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ABSTRACT

The Preschool Orientation and Mobility Project had four major goals as part of its model development activities: (1) develop an Orientation and Mobility (O&M) curriculum for visually impaired and visually impaired/multiply handicapped infants and children, aged 0-5; (2) develop two O&M screening instruments; (3) develop an O&M information pamphlet for families; and (4) explore the use of microcomputers and the "Sonicguide" as interventions. Project administration activities involved: identification and referral of Project children; identification of an appropriate assessment battery for use in screening, assessment, and programming; identification of critical elements in structuring classroom and home environments; operation of a service delivery system involving home, classroom, and resource center components; and staff development. Evaluation activities focused on developmental gains of the children, appropriateness of the assessment battery and family pamphlet, facilitation of novel route travel by the microcomputer application and facilitation of systematic search patterns by the "Sonicguide" staff knowledge and satisfaction· parent satisfaction; and effective resource usage. Other activities included parent involvement, replication procedures, and project information dissemination. The report's appendices contain training modules on classroom environmental arrangements and use of practicum students, a field test procedures manual, examples of questionnaires and data sheets, etc. (Author/JDD)

PRESCHOOL ORIENTATION AND MOBILITY PROJECT

FOR VISUALLY IMPAIRED CHILDREN

FINAL REPORT

GRANT NO. G008401385

PROJECT #024AH40132

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1987

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PRESCHOOL ORIENTATION AND MOBILITY PROJECT

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ABSTRACT AND EXECUTIVE SUMMARY

GRANT NO. G008401385
PROJECT NO. 024AH40132
(July 1, 1984 - August 31, 1987)

Introduction

The Preschool Orientation and Mobility Project (POMP) provided three major kinds of direct services during the period of the 3-year model demonstration grant. These were: (a) a center-based component that offered a 4-day-a-week classroom program housed in the Susan Gray School for Children, John F. Kennedy Center, Vanderbilt University, (b) a home-based component that offered a once-a-week visit to the child's home to work with the parent(s) and child, and (c) a resource center that offered screenings in six major areas (functional vision, speech/language, developmental, orientation and mobility, physical therapy, and occupational therapy) and programming recommendations on a once-a-month basis to children from across the state.

A total of 80 children between the ages of 6 months and 5 years was referred to the project for service. Of this number, 7 were served through the center-based program, 11 were served through the home-based program, 40 were served through the resource center, 6 were screened in conjunction with other agencies as part of a consultative service, 7 were evaluated and placed on a waiting list, 4 were evaluated and found to not meet eligibility criteria, and 5 either elected to not receive services or were beyond our service boundaries.

Curriculum

The project had four major goals as part of its model development, replication, and dissemination activities. The first goal was to develop an Orientation and Mobility (O&M) curriculum. The curriculum is designed for visually impaired and visually impaired/multiply handicapped infants and children, birth through 5 years of age. The four major areas of the curriculum are formal orientation skills, formal mobility skills, gross motor skills, and fine motor skills. When feasible and appropriate, traditional mobility skills have been modified and extended downward to visually impaired preschoolers so the skills are developmentally appropriate. The orientation section incorporates the cognitive and sensory components required to use traditional or higher order orientation skills. The gross and fine motor areas for infants (0-2 years) provide a foundation of motor behaviors which are needed in order to perform many formal O&M techniques. The motor section for preschoolers (2-5 years) focuses more on developing efficiency in locomotor skills such as gait. There is also a special section of the curriculum for children who use ambulatory aids such as walkers, crutches, wheelchairs, and support canes.

A total of 67 O&M specialsts and teachers of the visually impaired expressed interest in field testing either the curriculum or the screening. Of the original number, 33 individuals responded by returning evaluative feedback information on all or portions of the curriculum. These 33 individuals in 18 states acted as field test sites for the replication process. The participants varied considerably in teaching experience. Experience in teaching O&M ranged from 0-19 years (mean = 3 1/2 years) with 1/5 of the participants listing 0

years of experience in this area. Half of the participants were dually certified in both O&M and VI and the other half were almost equally divided between O&M (8) or VI (7) certification only. Approximately 50% of the participants were employed by public school systems, 25% by schools for the blind, and 25% equally divided between state and private agencies serving the visually impaired. Twenty-three percent of the respondents were male and 77% female.

A total of 96 children participants was chosen by their instructors to be included in the field testing process. Not all children were included in testing all portions of the curriculum. After receiving each skill packet, instructors matched their students with skills of appropriate level and functional use. Children participants ranged in age from 6 months to 5 years of age with the majority of children being 4 and 5 years old. Degree of visual impairment ranged from total blindness to visual impairment less than legal blindness, with approximately 50% of participants diagnosed as totally blind. Many children participants were multiply impaired in addition to their visual impairment.

