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A PRAGMATIC APPROACH TO COMMUNICATION FOR SEVERELY MULTIPLY HANDICAPPED DEAF PERSONS

Doris W. Naiman, Ph.D.

The development of basic communication skills is a primary goal in any educational program for severely multiply handicapped hearing impaired persons. This is true both for students of school age and for adult clients in rehabilitation facilities. Since many of the students have no means of communication other than by gross physical actions, it is of central importance to help them develop a way to communicate. Growth in communication is related to growth in all other areas . . . social interaction, cognitive functioning, and self help skills. Because the combination of hearing impairment and mental retardation presents severe problems in both the receptive and expressive aspects of communication, extraordinary effort is needed to provide a program that is effective in developing functional language and communication.

In devising the communication strategies for a three-year demonstration program for severely handicapped deaf students, we have incorporated experiences from earlier projects of our own and others in the field of deafness, and also have adapted approaches and techniques used with severely retarded students with normal hearing.

Many training programs have been designed for the acquisition of language by severely mentally retarded students. Most of the programs share common teaching techniques, using methods of operant conditioning, reinforcement of correct behaviors, careful detailed programming of small new increments to be learned, and repetitive modeling

of the new responses, usually coupled with fading and shaping techniques. Most are simple language learning skills programs and have not been concerned with the question if language responses require fundamentally different teaching techniques. A survey of several dozen programs by Guess, Sailor, and Baer (1976) indicates that little research has been done to measure the success of these programs in developing functional communication. Although programs have shown some progress in the acquisition of parts of specific language skills, they have not been able to demonstrate carry-over into actual use.

Since the goal in the demonstration program has been to develop language communication that is immediately useful to the students, our approach to communication acquisition has been based on what is sometimes referred to as "remedial logic" (Guess, Sailor, and Baer, 1978). Decisions about what language to teach and the order in which to teach it have been made on the basis of what most quickly will accomplish some improvement in the students' communication. A remedial logic is concerned with motivating the student not only to learn from the teaching program but also from the ongoing interactions in his daily life. From the beginning the student needs to find out that even the small amount learned in the program is useful in accomplishing what he wants. The program, then, tries to establish first the most useful elements of language that the student might need.

The key concept is to assist the student

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A PRAGMATIC APPROACH TO COMMUNICATION FOR SEVERELY MULTIPLY HANDICAPPED DEAF FRIENDS

in gaining control of his environment by use of language in interpersonal interactions. For example, the first labels to be taught should be labels that are reinforcers for the students, labels that can be used in requests that will be granted by those attending the student. Since the program should supply the student with the responses that maximally enhance the control of his own environment, the specific words taught need to be individualized to fit the differing situations encountered by the students.

Our functional approach to communication has integrated two types of strategies. One strategy is to provide a natural type environment that provides impetus and support for using language and the other is to provide daily systematic training.

Environmental Strategy

This approach is sometimes described as Milieu Intervention (Hart and Rogers-Warren, 1978) and builds upon an incidental teaching model (Hart and Risley, 1975) and an environment strategy developed by McDonald and Blott (1974). The strategy involves arranging the environment in order to prompt the use of language. For example, although some materials and activities are immediately accessible to the student, other materials and activities are available only on request. The adult uses materials and activities to reinforce attempts at communication and ensures that the student uses language to obtain what he wants from the environment.

It is necessary to assess the student's current skill level in order to select the appropriate functional language features on which to concentrate. Since actual student involvement is the measure of environmental richness, the specific details of the program must be adapted to the current level and interest of the student.

The language acquisition environment needs to be simple. Complexity of environmental stimuli may overtax a student's perceptual and cognitive abilities and make it difficult for him to sort out the stimuli, the responses, the contingencies, and the consequences. The language event should be ar-

ranged in the simplest, most functional way possible.

Systematic Sequential Lessons

Although drill by itself is not an effective way to acquire communication skills, students need a great deal of meaningful repetition and it is important to provide them with carefully designed training periods which are conducted daily. The language features systematically worked on are the same as the ones used in the environment throughout the day. Always the first consideration in selection of language features to be taught has been the probable need for use in other contexts. Otherwise it is unlikely that the students will generalize the use of the language beyond the context in which it is taught.

