significant results from this study indicate that the inservice training program used in this research with the sample population was an instructive target-specific, beneficial teaching device. Evaluation of subject responses to individual questions was interesting. Nine of the twelve questions showed an increase in the number answered correctly (education); two showed a decrease (de-education); and one question showed no change. Question numbers 1 and 6 were the best discriminating questions, 67% and 50.6% change respectively. Question numbers 3, 8 and 10 showed 33.3% change and question numbers 5, 7, 9, and 16 showed 16% change. Question numbers 2 and 12 showed negative changes, 33.3% and 16.6% respectively. Question number 4 showed no change. These three questions obviously were poor discriminators and should be replaced (Table II).

TABLE I

RESULTS OF PRE- AND POSTTEST EXAMS

Statistic	Pretest	Posttest
N	6	6
$\bar{X}$	45.8%	66.7%
SD	18.0379	18.2611
Range of Scores	25% - 75%	33% - 83%
df	5	
t	3.49*	

*Significant at $p \leq .05$ level

TABLE II

CHANGES IN CORRECT RESPONSES

QUESTION	PRETEST		POSTTEST		COMPARISON BETWEEN P/POST
	No. Correct	%	No. Correct	%	
1.	4/6	33.3	6/6	100.0	+2 67.0%
2.	2/6	33.3	0/6	0.0	-2 -33.3%
3.	0/6	0.0	2/6	33.3	+2 +33.3%
4.	4/6	66.6	4/6	66.6	0 0.0%
5.	2/6	33.3	3/6	50.0	+1 16.7%
6.	1/6	16.0	4/6	66.6	+3 50.6%
7.	4/6	66.6	5/6	83.3	+1 16.7%
8.	2/6	33.3	4/6	66.6	+2 33.3%
9.	5/6	83.3	6/6	100.0	+1 16.7%
10.	2/6	33.3	4/6	66.6	+2 33.3%
11.	4/6	66.6	5/6	83.3	+1 16.7%
12.	4/6	66.6	3/6	50.0	-1 -16.6%

Chapter V

Discussion

In this study a Blissymbolics inservice training program was designed for direct care personnel of aphasic adults in skilled nursing facilities. The program was one-hour in length. Pre- and posttests were used to determine whether significant learning took place. Results showed a significant difference between pre- and posttests with $p \leq .009$ in the positive direction, rejecting the null hypothesis, "that there would be no significant difference". These results indicate that the inservice program developed and administered by this researcher and used on the participants in this study was an effective teaching device. This has practical significance for aphasic patients, speech-language pathologists, skilled nursing facilities, family members, and others who are significant in the lives of aphasic individuals. The more involved those surrounding the patient become in participation and reinforcing communication with him/her, the less frustration there is

for everyone. A probable result will be more efficient use of time spent by the speech-language pathologist and by direct care personnel with each patient. This should yield better care for all patients and improved overall care for the aphasic patient.

The ideal outcome for the aphasic patient would be enhancement of his ability to regain expressive communication and to return to his home environment. Blissymbolics can bridge the gap between the patient's receptive and expressive communication skills through reduced frustration and increased motivation. If verbal expressive abilities fail to return, Blissymbolics can be an acceptable means for communication between the patient, his family members, and significant others. It would be interesting to determine whether this inservice program in its present form or with modifications could be used directly in the home environment with aphasic patients and family members who have not otherwise had the advantage of learning about such a system of communication.

Problems encountered in this study centered around scheduling difficulties and collecting a larger sample size. Consideration was given to repeating the inservice a fourth time, but this was not completed for several reasons. In two of the three presentations, the sample size

was below the target of 15 to 20 participants; in one instance it was ten and in the study group it was six. Another session would not assure a larger sample size and combing the two sessions to get a larger sample size could introduce other unknown statistical variables.

Recommendations for Further Study

1. Revise poorly discriminating questions.
2. Replication with a larger sample in one setting or use more than one setting and control for variables introduced thereby.
3. Investigate possibility of outside funding to pay nursing home staff and assure better attendance.
4. Present inservice program to groups of family members and evaluate its effectiveness.
5. If number 4 proves effective, translate program into other languages.

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APPENDIX A

WORKSHOP AGENDA

Welcome

Pretest

I. Introduction

- A. What is Aphasia?
- B. What are Symptoms?
- C. What are Some Causes?

