DOCUMENT RESUME

ED 393 256 EC 304 700

AUTHOR Watson, Joan L.
TITLE Improving Communication between Regular Students and a Physically Impaired Non-Verbal Child Using Alternative Communication Systems in the Kindergarten Classroom.
PUB DATE Jan 95
NOTE 66p.; M.S. Practicum, Nova University.
PUB TYPE Dissertations/Theses - Practicum Papers (043) -- Tests/Evaluation Instruments (160)

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS *Augmentative and Alternative Communication; Case Studies; *Cerebral Palsy; Classroom Communication; *Classroom Techniques; Communication Aids (for Disabled); *Communication Disorders; Communication Skills; Inclusive Schools; Interpersonal Communication; Kindergarten; *Nonverbal Communication; *Peer Relationship; Primary Education; Skill Development; Social Integration
IDENTIFIERS *Communication Boards

ABSTRACT

This practicum project was designed to improve communication in the kindergarten classroom between regular students and a mainstreamed nonverbal child with cerebral palsy. A target group of 24 pre-kindergartners was exposed to 12 weeks of the intervention which included such strategies as teaching the verbal students how to identify communication board symbols, how to use a communication board with the nonverbal student, and how to encourage and prompt the nonverbal student to use the communication board when appropriate. All program objectives were met as indicated by a comparison of teacher-made pre/post-tests and direct observation of interactions among students. Individual chapters of the practicum report detail the project's purpose, research review and solution strategies, method, results, and recommendations. Appendices include the communication pre/post-test, observation form, and personal observation questionnaire. (Contains 13 references.) (Author/DB)

IMPROVING COMMUNICATION BETWEEN REGULAR STUDENTS AND A PHYSICALLY IMPAIRED NON-VERBAL CHILD USING ALTERNATIVE COMMUNICATION SYSTEMS IN THE KINDERGARTEN CLASSROOM

by

Joan L. Watson

A Practicum Report

Submitted to the Faculty of the Center for the Advancement of Education of Nova University in partial fulfillment of the requirements for the degree of Master of Science.

January 1995

Abstract

Improving Communication Between Regular Students and a Physically Impaired Non-Verbal Child Using Alternative Communication Systems in the Kindergarten Classroom
Watson, Joan L., 1994: Practicum Report, Nova University, Abraham S. Fischler Center for the Advancement of Education.
Descriptors: Communication, Cerebral Palsy, Kindergarten, Mainstreamed, Non-Verbal Communication, Alternative Communication Devises, Augmentative Communication Devises, Communication Boards, Communication for Non-Verbal Handicapped.

This study was designed to improve communication in the kindergarten classroom between regular students and a mainstreamed, physically impaired, non-verbal child with cerebral palsy. A target group of 24 pre-reading kindergartners was exposed to 12 weeks of an implementation plan based on research designed to enable the handicapped student to more effectively communicate with peers. Strategies included teaching the verbal students how to identify communication board symbols, how to use a communication board with the non-verbal student, and how to encourage and prompt the non-verbal student to use the communication board when appropriate. The project was successful and all the program objectives were met. The target group improved in all areas as indicated by teacher made pre- and posttests, and by direct observation of interactions among students. Appendices include a communication pre- and posttest, observation form, and personal information questionnaire.

Authorship Statement/Document Release

Authorship Statement

I hereby testify that this paper and the work it reports are entirely my own. Where it has been necessary to draw from the work of others, published or unpublished, I have acknowledged such work in accordance with accepted scholarly and editorial practice. I give this testimony freely, out of respect for the scholarship of other workers in the field and in the hope that my work, presented here, will earn similar respect.

Joan L. Watson
student's signature

Document Release

Permission is hereby given to Nova University to distribute copies of this applied research project on request from interested parties. It is my understanding that Nova University will not charge for this dissemination other than to cover the costs of duplicating, handling, and mailing of the materials.

Joan L. Watson
student's signature

December 20th, 1994
date

NOVA UNIVERSITY
Abraham S. Fischler Center
for the Advancement of Education

OBSERVER'S VERIFICATION FORM

Verification of Practicum Activity

Dear Observer:

Practicum students in Nova's M.S. and Ed.S. programs are asked to provide external verification that the project activities reported in their final practicum documents took place as described. You have been designated an observer to fulfill this confirmation function by the student named below. On this sheet, then, please write a note attesting to your knowledge of the project activity described in the final practicum report to which this will be attached. (Note that you are not asked to evaluate or make judgments about the quality of the project.)

Practicum Title Improving Communication Between Regular Students and a Physically Impaired Non-Verbal Child Using Alternative Communication Systems in the Kindergarten Classroom

Student's Name Joan L. Watson

Project Site Roseborough Elementary Date May 26, 1994

Observer's Name Stanley C. Brookes Stanley C. Brookes
please print *please sign*

Observer's position Principal Phone # (904)383-6116

Observer's comment on impact of the project (handwritten):

The project seemed to have a positive impact on all the children.

Table of Contents

List of Tables

List of Figures

Chapter 1

Purpose

Background

The practicum project took place in a public elementary school in Central Florida. The small town in which the school was located was a haven for retirees, with a population of 7,535. The town was considered an antique collector's paradise, and was also known for a quaint downtown shopping area. The area had numerous businesses and citrus related companies, and was noted for a variety of annual community social events.

Built in 1922, the school was originally used as the town high school, serving 105 students. The school consisted of five separate buildings, a cafeteria and a gymnasium, spread out over three acres of land. In 1956, the city bought an adjoining piece of land to build a new high school, and the site was transformed into an elementary school. A new wing was added in 1981 to accommodate the office, library, teacher's lounge, conference room, and six additional classrooms. In the mid to late 1980's, three portables were added to the

outskirts of the property to house a music room, pre-kindergarten migrant program, and pre-kindergarten handicapped program.

The school's surrounding area consisted of mostly older single family homes, with some low income housing within walking distance. The school also served the needs of a transient population of children who were bused in from the nearby migrant trailer camp. The student population in the school was: 54 percent White American, 26 percent Black American, 18 percent Hispanic, with the remaining 2 percent Asian and American Indian. The background of the instructional staff was much different at 84 percent White, 8 percent Black, and 8 percent Hispanic.

In order to further fill the needs of the community, an Emotionally Handicapped unit, Chapter I program, and Limited English Proficiency program were added in the mid 1980's. Also, approximately 64 percent of the children participated in the free and reduced lunch program. Most of the parent involvement in the school came from a small group of concerned parents who lived in the surrounding single family homes.

The large school campus was well maintained and quite attractive, with large oak and magnolia trees surrounded by beautiful azaleas. There were however, drawbacks to the size and age of the campus. Most of the original buildings had well-worn walls, floors, and leaky ceilings. The plumbing and wiring was out-dated, and there was little storage in the smaller classrooms.

The sidewalks surrounding the two courtyards were cracked and uneven after years of wear, and made it difficult for wheel chairs and walkers to navigate. Certain areas of the expansive campus were not wheel chair accessible unless a long detour was taken. This factor hindered handicapped students upon arrival, dismissal, and throughout the day. However, the school was on the County's waiting list for sidewalk repair, and the problem was expected to be corrected sometime in the near future.