The results of analysis of field testers' feedback have shown the curriculum to be very well received. After testing specific skills with children on their caseloads, participants rated the curriculum as "very useful" or "somewhat useful" and made no suggestions for major revisions. Narrative comments supported the overall usefulness of the curriculum. Most suggestions which were offered pertained to suggestions for teaching strategies and activities.

O&M Screening

A second major goal was the development of two O&M screening instruments. One instrument (O&M Screening A) was designed for younger (0-2) nonambulatory children. The second O&M Screening (B) was designed for older (2-5) ambulatory children. Screening A includes the following areas: background information, gross motor skills, functional vision, auditory skills, tactile skills, body image, and concept development. Screening B encompasses the following areas: background information, auditory, tactile, visual functioning, motor skills, mobility skills, body parts and planes, positional concepts, home and community experiences, and orientation skills.

Feedback was received from 24 professionals from 17 states regarding the use of the O&M screening forms with preschool children. Screening A was tested with 12 children and Screening B with 18 children. The children ranged from 6 months old to 5 years. Nine of the children were one year old or younger and 9 were 5 years old. Fifty-seven percent of the children were totally blind. Response on the screening tools was extremely positive. A strong majority of responses rated the tools as "extremely helpful" and numerous narrative responses were enthusiastically in support of them.

O&M Pamphlet

The third major objective was to develop an O&M information pamphlet. The information on the O&M pamphlet is designed to answer commonly asked questions that families might have about O&M. The pamphlet includes specific suggestions that family members can implement to enhance the O&M skills of young visually impaired children.

The parent pamphlet was mailed to 9 parents of visually impaired children and 5 professionals in the field of visual impairment. Feedback was received from 11 respondents--4 professionals and 7 parents. Four of the responding parents had children of preschool age and five of the children were multiply impaired. Response to most sections was positive. Most parents indicated they had found the information helpful. Some feedback suggested more

detailed information for parents of infants or multiply impaired children.

Technology

A fourth goal of the project was to explore the use of technology. Specifically, the project implemented the use of microcomputers and sensory aids as interventions to improve the O&M skills of targeted children.

Microcomputer. This technology played two important roles in the project. The first was to assist in classroom management and operation. The second was in research on the application of microcomputer technology to preschool-age children with visual impairments.

In the first role, the microcomputer was used to develop IEPs for the children, to analyze and monitor progress on the children's educational objectives, and to provide summary reports on those objectives. The project also field tested the use of a Master Schedule program to develop and modify classroom schedules. This program gave the teacher the ability to quickly modify the daily schedule as needed; for example, to reflect child and/or adult absences or to change the daily routine to accommodate a special activity.

In its second capacity, the microcomputer was used as part of a single-subject research study that looked at the effect of using a microcomputer to facilitate the acquisition of various classroom routes through adult-mediated assistance. One child in the classroom was used in the study to examine the computer's effect across three different routes of time. Time limited the study to baseline measures on the three routes and intervention on a single route. In the study, an observer was used to enter information on the location of the child as he travelled toward a specified goal while a second observer provided instruction. The computer analyzed the location data as it received them to determine if the child was on or off route and if he had made any forward progress. If he failed to meet either criteria (either being on route or having made forward progress), the computer directed the teacher to provide the appropriate level of prompt. Prompts were arranged hierarchically from least to most assistance. The computer monitored the last level of prompt given and compared it against the prompt criteria to determine if: (a) the child should be given more assistance because he had not changed the behavior or (b) prompts should begin again at the lowest level because in the intervening interval the child had returned to the route and made forward progress.

The results of the study were inconclusive. The child showed a trend toward acquisition on the intervention route but not enough data points were available to say that the child had mastered the route to criteria. The behavior on the other two routes remained variable. The study offered a promising methodology but also indicates the need to use the method with a number of other children before being able to ascertain its effectiveness.

Sonicguide. The purpose of the intervention program with the Sonicguide was to teach a child to systematically scan the environment while wearing the aid in order to locate a given object. The child was a 5-year-old totally blind boy. During the 15-day intervention program, he learned several skills. He demonstrated pitch distance awareness by smiling and reaching out in anticipation of an object or person moving toward him at midline. Initially, the child exhibited unsystematic search patterns. At the conclusion of the program, he was able to systematically search for and locate a given object with 100% accuracy by turning his head to look for the object. Additionally, on consecutive trials, he would look for the object in the same place he had found it on the previous trial and then continue to search on the opposite side. Prior to this program, there was no consistent search pattern for turning his head, looking for, reaching out, or moving toward a given object or sound.