II. Blissymbolics

- A. What is Blissymbolics and Why Do We Use It?
- B. Introduction to Blissymbol System Development.
- C. How Did the Blissymbol System Develop?

III. Vocabulary Section

IV. Techniques for Teaching Blissymbols

Posttest

WELCOME

We are pleased to see you here today. It is our intent that you will increase your knowledge about Blissymbols. I would like to begin this inservice by giving you a little quiz. This same quiz will be given after the inservice is over. This information is for my use only. It will give me an idea of the effectiveness of the inservice.

Presentor's notes: Pass out test. Pass out individual numbers.

PRETEST

Instructions to participants: Use the plain white paper for the first test and the green paper for the second test. Pick a number from the container that is now being passed around to you. Write that number on the first test. Keep the number handy during the inservice. Write the same number on second test at the end of the inservice. This will make it possible for me to compare the "before" and the "after" answers.

I. INTRODUCTION

A. What is Aphasia?

(Overhead 0-1)

Geriatric patients who experience a stroke or cerebral vascular accident may have many problems on their road to recovery. Probably the most frustrating is the inability to communicate. The aphasic patient who has damage to certain parts of the brain frequently understands a lot more than he can actually express. This damage may interfere with the brain's ability to speak, write, read and/or spell. To answer the question of "What is Aphasia?", I have a simple definition: a loss or impairment of language, due to some type of brain injury.

B. What Are Some of the Aphasic's Problems?

The aphasic patient may have an interference in expressing himself through speech or in spelling, reading or writing. More than likely, he/she will have a combination of two or more of these. How can you recognize aphasia? The following example illustrates the many ways in which language loss may show itself:

1. A patient might not be able to understand the meaning of the word "boy" when someone else says it. He can hear "boy", but his brain cannot interpret the sounds into a meaningful word.

INTRODUCTION OVERHEAD 0-1

1. What is Aphasia?

   loss or impairment of language due to some type of brain injury

2. What are the symptoms? How can you recognize it?

   inability to read, write, do math

   can't recall names of people, things

   unable to say words correctly

3. What are some of the causes?

   stroke - CVA

   trauma

2. Another patient may see a dog and recognize this is a dog, but not be able to recall the word "dog" to name it. This is similar to the experience of forgetting the name of an old classmate.
3. Another patient may be thinking of the word "boy", but his tongue, teeth, and lips do not get the instructions from the brain telling him how to pronounce this word.

C. What Are Some of the Causes?

A cerebral vascular accident, more commonly called a stroke, may produce aphasic tendencies in a person. A severe injury to the head may also result in aphasia.

II. BLISSYMBOLICS

A. What is Blissymbolics and Why Do We Use It?

There are several symbol systems with the alphabet being just one type. Each letter represents a sound. A totally different written language is Blissymbolics. It is a visual-graphic form of communication which is based upon concepts rather than sounds. It is handled by the brain in a manner that is different than the way the brain handles speech, writing, reading and spelling. For this reason, the method may be successful, even when speech

therapy or remedial reading are not. Although not every patient will be able to communicate with Blissymbols, a speech-language pathclogist, after his/her diagnostic evaluation, will make recommendations for particular patients to actually utilize Blissymbols. Many of your patients with poor speaking, reading and spelling skills are frustrated and will find that using symbols can help.

Blissymbols provide strong motivation for aphasic patients to develop a method of communicating. The system is flexible and provides a written word to accompany each displayed symbol. This "translation" is useful for those care providers and family members who are not acquainted with the system.

B. Introduction to Blissymbols

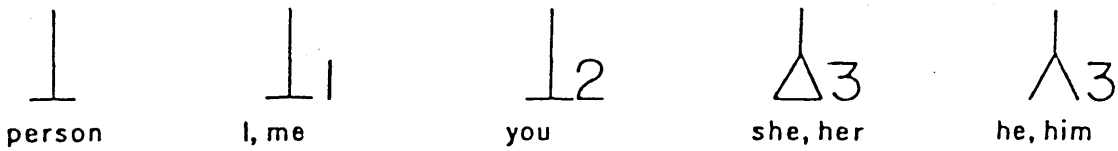
Let's look at the symbols which represent people. (Overhead 0-2)

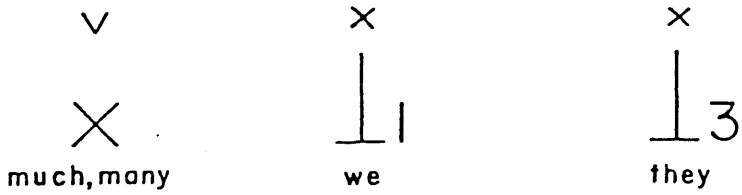
The number 1 person is - I, Me. Since symbols stand for concepts, and not for specific words, the patient can use the symbol to represent a number of "first person" concepts. For example, he/she can use the symbol for "I" also to mean "me", the objective form.