The writer of this practicum taught kindergarten aged children from varied cultures and socio-economic backgrounds, for the past eight years. However, this year was the first time that a physically impaired child had been mainstreamed full time into this teacher's regular kindergarten classroom. The child was diagnosed

as having cerebral palsy, was non-verbal, and required a full time classroom aide. The physically impaired child attended the on site pre-kindergarten handicapped program, and was the first graduate with cerebral palsy to be mainstreamed full time into a regular classroom. Fortunately, this writer's classroom was one of the newer, larger rooms, which had two rest rooms, a sink, water fountain, walk in closet, and large storage capacity.

Problem Statement

"Conversation is the laboratory and workshop of the student."

Ralph Waldo Emerson

The words of Emerson can only begin to express the importance of communication in the classroom. Children greatly benefit from discussing and sharing ideas, stories and experiences with each other. Unfortunately, some students are unable to communicate effectively through speech because of physical impairment. Alternative or augmentative systems must be designed to develop an effective communication system for these children.

The target group in this study was a kindergarten class of 24 students, ages five and six. The majority of

the children were from middle to low income, working class families. Of the total 24 students, there were 42 percent White, 25 percent Black, 29 percent Hispanic, and 4 percent Indian. Fifty percent were boys, and 50 percent were girls.

The problem of this study was to give the handicapped, non-verbal student, efficient means of increasing vocabulary to promote effectual communication with classmates. Communication directly between the handicapped student and classmates without adult assistance was desired. The problem was documented by results of the Peabody Picture Vocabulary Test, the Brigance K & 1 Screen, and teacher observations.

The Peabody Picture Vocabulary Test, (see Table 1), was administered at the end of the last school year when the non-verbal child was still in the pre-kindergarten handicapped program. At this time, the child's chronological age was approximately four years older than the language capability age equivalent. Generally speaking, a difference of only six months would be considered acceptable.

Table 1

Peabody Picture Vocabulary Test - Revised

Obtained Test Scores	
Raw Score	20
Standard Score Equivalent	40
Percentile Rank	-1
Stanine	1
Age Equivalent	**2.10**
Chronological Age	**6.6**

The Brigance K & 1 Screen, (see Table 2), given at the beginning of the school year showed the child's score for syntax and fluency as zero out of ten, thus classifying the child as non-verbal. However, the test also indicated that the non-verbal child was capable of correctly identifying picture vocabulary. This skill is a prerequisite for successfully utilizing a graphic representational system, or communication board.

Table 2

Brigance K & 1 Screen

Basic Screening Assessments	Student's Score
1. Personal Data Response	4/10
2. Color Recognition	9/10
3. **Picture Vocabulary**	**10/10**
4. Visual Discrimination	2/10
5. Visual-Motor Skills	0/10
6. Gross Motor Skills	0/10
7. Rote Counting	3/5
8. Identification of Body Parts	3.5/5
9. Follows Verbal Directions	5/5
10. NumeralComprehension	6/10
11. Prints Personal Data	0/5
12. **Syntax and Fluency**	**0/10**
TotalScore	42.5/100

Prior to the proposed implementation, a manual communication board was being utilized between the non-verbal student, regular and special teachers, and the child's full-time aide. With the help of that aide, the handicapped child was also capable of operating a computer mouse and enlarged key-board. However, the only communication that existed with peers was through non-verbal gestures and virtually un-intelligible vocalizations which consisted of primarily vowel sounds. The goal of this research was to increase the target group's awareness of the importance of effective

communication, and to devise a plan using teacher-made materials to allow for accurate communication between the handicapped student and classmates.

Two factors were considered when devising the implementation plan. First, the target group of kindergartners were pre-readers, so the plan implemented had to be geared to the non-reader. Second, the nature of the child's handicap made clear speech an unreachable communication goal at the time of the project. Therefore, the plan had to incorporate a communication method or tool which would be relevant to the students, classroom and classroom activities. The plan also had to include pictures, not just words, and could not require speech on the part of the handicapped child.

Outcome Objectives

The primary objective of this study was to increase effective two-way communication between a class of 23 kindergartners and a mainstreamed, non-vocal, physically impaired child with cerebral palsy. The proposed objectives were:

1. Over a 12 week period, the targeted group of kindergartners will increase knowledge of standard

communication board symbols by 20 percent or more, as shown on a teacher made pre and posttest. (Appendix A)

2. After the 12 week program, the targeted group of kindergartners will prompt the non-vocal student to use the graphic representational system when warranted by an increase of at least 20 percent as measured by a pre and posttest observation form. (Appendix B)

3. After participation in the 12 week project, the non-vocal child will respond to peers using a graphic representational system with at least 80 percent accuracy when peers are prompted by a set of teacher directed questions which will solicit personal information from the handicapped child. (Appendix C)

Chapter II

Research and Solution Strategy

Research

Although the terms "speech" and "language" are often used interchangeably, there is an important distinction. Technically, speech is the process of producing sounds and combining the sounds into words to communicate. Language however, can mean any set of spoken words, written symbols or gestures that people use to communicate with each other. Therefore, speech is only one type of language.

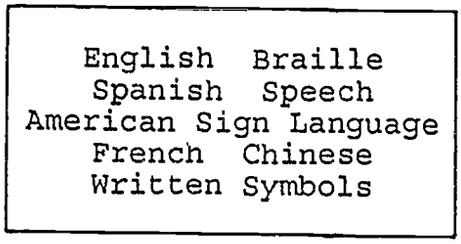


Figure 1

Types of Language
(Source: Children With Cerebral Palsy: A Parent's Guide, Geralis, 1991)

It is widely viewed that cognitive performance and language are highly intertwined. Without language or a symbolic system for labeling ideas and concepts, real

thinking and cognitive activity may not occur (Peterson, 1988). To communicate in any language, people must have both the ability of expressive and receptive language. Unfortunately, do to poor muscle coordination, children with cerebral palsy usually have trouble expressing thoughts through speech. Muscle tone problems often make it difficult or impossible for children with cerebral palsy to produce the variety of speech sounds necessary for effective verbal communication.

A severe language delay can have a potentially far-reaching impact upon a child's educational, emotional, and interpersonal achievements (Aram, Ekelman & Nation, 1984). Difficulty in using language to communicate with others places children in a less advantageous social position. Because non-verbal students cannot engage skillfully in reciprocal communicative interactions with peers, non-verbal students become more dependent on adults. With limited communication capabilities, the non-verbal child is less able to share ideas, pose questions, fill needs, or carry out dialogues in play activities.

Communication with a noncommunicative person can be frustrating for both parties. Communication is

especially hard on the non-verbal person when repeated efforts to express a thought are repeatedly misunderstood. Peers or adults often say, "Tell me that again", to no avail, or respond with a "Yes", or "Is that so", which may or may not fit what the child has said.

These consequences can extinguish a child's efforts to communicate, and add to the child's growing lack of confidence in the ability to express ideas. Since communication may not seem to work, the child may be less motivated to use speech or oral communication as a means to interact with others (Peterson 1988). Non-vocal children with cerebral palsy must learn alternative communication strategies before becoming frustrated at the inability to communicate intelligibly.