Dissemination

The Project staff has participated in over 35 conference presentations during the past 3 years, published two journal articles, and given numerous inservice workshops throughout the country. Additionally, the Project has been featured on two television programs, one radio interview, and 10 newspaper articles, including an Associated Press story, which ran in many papers across the country.

The Project will be seeking sources in which to disseminate its major products over the next few months. Additionally, more journal articles will be written and conference presentations offered.

The final report of the project can be obtained from ERIC, Clearing House on Handicapped and Gifted Children, 1920 Association Drive, Reston, Virginia 22091.

I. MODEL DEMONSTRATION ACTIVITIES

The Project had the following four major goals as part of its model development efforts: (a) development of an O&M curriculum, (b) development of O&M screening and assessment procedures, (c) development of procedures for a parent education plan (PEP), and (d) to explore the use of the microcomputer and the Sonicguide as interventions in the area of O&M. The third goal relevant to the parent component was modified at the end of Year 2 based upon technical assistance consultation. The original goal was to develop procedures for a PEP. Instead of developing procedures for a PEP, Project staff implemented procedures for involving parents more actively in the IEP process. The specific procedures used by Project staff for more actively involving parents in the IEP process were developed by Project Dakota, an HCEEP project in St. Paul, MN. The description and implementation of these procedures appear in the Parent Involvement section of this report. The major product of the parent component (based on recommendations of technical assistance consultants) was the development of an O&M pamphlet for families.

To the extent possible, all major products of the Project went through the following steps in the model development process. First, prototypes of the model product were conceptualized by Project staff. Second, to the extent possible, the product was tried out with Project children/families. Third, it was then revised and submitted for external expert review (see Table 1 for list of experts who provided feedback in the model development process). Fourth, based upon expert review feedback, the product was revised and then sent out for national field testing (only the O&M curriculum and screening were field tested nationally). Finally, final revisions were made in the product after the national field test.

Table 1

List of Experts

Mark Bane
O&M Specialist
Dallas Services for
Visually Impaired Children

Carla Brown
FL Instructional Materials
Center/Visually Handicapped
Tampa, FL
(Formerly Project Manager
of Early Intervention O&M
Project)

Kay Clarke
O&M Specialist
Columbus, OH

Sandra Rosen, RPT, Ph.D.
Assistant Professor of Sp. Ed.
Texas Tech University
Lubbock, TX

Dr. Vivian Correa
Assistant Professor
Special Education
University of Florida

Dr. Kay Ferrell
Assistant Professor
Dept. of Special Education
Columbia University
(Formerly National Early
Childhood Consultant,
American Foundation for
the Blind)

Diane Hansen
O&M Specialist
Preschool Teacher
Muskegon, MI

External expert review data on the curriculum, screening, and O&M pamphlet are presented in the Replication and Evaluation sections of this report. National field test data on the O&M curriculum and screening are presented in the Replication section of this report. A description of each major model development goal and product follows.

A. DEVELOPMENT OF AN O&M CURRICULUM

The Project completed an O&M curriculum designed for visually impaired and multihandicapped infants and children birth through 5 years of age. The four major sections of the curriculum are Mobility, Orientation, Gross Motor, and Fine Motor. There is also a special section for children who use ambulatory aids such as a walker, wheelchair, or support cane. A brief description of each section of the curriculum is provided below. A panel of experts in the fields of O&M, early childhood, vision, physical therapy (PT), and occupational therapy (OT) provided input on the selection and content of the skills for each section of the curriculum. Each section of the curriculum includes an introduction, which provides the following information: (a) an overview of the section, (b) general environmental considerations, (c) general teaching techniques, and (d) a glossary which defines the more technical terms within that section.

Project staff conducted a literature review on various ways curricula are conceptualized and formulated. Many early childhood and special education curricula were examined prior to determining the Project's skill format. The skill format chosen varies slightly between the four major curriculum areas, however, the same type of information is included within each skill. Each skill contains a rationale and terminal behavioral objective. The Skill Hierarchy Levels section is arranged in sequential levels of child behavior which are progressively more difficult, thus enabling teachers to see how a skill develops and to utilize the skill with children of varying cognitive and motor abilities. This section also contains prerequisites and specific teaching strategies for each level. The Skill Analysis & Sequence section includes a detailed analysis of the skill along with possible modifications of the skill. The General Teaching Strategies section provides general guidelines and ideas for introducing and teaching the skill. The Classroom/Home Applications section identifies specific situations in which the child can practice the skill within the daily routines at home or school. Finally, there is a related Skills section which serves as a cross-referencing system between curriculum skills.