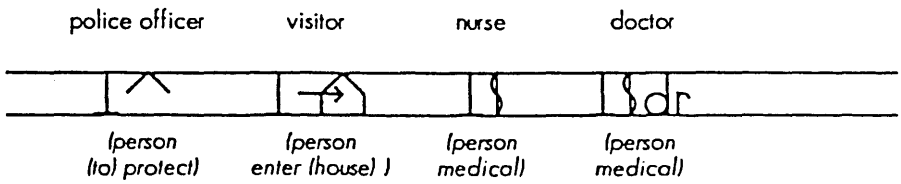
"You" is the second person, number 2. He or she will be number 3.

OVERHEAD 0-2

People







The multiplication mark meaning "much" or "many" is used over any noun symbol to convert it to the plural.

The symbols for man and woman are very simple, showing pants for the man and a skirt for the woman. The roof indicates protection. So the "woman" symbol plus the "protection" symbol represents the woman who protects, a "mother". The "man" symbol plus the "protection" symbol is the man who protects, a "father".

(Overhead 0-3)

The inverted V placed above another symbol indicates action. For example, when used over a part of the body such as the mouth, it changes the meaning from "mouth" to "speak", i.e. making action with your mouth. When you "make action with your mind", you "think". The next symbols show "making action with a wheelchair", "go"

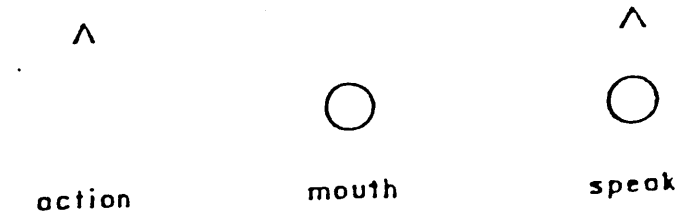
(Overhead 0-4)

All emotions are based upon the heart. When you make action with the heart you emotionally feel something. "To want" something involves the heart and action symbol plus the symbol for fire (to burn with desire).

The heart is used in a lot of adjectives as well. When you are "feeling up", you're happy; so you have the heart symbol plus an arrow pointing upward. Conversely,

OVERHEAD 0-3

Action Indicator

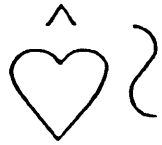


OVERHEAD 0-4

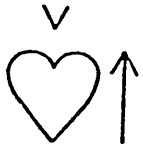
Emotions

heart

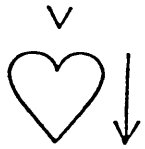
to feel



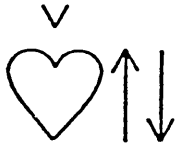
to want



happy



sad



upset

when you are "feeling down", you're sad and the arrow points downward. If you do not know if you're "feeling up or down", you're upset.

C. How Did the Blissymbolics System Develop?

Blissymbolics was originally developed by Charles K. Bliss, between 1942 and 1949 as an international symbol system. He created this system in an attempt to improve international relations by developing an easily assimilated written language for use by all people regardless of their native spoken language. Mr. Bliss wished to create a universal system of written communication just as the Chinese people had done, using pictographic writing. Although Mr. Bliss's system was never implemented for international use, it was adopted, in 1971, by the Symbol Communication Research Project at the Ontario Crippled Children's Centre in Toronto, Canada, for use with the communicatively handicapped.

Blissymbolics has grown rapidly and widely since its introduction with a small number of young cerebral palsied children. More recently, the importance of providing functional communication to meet the aphasic patient's physical, social and emotional needs has become a major concern to speech pathologists. To the nonvocal individ-

ual and his family, the lack of functional communication leaves feelings of humiliation and frustration.

Blissymbols consist of 100 elements which are combined to form symbols.

(Overhead 0-5)

Blissymbols sometimes look like the objects they represent.

(Overhead 0-6)

They can also show feelings and actions.

(Overhead 0-7)

Blissymbols may be combined to represent new concepts.