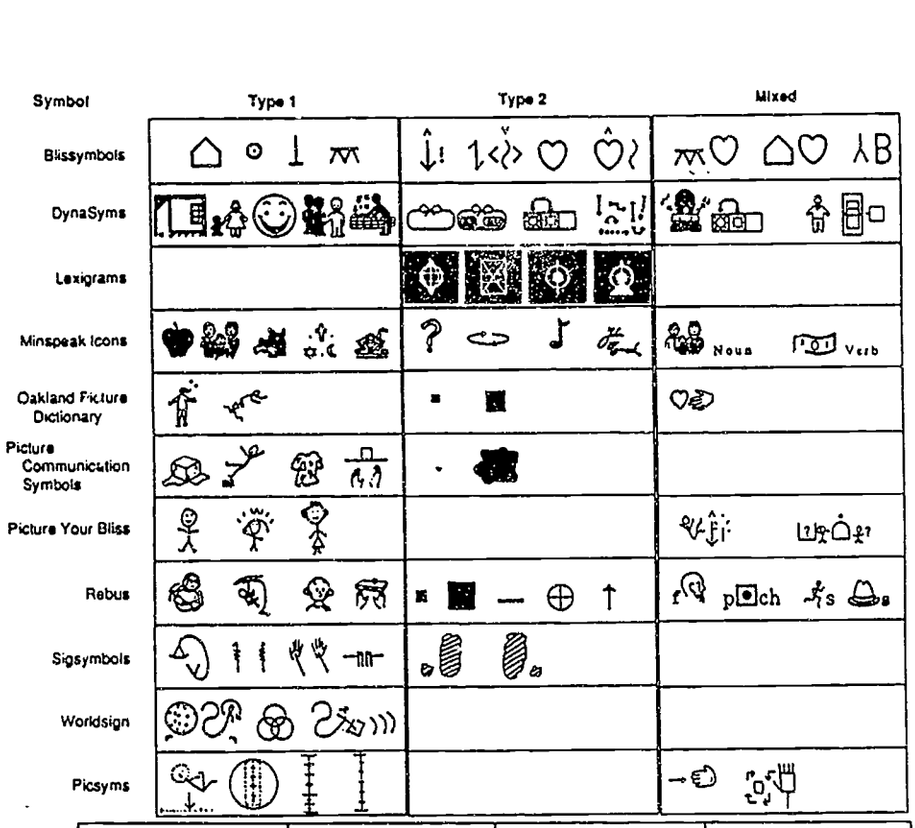
In a study done by Curl, Rowbury & Baer (1985), a social interaction training procedure using picture cues, (photographs of play materials in classroom settings), prompts, and reinforcement was investigated to determine its effect on subject-peer and subject-teacher interaction. One target child was deaf, one was an elective mute, and one was unusually aggressive.

The picture cue technique was designed to minimize teacher involvement, and encourage peer communication.

This technique allowed one child to invite another to interact by displaying a picture of the interaction desired. The results indicated that picture cues facilitate communication and allow independent, social interaction, and are therefore functional and efficient mediating devices.

An interesting article by McNoughton (1993), pointed out the theory that the use of augmentative and alternative communication (AAC) systems may have a positive or negative effect on the literacy acquisition of non-speaking children. For non-speaking children who have severe physical limitations there was a heavy reliance on a graphic representational system (GRS) within some device for expressive communication.

McNoughton's (1993) study classified the types of graphic representational systems (GRS) into Type One, Type Two, and Mixed structures. (See Figure 2) The study suggested the possibility of a relationship between the type of symbols used for communication as a pre-schooler and the child's early reading competencies. The study speculated that the type of GRS used could influence the child's early reading and writing.



	Type 1	Type 2	Mixed
Blissymbols	house; eye; person (erect figure, feet turned out); animal	fall; cold (opposite of hot); feeling; want (feeling + fire)	pet (animal + feeling); home (house + feeling); Bob (man + B)
DynaSyms	room; mother; funny; they; build	conjunction; and; past; action	sang (sing + past); men (man + plural)
Lexigrams		pretzel; potato stick; m&m; peanut	
Minspeak Icons	apple; family; fetch; God; home	question; return; note; name	family; buy
Oakland Picture Dictionary	cold; fall	little; big	want
Picture Communication Symbols	cold; fall; dirty; want	little; big	
Picture Your Bliss	man; (to) think; woman		(to) fall; "Know what?"
Rebus	cold; fall; dirty; want	little; big; is; all; up	fold (f + old); pinch (p + in + ch); runs (run + s); hats (hat + s)
Sigsymbols	fall; cold; want; same	little; big	
Worldsign	Worldsign; interconnected; writing		
Picsyms	fall; cold; little; big		want; make

Figure 2

Examples of Symbols
(McNaughton 1993)

Being unable to use manual signs or to speak clearly, children with severe speech and physical impairments (SSPI) are restricted in the expressive use of a language mode. These children must have some form of a communication board or voice output device before communicating effectively. In a study done involving two young adults having severe mental retardation and limited functional communication, Mineo (1991) stated a need to consider size, color, and photographic quality in symbols. Personalizing the symbols would also help to relate directly to the learner's experience.

Although there are notable examples of exceptional nonspeaking individuals, large numbers of persons with severe speech and physical impairments (SSPI) experience difficulty in learning to read and write (Berninger & Gans 1986). Since children with (SSPI) cannot use speech or sign language for expressive communication, these children must rely on the graphic representational system within the augmentative and alternative communication system for language explorations. This involves a completely different developmental experience than that of the nondisabled child.

Nelson's (1985) description of the language and cognitive learning process as participatory interaction offered a useful construct for examining the language and literacy development of the child with SSPI. Spoken words were the symbols used by the nondisabled child to participate. Graphic representational systems provided the symbols for the participation of the child with SSPI. The handicapped child's learning and extent of communication was influenced by the GRS's language capacity.

According to Calculator (1994), an augmentative and alternative communication system, (AAC), had value to the extent that the system enabled children to connect with people and events, and could alter the child's surroundings as the need arose. An AAC could also help the person achieve greater independence, allowing for choices in food, clothing, friends and work tasks. Graphic representational systems enhanced student's communication skills by accelerating rates of communication and expanding the range of topics and ideas that can be communicated.

However, in the opinion of Calculator (1994), "technology first" objectives were to be avoided.

Expensive, high-tech equipment can be difficult to learn to operate, artificial sounding, and may be dehumanizing to the user. According to Calculator (1988), the requisites of communication were: a reason to communicate, something to communicate, a way to communicate, places in which to communicate, and people with whom to communicate. Also necessary in the classroom setting, of course, was the time and opportunity to communicate. Calculator felt it was important to promote participation by teaching others in the class to recognize, interpret, and correctly respond to communicative attempts by the non-verbal child.

In conclusion, the research surveyed by this practicum author showed that a variety of graphic representational systems (GRS) were available to aide in the communication of the non-verbal student. The crucial task would be to use the most appropriate form of GRS, depending on the developmental stage of the child. Also to be considered would be the relevance of the symbols to the child. The symbols should be somewhat personalized, be applicable to the child's environment, and be easily understood by recipients of the communication.

Unfortunately, there was no graphic representational system available at the time of the practicum project that could fulfill all of the functions achieved by talking. All systems, no matter how well designed, remained a finite set of symbols which may or may not fulfill the exact needs of the user at any given time. Graphic representational systems should be continuously modified and expanded to meet the growing needs of the non-verbal student.