1. Formal Mobility Skills.

There are 21 skills in the mobility section of the curriculum (see Table 2). The five major areas of the mobility section are: (a) Sighted Guide Skills, (b) Seating, (c) Self-Protective Techniques, (d) Independent Travel, and (e) Cane Skills. Several factors were considered in determining which skills to select including: (a) the developmental level of VI infants and preschoolers, (b) preparation for more advanced mobility skills, and (c) the child's need for the skill based upon the travel environment and level of independence of young children. Many of the skills are included in tradtional mobility curricula for older children. However, some were developed specifically for the preschool-age child. All skills are arranged into a hierarchical format consisting of sequential levels of child behavior based on developmental capabilities of young children. Most of the mobility skills require that children walk independently, therefore, these skills are mainly appropriate for children who are 2 years of age or older.

Table 2

Preschool O&M Project Curriculum--Formal Mobility Skills

I. SIGHTED GUIDE SKILLS
Basic Sighted Guide
Narrow Passageways
Changing Sides
Closed Doors
Stairs
Accepting and Refusing Aid
Reversing Directions
Entering, Seating, Exiting A Vehicle

II. SEATING
At A Child-Sized Table
In Child-Sized Seats
In Adult-Sized Seats

III. SELF-PROTECTIVE TECHNIQUES
Use of Objects as Bumpers
Upper Hand and Forearm
Lower Hand and Forearm

IV. INDEPENDENT TRAVEL
Negotiating Stairs
Negotiating Doors

V. CANE SKILLS
Diagonal Technique
Contacting and Negotiating Objects
Cane Placement
Walking with Sighted Guide
Trailing with Diagonal Technique

2. Formal Orientation Skills.

There are 26 skills in the orientation section of the curriculum (see Table 3). The six major areas of the orientation section are: (a) Sensory Skills, (b) Body Image, (c) Methods of Establishing and Maintaining Alignment, (d) Systematic Search Patterns, (e) Measurement, and (f) Navigation and Travel. All skills are arranged into a hierarchical format consisting of sequential levels of child behavior. The orientation section is based upon what is currently known about sensory and cognitive development.

3. Gross Motor Skills.

The gross motor section of the curriculum consists of 17 major skills (see Table 4). It is divided into six domains: (a) Prone, (b) Supine, (c) Sitting, (d) Standing, (e) Walking, and (f) Stairs. In addition to the individual skills in each area, each domain includes a series of general teaching strategies to reinforce the components of movement taught within the individual skills. The basis for the gross motor section is a component analysis of movement rather than the teaching of specific motor milestones. Instructions are provided for the teaching of each individual skill, but then the teaching strategies provide ways of reinforcing the components of movement learned in each skill by combining them in novel ways. In addition, a cross-reference chart and introductory materials are provided to highlight how the various skills within each domain interact to guide the user in addressing the total motor needs of the child. This approach was chosen in an attempt to address some of the common movement and posture problems frequently reported in the literature on persons with visual impairments.

4. Fine Motor Skills.

The fine motor area of the curriculum is divided into two major sections: (a) Foundation Skills and (b) Teaching Strategies (see Table 5). Three skills are presented as foundation skills. They are: Reach, Grasp, and Release. The ability to maintain a grasp is an important part of Sighted Guide and Cane Skills. The three skills are presented side by side in a hierarchical fashion so that the user can easily compare the relative level of development for each skill and provide appropriate intervention. The skills are presented as they develop in Prone, Supine, and Sitting. A cross reference is provided for each level to direct the user to the appropriate gross motor skill for further information on how a child should perform in each of those positions. This is especially important since the development of good fine motor skills is predicated on a foundation of good gross motor skills.

The Teaching Strategies section provides activities to reinforce the development of each individual skill as well as a variety of activities that combine the foundation skills to allow the child to perform more sophisticated and complicated fine motor activities. Teaching strategies include such activities as bilateral and unilateral arm use, wrist rotation, and manipulation of objects.