For example, instructional sequences have been developed to train the student to request items using a two-word (or two-sign) response, "Want (item)." Guess, Sailor, and Baer (1978) have developed training procedures that are adapted easily for use with hearing impaired students. The following illustration is taken from a training sequence. Ten items that are reinforcing to the student are selected. The training instructions are:

Hold up each item, one at a time, and ask, WHAT WANT? A correct response must include this word "want" plus the correct label for the item (e.g., "want car"). The student is given the item for correct responses: For example, if you hold up a cookie and ask WHAT WANT? and the student responds, "want cookie" then you give the student a cookie (or a portion of it). If the item is nonconsumable, let the student play with it before asking that it be given back for use in further trials. When you ask for the item back, extend your hand and say, I WANT (ITEM). Partial responses by the student are of particular importance in the step. If partial responses are given (e.g., labeling the item without first saying "want"), you should emphasize the missing component when modeling the correct response (e.g., "want (item)").

Communication Modes

In utilizing the various learning strategies, we have used all modes of communication. There is no one mode or combination of modes that works best for each student and there is no way to know *a priori* which will be most useful. For those with severely limited communication we have used panto-

A PRAGMATIC APPROACH TO COMMUNICATION FOR SEVERELY MULTIPLY HANDICAPPED DEAF FRIENDS

mime, demonstrations, and pictorial representation. For some students, aural input has been useful. For most of the students we have been able to increase communication ability by teaching key signs and at the same time using the signs with simple spoken statements.

When they first entered the demonstration program, most of the students had severely restricted communication behaviors. They showed little reaction either to the teacher or the other students and almost never directed any behavior toward another person. Some never manifested their needs or wants and others did so in a crude way without directing their expressions toward a specific person.

It has required great ingenuity on the part of staff members to help these students understand what was meant. Teachers and parents have needed to dramatize, draw, demonstrate, and do whatever they could think of to get across the thoughts and feelings they wanted to express to the students. Equally important, they have encouraged the students to do the same to express their wishes and feelings. The focus always has been on developing meaningful two-way communication. Teachers not only have given messages to the students, but they also have expected and worked for responses from them.

Since the goal has been for students to initiate communication and respond spontaneously, teachers have recognized and responded favorably to all student attempts to relate to them. There has been no such thing as a wrong sign or gesture. The general principle in developing communication skills has been the same as in developing other kinds of desired behaviors. In order to shape the desired behavior, in the beginning any response approximating it is rewarded. With a non-communicating student, the first objective has been to get an even approximately appropriate communication effort.

Teachers have been careful to ensure that students could see clearly their visual messages. When working with small children, the teachers have sat on the floor with the chil-

dren or knelt by their desks. When signing to the students, the teachers have kept movements close to the body and in the general vicinity between the waist and shoulder. The signs have been made near the face so that the students could see mouth movements and facial expressions.

Progress in Communication Ability

All of the students in the demonstration classes have made significant gains in their ability to communicate. The statistics reported here are based on the change scores between the students' original scores and their scores at the time of the completion of the project. They are based on the 34 students who have been with the project for at least one full year and who thus have had the opportunity of experiencing the full impact of the project's training. Figure 1 shows demographic characteristics of the children in the project. Table 1 shows growth in communication and language skills. Table 2 shows social development.

The most noteworthy fact about student progress in developing communication skills is that the gains in communication have been accompanied by gains in social interaction and concept formation. This fact is encouraging since the goal of the program has been to increase functional communication.

FIGURE 1
Demographic Characteristics of Students Serviced by Project

	Ages of Students at Entry in Project							
	6-9		10-13		14-18		Total	
	N	%	N	%	N	%	N	%
SEX								
Female	4	36	7	35	7	70	18	44
Male	7	64	13	65	3	30	23	56
RACE								
Black	2	18	7	35	6	60	15	37
White	0	0	4	20	1	10	5	12
Hispanic	8	73	8	40	3	30	19	46
Oriental	1	9	1	5	0	0	2	5
RESIDENCE								
Home	10	91	8	40	4	40	22	54
Foster	1	9	3	15	3	30	7	17
Institution	0	0	5	25	2	20	7	17
Group	0	0	4	20	1	10	5	12
IQ								
30 or less	3	27	11	55	7	70	21	50
31 - 40	3	27	5	25	2	20	10	25
41 - 50	2	18	3	15	1	10	6	15
51 - 60	1	9	1	5	0	0	2	5
61 - 70	1	9	0	0	0	0	1	2.5
71 - 80	1	9	0	0	0	0	1	2.5