Solution Strategy

The writer of this practicum chose to adapt and implement the Picture Communication Symbols Type I graphic representational system cited by McNaughton (1993). (See Figure 2) The Type I Picture Communication Symbols were chosen for this implementation plan because of picture clarity, availability through the County's speech department, and the fact that the word was written under every symbol. Although the children in this target group are still non-readers, it was very important to this writer that the picture symbols used in this study should all contain the written word describing the symbol.

This writer believed learning to read to be the most important skill taught in school. Only by some day really learning to read and write, will the non-vocal child in this study be completely able to share ideas, hopes, and dreams. To increase the relevance and quality of the Graphic Representational System, classroom photographs were included as Curl, Rowbury & Baer (1985) used in the picture cue study. Personalizing the GRS with photographs of family, friends, and pets as suggested by Mineo (1991), was also chosen to make the communication more relevant to the user.

The writer of this practicum rejected using the Type II symbols and Mixed set of symbols as shown in Figure 2, on the basis that these symbols were too abstract and thus age inappropriate. Type I Blissymbols, Sigsymbols, Worldsign, and Picsyms were also ruled out as too difficult to comprehend for this target group. Other computerized communication systems existed which "say" a desired word once the picture is found among a great quantity of keyboards. This option was ruled out due to the artificial sounding "voice", extensive training required, and overall expense of the system.

Using a graphic representational system would certainly take more time and effort for all involved. However Fergeson, as noted by Calculator (1992:9), believed that the goal should not only be to foster communication but, also membership:

> The purpose of all of our interventions, programs,indeed, schooling in general is to enable all students to actively participate in their communities so that others care enough about what happens to them to look for ways to include them as part of that community.

Chapter III

Method

This study was implemented during the second semester over a period of 12 weeks. The target group was a class of 24 kindergartners including one physically impaired, non-vocal child with cerebral palsy. Do to the attention span capabilities of this age group, each lesson or training session lasted no longer than 40 minutes.

The students met with this writer once a week for each of the 12 weeks to implement the lesson plans, however, skills learned were practiced throughout each day. During the first week, the students took the pretest and participated in a motivating introductory activity which included taking turns sitting in the handicapped child's special chair, riding in and pushing the child's wheel chair, and walking behind the child's walker. The writer began bi-weekly observations of the target group's ability and willingness to prompt the handicapped student to use the graphic representational system (Appendix B).

In week two, the writer introduced the handicapped child's generic graphic representational system, or communication board, to the target group. Previously, the only people familiar with this board were the classroom teacher, the child's aide, and the child's speech teacher. In small groups, the teacher modeled appropriate methods of interacting with the non-vocal child by using the communication board. The handicapped student was delighted to take an active role in training the others, and also demonstrated how to use the computer software program "Kid Works 2", used for handwriting and journal writing.

Weeks three, four and five were dedicated to the instruction of communication board symbols. Lesson three focused on relevant classroom nouns and verbs. Lesson four emphasized symbols relating to the cafeteria and gym, and lesson five introduced symbols relating to the music room and media center. Lessons three, four, and five, required the children to brainstorm needed symbols for each area. Then in small cooperative groups, the children illustrated or colored applicable symbols to be used by the non-verbal student. Each communication board consisted of one or more 12 by 18 inch poster board

sheets. Each communication board also contained a photograph of the handicapped child, the subject area teacher, and up to 25, two by two inch picture symbols per sheet.

During each of these lessons, a new communication board was designed and created especially for a certain aspect of the school day. Photographs were taken of the students and teachers and placed on the appropriate communication board. Once each communication board was created, the board became an integral part of the child's graphic representational system, and was taken everywhere by the child. The handicapped child was encouraged to use the board with classmates, faculty members, and at home, to share the day's events with family members.

In lesson six, the class reviewed all the symbols previously made in lessons three, four, and five. The review was conducted by the non-verbal child using a pointer to point to each symbol, while the class identified the picture with a choral response. The class then proceeded to post copies of the appropriate symbols around the school at the correct locations, (gym, media center, cafeteria, music room, and classroom).

Lesson seven re-emphasized the importance for the non-verbal student to always use the graphic representational system. The writer explained that a non-verbal person without a communication board, was like a vocal person with laryngitis. Children role played prompting the handicapped student to use the communication board when necessary. A sign was decorated and attached to the child's wheel chair which read, "Ask me about my communication board." Homework was given to the handicapped child and parent to come up with seven to ten symbols of things used or done at home, from The Picture Communication Symbols Books I, II, and III. A disposable camera was also given to the parent to take pictures of important people and places.

Lesson eight incorporated the theme of "The Farm" into graphic representational symbols relating to a field trip to a nearby operating farm. Children recalled, illustrated, and colored picture symbols of animals and activities (milking a goat, going on a hayride) experienced at the farm. A communication board was created using picture symbols of farm animals as well as photographs of the children participating in activities on the actual field trip. The handicapped child used all

the farm symbols to actively participate in class and family discussions about the trip.

In preparation for lesson nine, the writer organized and compiled the photographs and picture symbols chosen by the non-vocal child. The writer was pleased that the child had chosen over 75 picture symbols! The non-vocal child's mother was a guest speaker, and helped the child share the communication board created specifically so that the child could share family events with classroom peers.

These symbols represented family members, pets, toys, and actions performed at home. Once again, the handicapped child took an active roll in training classmates and teacher about the symbols by using a pointer and having others respond. The non-vocal child gave feedback to the group by holding up yes/no cards in response when appropriate.

Lessons ten and eleven involved pairs of children communicating by using mini-communication boards. First, partners colored and discussed the symbols on that week's board. Next, the teacher gave phrases for one child to point out to the other child, (e.g."I want a drink"). By the end of each

lesson, children took turns making up phrases and having the other child interpret what was being "said." Weeks ten and eleven had different communication boards, and required different partners. However, the same rule applied- "no talking while pointing out phrases."

On the twelfth and final week, the students took the communication board symbols posttest (Appendix A). The target group then took turns asking the non-verbal child a series of teacher created questions which required personal information (Appendix C). The handicapped child responded to the questions by pointing to the appropriate symbol, and was thrilled when the whole class verbalized the answer [illegible]ly, the children participated in a culminating activity to bring closure to the unit. Pairs of children made and enjoyed communicating with one another using paper cup and string telephones.

Chapter IV

Results

The desired outcome of this practicum was to increase effective two-way communication between a class of kindergarten students and a non-vocal, physically impaired child with cerebral palsy. The instrument used for measuring this outcome was a teacher-made communication board symbols test (Appendix A). The students were given this instrument first as a pre-test and at the end of the implementation as a posttest. The students were expected to improve scores on the posttest by at least 20 percent. This growth would show that the students had increased knowledge of communication board symbols, and were therefore better able to communicate with the handicapped student.

The kindergartners' ability and willingness to prompt the handicapped student to use the graphic representational system when warranted was also expected to rise 20 percent as measured by a pre and posttest observation form (Appendix B). Finally, the non-vocal child was to respond to peers using a graphic

representational system with at least 80 percent accuracy when asked a series of teacher directed questions, (Appendix C). In addition to the posttest, observation form, and questionnaire, an anecdotal record was written in order to keep track of any progress shown in communication skills between the handicapped student and peers.