(Overhead 0-8)

Some of the symbols are arbitrary but represent familiar concepts.

(Overhead 0-9)

Blissymbols may be inexpensively displayed on individual flash cards or on personalized communication boards which contain from a few to several hundred symbols. All materials necessary to begin Blissymbol communication are available from the Blissymbolics Resource Centre at Loma Linda University Medical Center. The Blissymbol system is completely visual. It pictographically expresses ideas, which makes it easily and readily understood by many

OVERHEAD 0-5

Main Basic Blissymbol Elements

1	2	3	4	5	6	7
8	9	0	addition	subtraction	multiplication	division
equal	relation	dot	comma	question mark	direction	medicine
money	music	cross out	opposite meaning	chemical THING	physical ACTION	time
human EVALUATION	NATURE CREATION	mind	emotion	eye	ear	nose
mouth	hand	arm	legs & feet	individual	male human	female human
animal quadruped	insect shaped	bird	fish	plant	tree	time
sun	moon	star	earth planet	earth line	sky	water
fire	electricity	chemistry	pen	paper	roof	vessel
wheel	fabric	flag	scales	knife	compass	time space

OVERHEAD 0-6

Represented Objects

PERSON

MAN

WOMAN

EYE

OVERHEAD 0-7

Actions

(TO) FEEL

(TO) HEAR

(TO) SAY, TELL

(TO) SEE

(TO) WALK, GO

(TO) TOUCH

OVERHEAD 0-8

Objects

GASOLINE

RAIN

ICE

TOILET

CONTAINER

SHOW PLACE,
THEATER

GARAGE

WHEELCHAIR

OVERHEAD 0-9

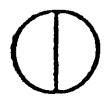
Ideas

WEATHER

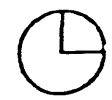
FREEDOM

IDEA

LIFE

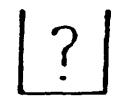


TIME



ANSWER

QUESTION



aphasic individuals. The written word always appears above the symbol so the person with whom the patient is communicating does not need to know Blissymbols to be able to understand the message. For initial training, symbols are selected which will be the most meaningful to the individual for whom the communication system is being developed.

A question that is often asked is: "Why don't you just teach the aphasic patient how to read and speak again instead of teaching him a symbol system?" Studies have shown that some patients can learn to use pictographic symbols even though they have been unable to relearn written orthographic letters, such as the alphabet, or relearn their spoken language, which is based on combining sounds to form meaningful words. Other patients can learn the pictographic symbols faster and easier even though they may eventually relearn to use written words and/or spoken communication. In such instances, the interim frustration can be reduced by providing an augmentative communication system as a stop gap while other, more traditional communication skills are being retrained. Our goal is to provide a functional communication system that can be used immediately.

Notes to participants: In a few minutes, I am going to have you study Blissymbols and Spence Symbols and then participate in a contest to demonstrate to yourself the difference between learning Blissymbols which are pictographic versus Spence Symbols which are sound based.

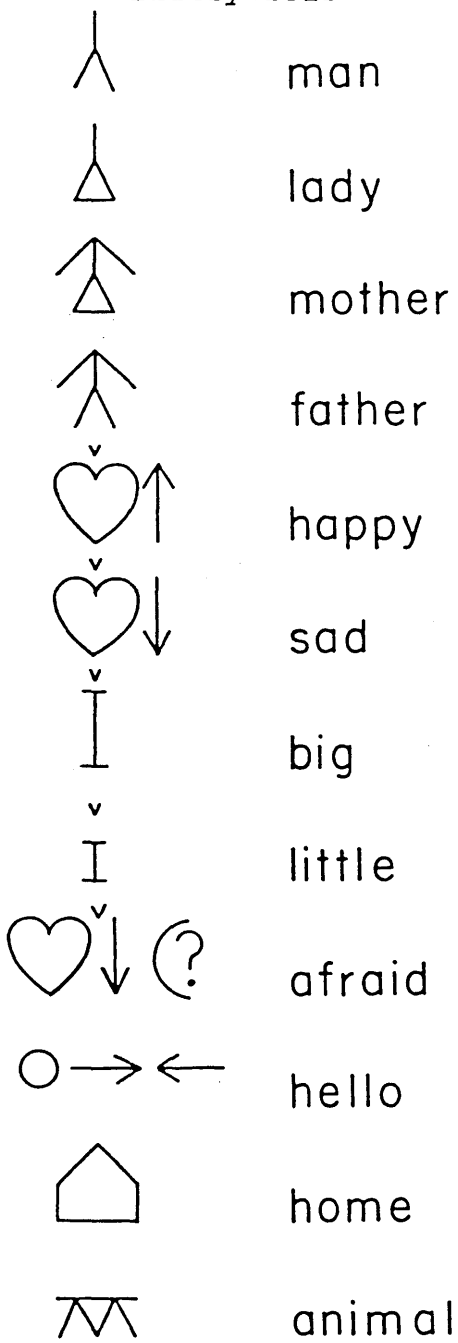
You will be seeing two sets of symbol representations, along with the English translation for them. One set will be Blissymbols, Overhead 0-10 and the other will be Spence Symbols, Overhead 0-11. The first set consists of Blissymbols, with the component parts representing meaning, either directly through pictographs or indirectly through abstract or arbitrary symbols.