A PRAGMATIC APPROACH TO COMMUNICATION FOR SEVERELY MULTIPLY HANDICAPPED DEAF FRIENDS

MULTIPLE HANDICAPPING CONDITIONS

Brain Injury	1	9	1	5	0	0	2	5
Cerebral Palsy	0	0	3	14	1	10	4	10
Emotional/Behavioral	1	9	6	29	2	20	9	21
Epilepsy	0	0	2	10	5	50	7	17
Heart Disorder	1	9	3	14	1	10	5	12
Mental Retardation	11	100	19	91	10	100	40	95
Orthopedic	1	9	5	25	0	0	6	15
Visual	4	36	6	27	3	30	13	31
Other	2	18	1	5	1	10	4	10
HEARING LOSS								
40 db or less	1	9	3	15	1	10	5	12
41 - 50 db	1	9	1	5	0	0	2	5
51 - 60 db	1	9	0	0	0	0	1	3
61 - 70 db	2	18	0	0	1	10	3	7
71 - 80 db	1	9	3	15	1	10	5	12
81 - 90 db	2	18	8	40	2	20	12	29
91 - 100 db	3	27	3	15	4	40	10	24
101 - 110 db	0	0	2	10	1	10	3	7

¹Derived from Referral Reports at time child entered project. The diagnostic categories do not represent consistent behavioral criteria since agencies differ in their definitions.

TABLE 1
Communication and Language Development Skills Comparison of Pre and Post Percentage Scores
N = 34

	Pre	Post	Change (Post-Pre)	t	p
CURRICULUM BASED VOCABULARY ASSESSMENT SCALE					
Expressive	12	25	14	4.68	.001
Receptive	23	42	19	5.70	.001
BEHAVIORAL CHARACTERISTICS PROGRESSION					
Language Categories					
Language					
Comprehension	10	34	24	7.93	.001
Sign					
Language	10	34	24	8.93	.001
Fingerspelling	2	11	9	5.11	.001
Writing	8	30	22	7.23	.001
COMMUNICATIONS SKILLS					
INVENTORY	5	10	5	5.54	.001
VINELAND					
Communication Category	22	29	7	3.50	.001

TABLE 2
Social Development Comparison of Pre and Post Percentage
N = 34

	Pre	Post	Change (Post-Pre)	t	p
SOCIAL LEARNING CURRICULUM					
Social Learning Aspect					
Drinking/					
Pouring	51	82	31	9.02	.001
Eating	32	60	28	6.71	.001
Dressing	32	59	27	5.39	.001
Bathroom					
Behavior	42	62	20	4.80	.001
Personal Care	31	43	12	3.88	.001
BEHAVIORAL CHARACTERISTICS PROGRESSION					
Socialization Categories					
Impulse					
Control	32	60	28	5.25	.001
Interpersonal					
Relations	24	45	21	4.25	.001
Social Eating	21	63	42	9.07	.001
SOCIAL INTERACTION SCALE					
	37	55	18	6.27	.001
VINELAND					
Total Score	47	50	3	1.64	n.s.
Age Equivalent (in years)	3.6	5.3	1.7	8.75	.001
Social					
Quotient	32	42	10	4.47	.001
TROPE	18	32	14	5.55	.001

The *Vineland Social Maturity Scale* showed a 3% gain in total score from 47% to 50% which was not significant. The *Age Equivalent* of the scale, however, increased from 3.6 to 5.3 years — an increase which was significant at the .001 level. Furthermore, the *Social Quotient* showed a 10 point increase from 32 to 42 which was significant at the .001 level. This last figure is particularly meaningful in that it represents the ratio between *Social Age* and *Chronological Age* (multiplied by 100 to eliminate the decimal point). In as much as that ratio has moved closer to unity (which is the case when the *Social Age* equals the *Chronological Age*) it indicates that the children's social progress has exceeded the gain which would have been expected on the basis of maturation alone and that the project has had a beneficial effect in bringing their social skills closer in line with their age.

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