Monitoring of the progress made by the students was done throughout the period of implementation. The writer met weekly with other involved personnel, (occupational, speech and physical therapists, music, media, physical education and Chapter I teachers), to discuss any changes in behavior of the student(s). The writer also kept a journal in which any relevant observations or occurrences were recorded.

Continuous communication with the non-vocal child's parents was maintained throughout the study. Observations of changes in communication attempts at home and with family members were noted. The writer also continuously monitored the student's motivation and attitudes about the communication system.

Review of the pre- and posttest scores showed an overall improvement for all 24 students (Figure 3).

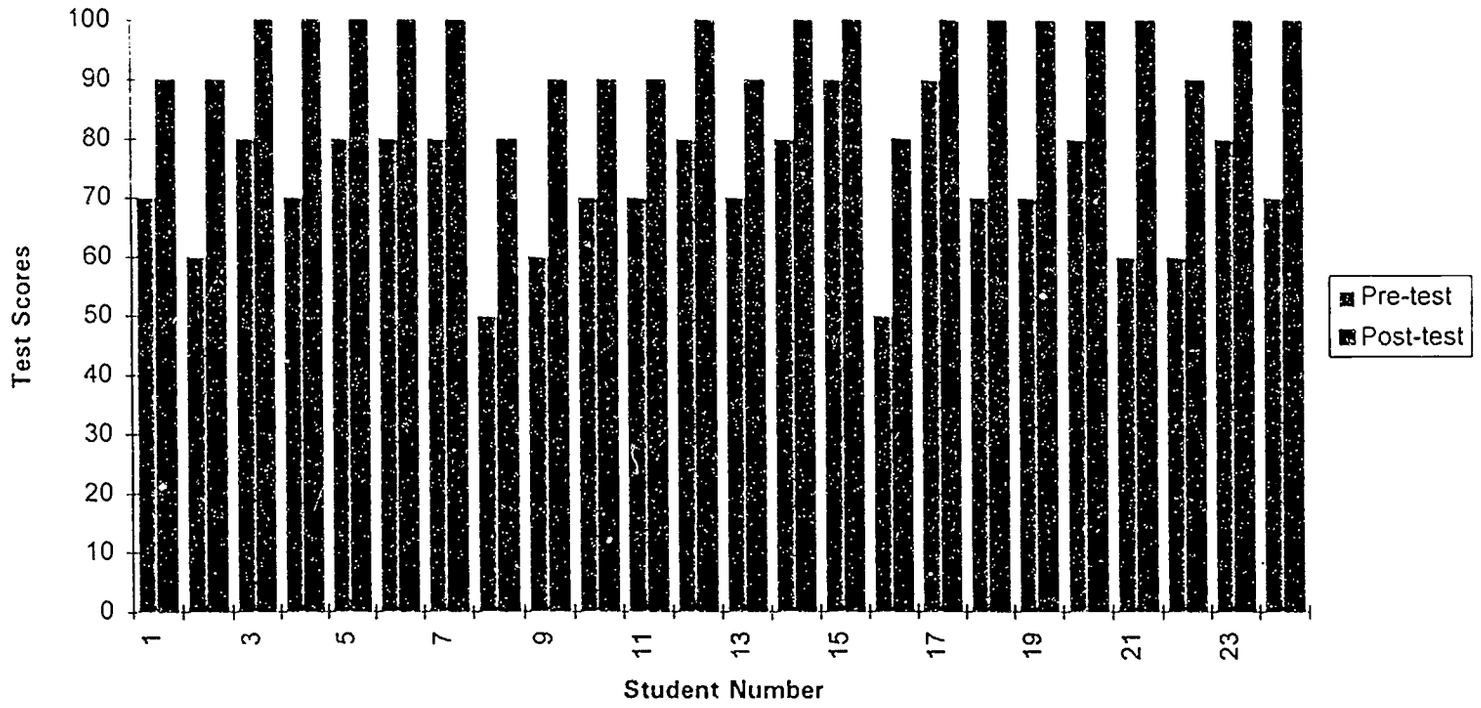


Figure 3

Analysis of Progress for Pre- and Post Test Scores

One student increased pre- and posttest scores by 40 percent; nine increased scores by thirty percent; twelve students increased by twenty percent; and two by 10 percent.

The target group was observed bi-weekly by the writer to monitor the kindergarten student's use of the communication board. The increase in the use of the communication board from week one to week twelve exceeded the writer's expectation of 20 percent. The percentage of times the handicapped child initiated the use of the communication board increased from five percent to 30 percent. The percentage of times the regular students prompted the use of the communication board increased from one percent to 50 percent (Figure 4).