The second set of symbols has been designed by Murry Spence, Assistant Co-ordinator, Special Education Programmes, North York Board of Education, in Ontario, Canada. He uses them to illustrate for teachers of early reading programs what children may be experiencing when teachers first try to teach them to read.

Each Spence Symbol represents a letter of the English alphabet; the symbols are sequenced to form words on the basis of the sound(s) each symbol represents. The relationship between each symbol and sound is as consistent as English letter-sound relationships.

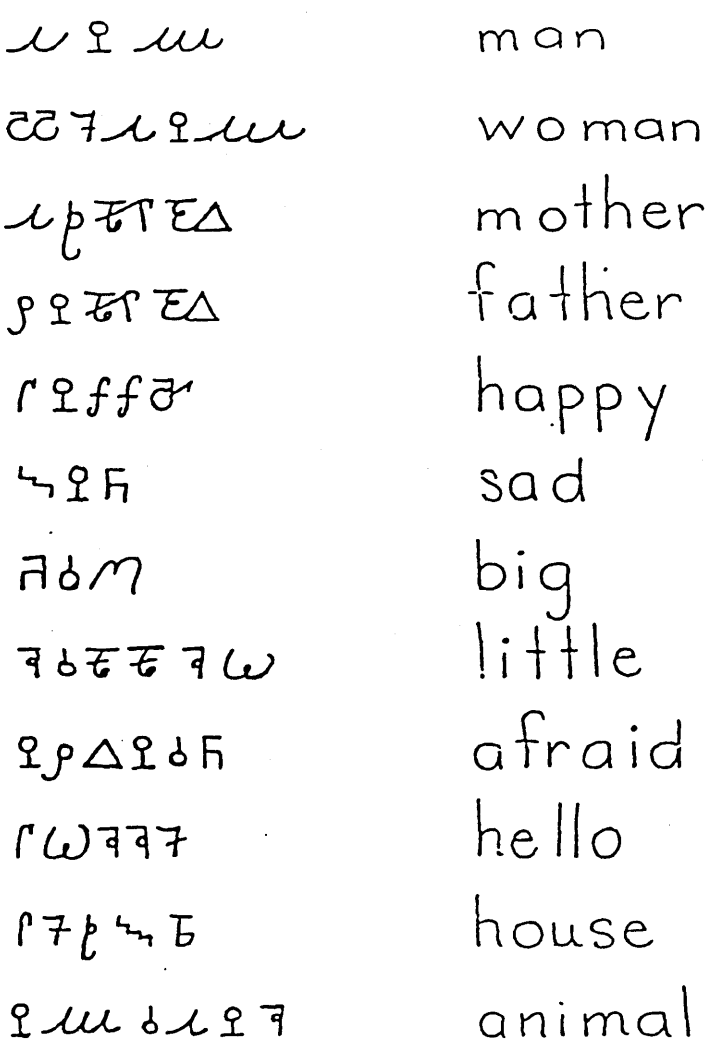
OVERHEAD 0-10

Blissymbols



OVERHEAD 0-11

Spence Symbols



Notes to participants: You are now ready to study the symbols. When I say "start" study the Blissymbols until I say "stop". You will have one minute. Do not take notes. Look for the shape-meaning correspondence. Everybody ready?

(Overhead 0-10)

Presentor's note: Start. (Time for one minute). Stop.

Notes to participants: When I say "Start" study the Spence Symbols, until I say "stop". You will have one minute. Don't take notes. Look for the sound-shape correspondence.