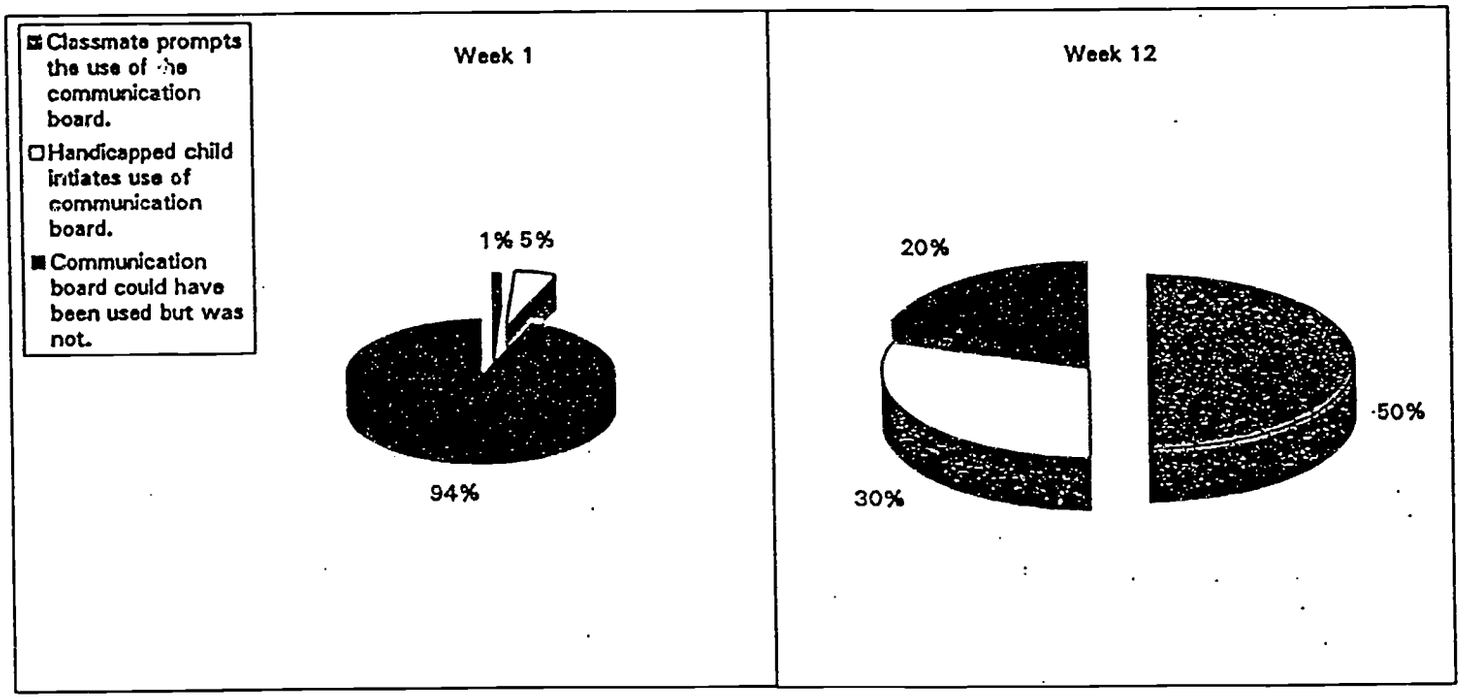


Figure 4
Observation Analysis

Frequency of Communication Board Use

After participating in the twelve week project, the non-vocal child was able to respond to peers using a graphic representational system with 90 percent accuracy. Students took turns asking teacher created questions which required personal information from the handicapped child. An enlarged version of Appendix C was used to enable the whole class to see the handicapped student's responses.

By the end of the implementation period, it was unanimous among this writer, the other professionals involved, and the child's parents, that the practicum had had a positive effect on the handicapped student's self-esteem and self-confidence. Monitoring of the child's progress indicated that the child initiated communication with other students as well as adults, and was **understood**. People were able to recognize and interpret what was being "said", and could therefore correctly respond to the child's communication attempts. This in turn, led to fewer behavior problems due to a decrease in the frustration of not being able to communicate.

The writer's journal also indicated that the other kindergartners seemed to enjoy learning a method to

better communicate with a beloved, special classmate. Favorite activities included trying out the handicapped student's wheel chair, walker, and computer, and working with a partner or in small groups creating and coloring communication board symbols. The students especially enjoyed making up phrases using communication board symbols and having a friend guess what was "said".

Although this practicum involved visual symbols, interestingly enough, and to the delight of the handicapped child's parents and speech teacher, the child's attempts at oral language increased. The usually quiet child would make eager efforts to communicate orally whenever using the communication board. An added bonus was the fact that the non-English speaking children in the classroom also discovered a new, effective way to communicate!

Chapter V

Recommendations

In all of the research done by this writer concerning the education of the non-verbal child, two points were stressed repeatedly. First, the physically impaired non-verbal child must have some form of communication system in order to connect with other people by expressing needs, wants, and thoughts. Second, the communication system need not be the most technologically advanced, however it must be developmentally appropriate, initiated at the earliest age possible, and be updated and expanded regularly.

The writer felt that the positive results of this study were in part due to the active and willing participation of the non-verbal child's parents and family. Without the continued support and effort of the family to use the communication boards at home, the progress of the non-vocal child would surely have been diminished. At school, the goal was to minimize teacher and adult involvement, and encourage peer

communication, interaction and acceptance.

The Education for All Handicapped Children Act, also known as Public Law 94-142, mandates that in order to receive Federal funds under the Act, every school system in the nation must provide an education to all handicapped children. This education must be provided at no cost, in the least restrictive environment, and insofar as possible, with non-handicapped children. Due to this legislation, the regular classroom teacher is faced with the challenges of fulfilling the special needs of the handicapped student. Unfortunately, these teachers may have little or no training in strategies and techniques for teaching the handicapped child.

Due to Public Law 94-142, sooner or later, all regular classroom teachers will be faced with the challenges of a special needs child. The writer of this practicum strongly feels that it is imperative that in-service training be provided for teachers responsible for meeting the needs of the handicapped child. The writer of this study will endeavor to share this research with all the faculty and administrators at the school site. Also, the completed practicum will be added to the school's professional library in hopes of helping

teachers of other non-verbal children.

The writer especially emphasized the importance of the continued use of a communication system to the team of first grade teachers who are currently instructing the non-verbal child who was part of the target group. The information learned in this practicum project will also be shared with the County Level Coordinators in the Exceptional Student Education and Speech and Language Departments. The writer hopes this research will benefit other regular classroom teachers throughout the County who may be faced with a mainstreamed, non-vocal child. Most importantly, this writer hopes that the knowledge gained and behaviors changed as a result of this study will brighten and enhance the lives of other non-verbal children, throwing open the doors of reciprocal and effective communication forever.

Reference List

Aram, D.M., Ekelman, B.L., & Nation, J.E. "Pre-schoolers with Language Disorders: 10 Years Later." Journal of Speech and Hearing Research, Volume 27, 1984, pp.232-244.

Berninger, V.W., & Gans, B.B. "Language Profiles in Non-speaking individuals of Normal Intelligence with Severe Cerebral Palsy." Augmentative and Alternative Communication, Volume 2, 1986, pp.45-50.

Calculator, S. "Evaluating the Effectiveness of AAC Programs for Persons with Severe Handicaps." Augmentative and Alternative Communication, Volume 4, 1988, pp. 177-179.

Calculator, Stephen. Lecture on Communication Supports for Students With Severe and Profound Disabilities in Inclusive Classrooms, Florida Speech Pathology Institute, Orlando Florida, January 1994.

Curl, R.M., Rowbury, T.G., & Baer, D.M., "The Facilitation of Children's Social Interaction by a Picture-Cue Training Program." Child and Family Behavior Therapy, Volume 7, Summer 1985, pp.11-39.

Geralis, Elaine and Others Children With Cerebral Palsy: A Parent's Guide, Woodbine House, Inc. 1991.

Mayer-Johnson, Roxanna The Picture Communication Symbols Book I, Solana Beach, CA: Mayer-Johnson Company, 1981.

Mayer-Johnson, Roxanna The Picture Communication Symbols Book II, Solana Beach, CA: Mayer-Johnson Company, 1985.

Mayer-Johnson, Roxanna The Picture Communication Symbols Book III, Solana Beach, CA: Mayer-Johnson Company, 1992.

McNaughton, Shirley, "Graphic Representational Systems and Literacy Learning."Topics in Language Disorders Volume 13, February 1993, pp. 58-75.

Reference List Continued

Mineo, B.A. "Picture-Based Language Representation: An Analysis of the Abilities of Two Young Adults with Severe Mental Retardation." Manuscript submitted for publication, 1991.

Nelson, K Making Sense: The Acquisition of Shared Meaning. Orlando, Fl. Academic Press, 1985.

Peterson, Nancy L. Early Intervention for Handicapped and At Risk Children. Love Publishing Co. Denver, London 1988.

Appendices

Appendix A

Communication Pre and Posttest

Appendix A

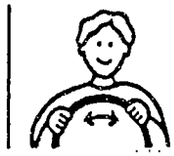
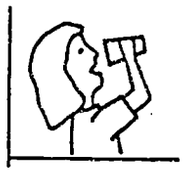
Communication Pre and Posttest

Directions: The children will put a red X on the correct symbol.

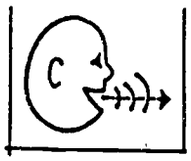
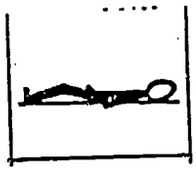
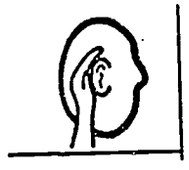
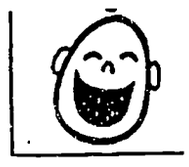
1.



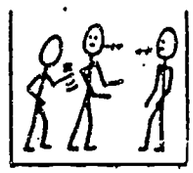

2.

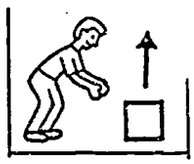
3.

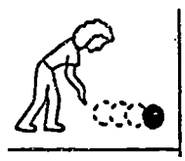





4.

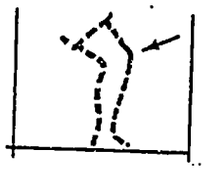


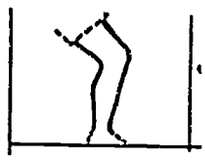
5.

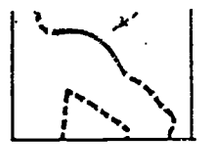




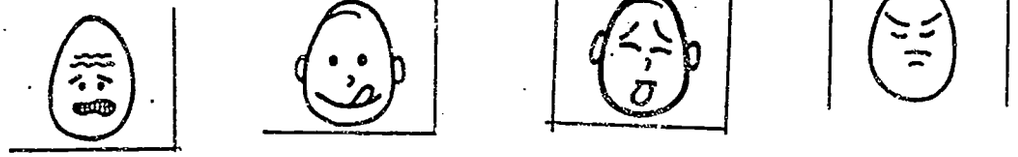
6.

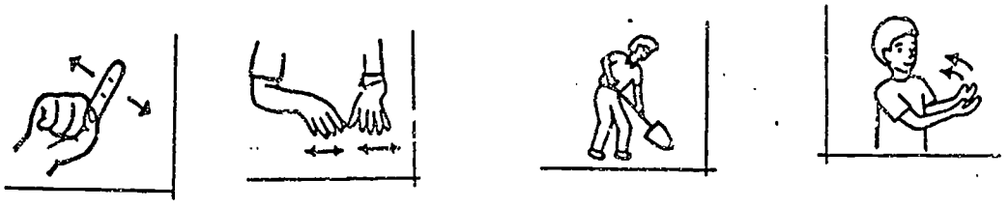


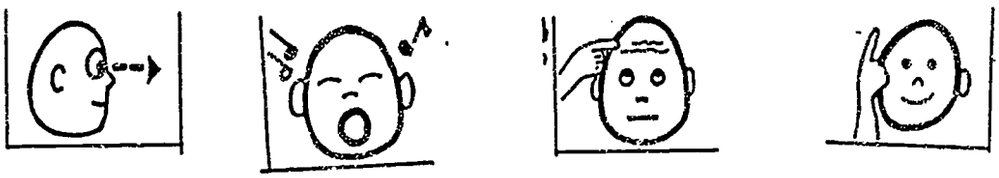




7.

8. 

9. 

10. 

Directions

Communication Pre and Posttest

Children will need their red crayon, and to listen carefully.

1. Put your finger on the cat in row one. Look at all the pictures in the cat row and put a red X on the picture that says "be quiet."

2. Put your finger on the bat in row two. Look at all the pictures in the bat row and put a red X on the picture that shows someone eating.

3. Put your finger on the fish in row three. Look at all the pictures and put a red X on the picture of someone listening.

4. Put your finger on the umbrella in row four. Look at all the pictures and put a red X on the picture of someone saying hello.

5. Put your finger on the bell in row five. Put a red X on the picture that shows someone pulling something.

6. In the flower row, put an X on the picture of the leg.

7. In the bike row, put an X on the picture of someone vacuuming.

8. In the doll row, put an X on the picture showing "yummy."

9. In the cap row, put an X on the picture showing "don't."

10. In the banana row, put an X on the picture showing "I understand."

Appendix B

Pre and Post Implementation Observation Form

Appendix B

Pre and Post Implementation Observation Form

Situations in which the student uses the communication devise. Tally the number of times the given behaviors are observed.

Date_____ Begin Time_____ End Time_____

1. Handicapped child initiates use of communication board. _____

2. Classmate prompts the use of the communication board. _____

3. Communication board could have been used but was not. _____

4. Comments._____

_____

_____

_____

Appendix C

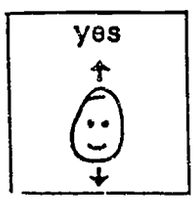
Personal Information Questionnaire

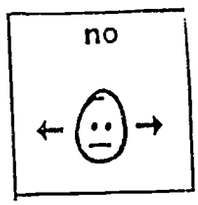
Appendix C

Personal Information Questionnaire

Directions: The teacher will whisper a question to a non-handicapped student. The student will ask the non-vocal child the same question. The non-vocal child will respond by pointing to the correct symbol on the answer sheet.

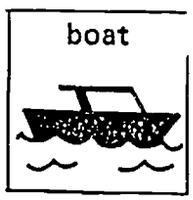
1. Is your name _____?

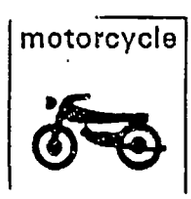


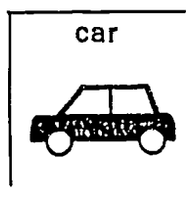


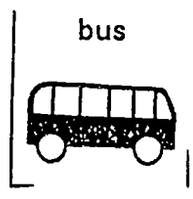
2. Are you a boy or a girl?

3. How did you get to school today?

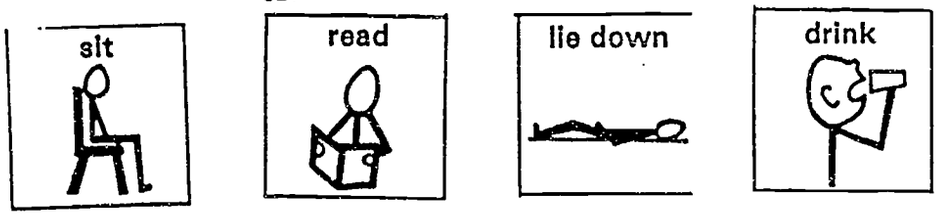




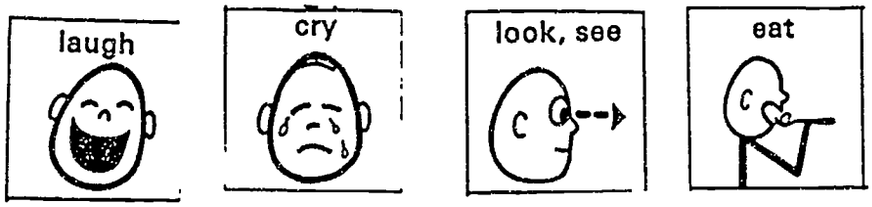




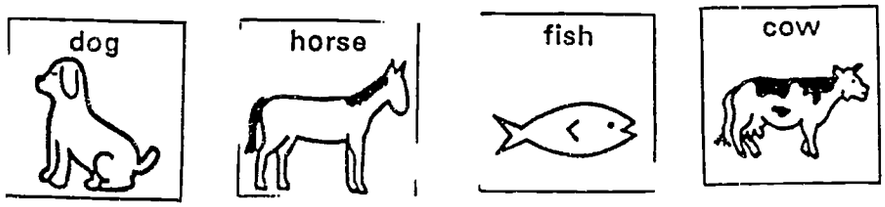
4. If you were thirsty, what would you do?