(Overhead 0-11)

Presentor's notes: Start. (Time for one minute.) Stop. Talk for awhile about some other things and continue the inservice for 10 minutes. Then give the test to see how much they remembered.

III. VOCABULARY SECTION

There are many considerations to remember when we are choosing the patient's vocabulary for communication needs.

1. A. The first consideration is the individual -- does the patient understand the value of communication?

   B. A patient may have the potential to become quite good in using his symbols but if he chooses to communicate only when he wishes, he will make little progress. Depression from an illness can lessen the need/desire to communicate. It is not uncommon for a person to become depressed when he/she is unable to communicate through speech. The patient may lack motivation if there is little or no need to communicate because all of his/her wants and needs are anticipated and met.

   C. Does he have a "yes/no" response?

2. The second consideration is the patient's cognitive level -- this means the intellectual functioning of the person. One never really knows exactly what the aphasic patient's capabilities were before his stroke. Usually, however, the patient's family can provide insight. A person's prior occupation can also be a clue. One cannot expect to return a patient to

a higher functioning level than he had attained before the stroke. The less the damage to areas of the brain that have to do with the patient's cognition, the more successful he/she will be in using a symbol system to communicate.

3. The third consideration is functional speech -- this is, speech which can be understood by others who don't know the patient. For example, how functional is his speech?
   A. Does he vocalize?
   B. Does he make some attempts at using single words?
   C. Can only a select few familiar persons understand his needs?
   D. Consider the functions that the vocabulary will serve.

These factors will affect what symbols are primarily important.

Presentor's note: If the vocabulary section does not consume the entire period of 10 minutes, have the students stand up to stretch and/or take a short break for the remainder of the time.

OVERHEAD 0-12

MURRAY SPENCE - BLISSYMBOLS

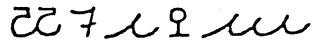
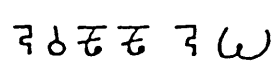
Test Sheet

1.	13.
2.	14.
3.	15.
4.	16.
5.	17.
6.	18.
7.	19.
8.	20.
9.	21.
10.	22.
11.	23.
12.	24.

OVERHEAD 0-13

Murray Spence - Blissymbols

Test

1. 
2. 
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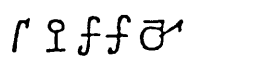
5. 
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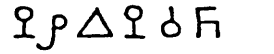
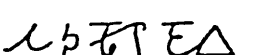
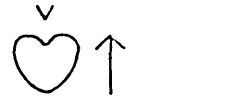
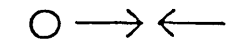
11. 
12. 
13. 
14. 
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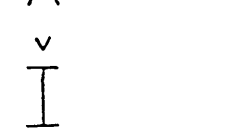
16. 
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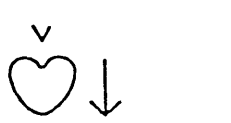
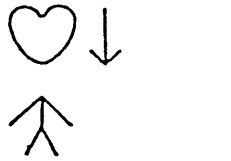
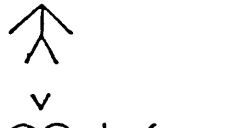
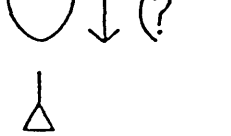
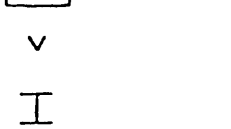
18. 
19. 
20. 
21. 
22. 
23. 
24. 

OVERHEAD 0-14

Murray Spence - Blissymbols

Answer Sheet

1. woman
2. little
3. hello
4. happy
5. man
6. sad
7. house
8. afraid
9. mother
10. animal
11. big
12. father
13. happy
14. hello
15. man
16. big
17. animal
18. sad
19. father
20. afraid
21. woman
22. house
23. little
24. mother

Notes to participants: You are now ready to try the contest. All you need is a piece of paper and a pencil. The paper that I am now handing out is numbered from 1 - 24.

(Overhead 0-12)

I will be showing you a mixture of Blissymbols and Spence Symbols. Translate as many words as you can into English, doing the easiest ones first. Wait until I say "start" before beginning the test. You will have one minute. Stop when I say "stop".

Now look at the overhead.

(Overhead 0-13)

Everybody ready?

Presentor's notes: Start (Time for one minute) Stop.

(Overhead 0-14)

You are now seeing the answer sheet. Tally your score.

Presentor's notes: Allow time to tally score. Allow time for answering the following questions:

Discussion with participants: Is everybody finished? Which symbols did you want to translate first

because they were easier to remember? Which symbols were easier visually? Which symbols made you think about the meanings? Did the contrast between learning Spence Symbols and Blissymbols illustrate to you the difficulty an aphasic patient might have in relearning a sound based system? I hope so!

IV. TECHNIQUES FOR TEACHING BLISSYMBOLS

Guidelines for Teaching Symbols

A. For the Patient

There is more than one way to teach Blissymbols. The person communicating with the patient will need to adjust his method to "talking" as the patient responds. Such individualizing of instruction is encouraged and the following suggestions are offered as guidelines:

1. Symbol teaching should be related to meaningful everyday experiences in the patient's life. Symbols should be made to serve a purpose for the patient and should be used that way.
2. A patient needs varied experiences with a symbol in order to fully understand the meaning.
3. The communicator should be alert to the patient's ideas, feelings, and questions and provide ample time for him to get his idea across.

4. Significant other persons in the patient's community environment should be routinely involved in communicating with the patient.

B. To Family Members:

It has been emphasized that communication takes place within a community. Parents, siblings, and spouses make up an important part of the patient's "community". Frequent communication between the patient and persons in this group may occur if everyone will learn Blissymbols and how to relate them to the patient. Even though other people can interpret a symbol message by reading the words printed above the symbol, interest in interacting with the patient will be heightened if family members and staff understand the symbols and the system. Family members should be shown the symbols for a basic vocabulary and receive explanation from speech-language pathologists as to how meanings of symbols are changed and how symbols are sequenced to make simple sentences.

C. To Significant Others:

Additional persons who come in contact with the patient and need to communicate a message would qualify as significant others. This would include

such persons as the occupational therapist, the physical therapist, the inhalation therapist, etc. It is important that the patient be given as many opportunities as possible to communicate with the Blissymbols. The patient should be able to communicate in a variety of settings, not just with a few close family members or the working staff. It should be demonstrated that the patient's pointing simultaneously to a symbol and saying it will make the speech more meaningful to a listener and reinforce his speech therapy.

Unless the symbol program has the full support of family members, administrators and staff personnel at all levels, the program will fail or only partially meet its objectives; that is, to enable nonspeaking persons to express their ideas and feelings and to ask questions of members of their "community".

APPENDIX B

BLISSYMBOL WORKSHOP

Pretest and Posttest

Choose the best answer for each questions:

1. The Blissymbol system is system of:
   a. symbols
   b. numbers
   c. codes
   d. none of the above
   e. I don't know

2. Blissymbols can be used as a means of communication with:
   a. the mentally retarded
   b. aphasics
   c. cerebral palsied patients
   d. all of the above
   e. I don't know

3. Blissymbols are an easier means of getting an idea across than:
   a. writing or spelling
   b. extrasensory perception - (ESP)
   c. Spence symbols
   d. all of the above
   e. I don't know

4. Blissymbols are based on:
   a. hidden meanings only the user knows
   b. sound based symbols like the alphabet
   c. pictorial meanings
   d. none of the above
   e. I don't know

5. Every patient should start with:
   a. 12 - 24 symbols
   b. only a few symbols
   c. a varying number of symbols, according to his abilities
   d. none of the above
   e. I don't know

6. The Blissymbolic message can be interpreted in:
   a. only one way
   b. two ways
   c. several different ways
   d. none of the above
   e. I don't know

7. Priority in vocabulary selection is given to:
   a. the needs of significant others
   b. the user's needs
   c. the working staff's needs
   d. none of the above
   e. I don't know

8. The majority of the aphasic adult's communicative problems are in the area of:
   a. language
   b. gross motor coordination
   c. visual tracking
   d. none of the above
   e. I don't know

9. Blissymbols can best be learned by those:

   a. who have very poor vision

   b. who have severe intellectual impairment

   c. who have aphasia

   d. none of the above

   e. I don't know

10. The process of learning to read Blissymbols requires:

   a. a lot of time before actually using the system

   b. intricate learning of special codes

   c. only a short time before actually using the system.

   d. none of the above.

   e. I don't know

11. The symbol for man is:

   a. 

   b. 

   c. 

   d. none of the above

   e. I don't know

12. Symbols basically represent:

    a. exact concepts

    b. specific words

    c. both of the above

    d. none of the above

    e. I don't know