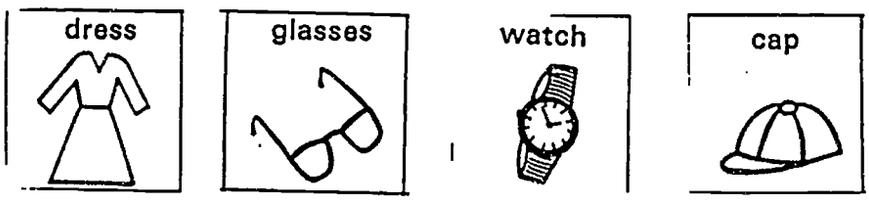
5. If you were hungry, what would you do?



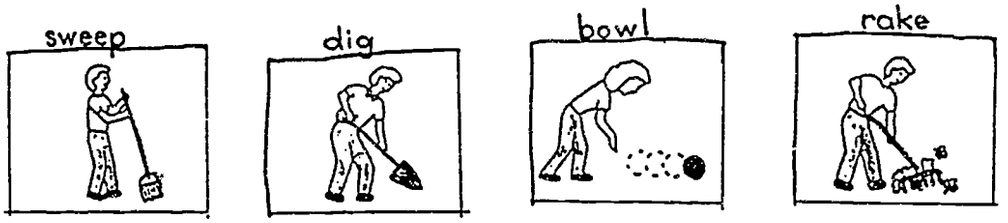
6. Which one of these is like your pet?



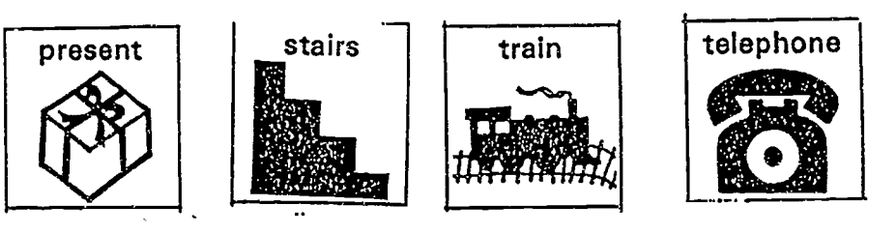
7. What do you wear to help you see better?



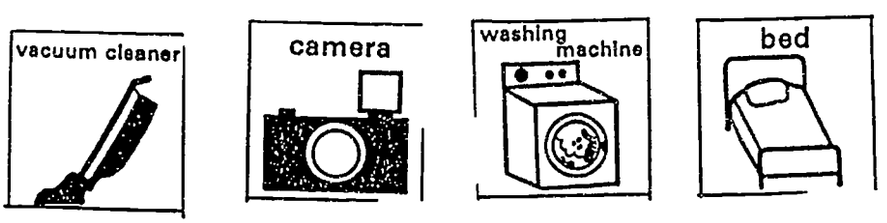
8. What do you do when you go to the bowling alley?



9. Which one did you get on your birthday?



10. What do you use when you go to sleep at night?



Copyright Permission

for

A Practicum Report

by

Joan Watson

1995

FAX TRANSMITTAL MEMO

TO: Roberta Richardson
DEPT: Copyright Perm. FAX #: (301) 417-7550
FROM: Joan Watson PHONE (904) 483-3913
CO: Grad Student FAX #: (904) 483-2984
Post-it™ brand fax transmittal memo 7671

NO. OF PAGES 1

Topics in Language Disorders
Aspen Publishers, Inc.
Attention: Roberta Richardson
200 Orchard Ridge Drive
Gaithersburg, MD 20878

Dear Ms. Richardson,

I am a student enrolled in a graduate education program at Nova University in Fort Lauderdale, Florida. I would like to formally request your permission to use the following material as an inclusion in my assignment.

McNaughton, Shirley (1993)
"Graphic Representational Systems and Literacy Learning"
Topics in Language Disorders/February 1993 pages 66-67
Figure 3, Examples of Symbols.

Please note that the University requires the permission be provided in writing. I am prepared to incur any expenses related to the reproduction of the material. Your assistance will be greatly appreciated. If you need additional information please feel free to contact me at (904) 483-3913.

Sincerely yours,

Joan Watson

Joan Watson

1105 Lake Nettie Drive
Eustis, Florida 32726

Aspen Publishers, Inc.

Joan Watson
For Nova University
Fort Lauderdale, FL
FAX: 904-483-2984

Reference number 9411055

Date: 11-15-94

Dear Sir or Madam:

Thank you for your interest in using our copyrighted material.
Inc. For

PERMISSION IS GRANTED for ONE-TIME, NON-EXCLUSIVE world rights in all languages for reproduction of the ____ item(s) requested.

A credit line must appear on the first page of the reproduction. It must include the name of the publication, the author(s)/editor(s), issue date, volume and page numbers, as well as "Copyright © 19____ Aspen Publishers, Inc."

NOTE: This permission does not extend to portions of text, or to charts, tables, exhibits, graphs or photographs sourced to any other party. To use material attributed to other organizations or authors, you must seek permission from them.

THIS PERMISSION INCLUDES NO ELECTRONIC RIGHTS.

Please send payment, including your reference number, to Aspen Publishers, Inc., Permissions Department, 200 Orchard Ridge Drive, Suite 200, Gaithersburg, MD 20878.

Fees to Photocopy:
_____$1 per article (or part thereof) x number of copies made.
_____13¢ per page x number of pages x number of copies made.
Due: 3 months from date of use.

Fees to Reprint:
_____$25 per piece for tables, figures, or exhibits.
_____$25 per page for text.
Due: 6 months from date of use

→ xxxx Payment Is Not Required for This Particular Use of Material.

Author Approval Required: Yes_____ No xxx
Author's address:

Send Aspen a complimentary copy: Yes_____ No xxxx
We appreciate your interest in our publications. If you need further assistance, call (301)417-7638.

Sincerely,

Roberta Richardson

Roberta Richardson
Permissions Department
Editorial Resources

First Printing April 1981
Second Printing October 1981
Third Printing November 1982
Fourth Printing May 1984
Fifth Printing April 1985
Sixth Printing August 1986
Seventh Printing December 1987
Eighth Printing March 1989

Second Edition
First Printing June 1990
Second Printing September 1991

Mayer-Johnson Company
P.O. Box 1579
Solana Beach, CA 92075
U.S.A
Phone: (619) 481-2489
FAX: (619) 259-5726

ISBN 0-9609160-0-8

First Printing July, 1985
Second Printing August,1986
Third Printing January,1988
Fourth Printing June,1989
Fifth Printing March, 1991

Mayer-Johnson Company
P.O. Box 1579
Solana Beach, CA 92075
U.S.A
Phone: (619) 481-2489

ISBN 0-9609160-1-6

First Printing April, 1992

Mayer Johnson Co
P.O. Box 1579
Solana Beach, CA 92075-1579
U.S.A.
Phone: 619 481-2489
Fax: 619 259-5726

ISBN 0-9609160-7-5