Table 3

Preschool O&M Project Curriculum--Formal Orientation Skills

I. SENSORY SKILLS
Distance Vision Discrimination
Distance Vision Scanning
Distance Vision Tracking
Distance Vision Depth Perception
Auditory
Tactile
Olfactory

II. BODY IMAGE
Body Parts and Planes
Relationships and Movements of Parts and Planes
Self-to-Object Relationships (Direction and Distance)

III. METHODS OF ESTABLISHING AND MAINTAINING ALIGNMENT
Perpendicular (Squaring Off)
Parallel (Trailing)
Negotiating Open Spaces

IV. SYSTEMATIC SEARCH PATTERNS
Hand & Arm (Fan, Gridline, Perimeter, Circular)
Locating Dropped Objects
Whole Body Perimeter
Whole Body Gridline

V. MEASUREMENT
Comparative Measurement of Objects (Size, Length, Width, Weight)
Using Body Parts
Time-Distance Relationships

VI. NAVIGATION & TRAVEL
Object-to-Object Relationships
Utilizing and Establishing Landmarks
Turns
Soliciting Aid
Route Travel
Recovery Skills

Table 4

Preschool O&M Project Curriculum--Gross Motor Skills

I. **PRONE**
- Head Control in Prone
- Prone on Forearms
  - Maintain and Assume
  - Head Control
  - Reach
- Prone on Extended Arms
  - Maintain and Assume
  - Head Control
  - Reach
- Rolling
  - Prone to Supine
  - Prone to Sidelying
- Prone
  - Crawls Reciprocally
- Prone
  - Moves to Sitting
- All-Fours
  - Creeps Reciprocally
- Teaching Strategies
  - Prone/All Fours

II. **SUPINE**
- Head Control in Supine
- Pull to Sit
  - With Head Lag
  - Without Head Lag
- Rolling
  - Supine to Prone
  - Supine to Sidelying
- Supine
  - Moves to Sitting
- Teaching Strategies

III. **SITTING**
- Sitting
  - Head Control
  - With Support
  - Without Support
- Teaching Strategies
  - Sitting

IV. **STANDING**
- Move to Standing
  - Pull to Stand
  - Rise from Floor
- Standing
  - With Support
  - Without Support
- Teaching Strategies
  - Sitting

V. **WALKING**
- Walking With and Without Support
- Teaching Strategies

VI. **STEPS**
- Ascending/Descending Steps
- Teaching Strategies

Table 5

Preschool O&M Project Curriculum--Fine Motor Skills

I. **REACH**
Prone
Supine
Sitting

II. **GRASP**
Grasp: Cube-Shaped Objects (approximately 1")
Palmar
Radial - Digital
Three-Jaw Chuck

Grasp: Pellet-Sized Objects (approximately 1/4")
Raking/Scissors
Inferior Pincer
Fine Pincer

III. **RELEASE**
Involuntary
Voluntary
Drops/Places

IV. **TEACHING STRATEGIES**
Bilaterial Arm Use
Unilateral Arm Use
Wrist Rotation
Manipulation of Materials
Grasp & Release
Symmetrical Coordinated Arm Use
Stabilization with one arm while manipulating with other hand

5. Ambulatory Aids.

Ambulatory aids include an assortment of wheelchairs, walkers, crutches (underarm and forearm types), and support canes (including quadruped and tripod canes). These aids are used by children who are either unable to walk or who require physical support when walking. This section of the curriculum describes the role of the O&M instructor in working with children who use ambulatory aids. Also, gait patterns of children who use crutches or support canes are reviewed, spotting tips for the teachers are described, and maintenance and fitting of the aids are covered. In addition, general references on positioning and handling of physically handicapped children, and pushing and maneuvering a wheelchair are provided. The curriculum skills in this section focus on teaching children to use the aids as bumpers, to negotiate obstacles in their paths, and to trail surfaces (see Table 6). As the use of these aids occupies one or both hands, children are often unable to employ standard trailing or protective techniques. Modifications of these techniques are presented which consider the child's physical disability, motor skills, and cognitive level.

Table 6

Preschool O&M Project Curriculum--Ambulatory Aids

Ambulatory Aids/Trailing With Wheelchairs Or Walkers
Ambulatory Aids/Trailing With Crutches Or Support Canes
Ambulatory Aids/Using Ambulatory Aid(s) As A Bumper

B. DEVELOPMENT OF AN O&M SCREENING & ASSESSMENT

Project staff completed a working draft of the O&M screening in January 1986. This draft version of the O&M screening was used to evaluate over 20 visually impaired preschool-age children as part of the Project's Resource Center component (see Service Delivery Options section). After conducting the screening with these children, staff then revised the screening and determined that there should be two versions of the screening, one for older, ambulatory children and one for younger, delayed, or nonambulatory children (see Table 7 for major content areas of O&M screenings). The two screenings along with directions for conducting them were then sent out for expert review. Data from the experts were analyzed (see Replication and Evaluation sections) and final revisions were made prior to field testing. Field test data overwhelmingly indicated that both of the screenings were highly appropriate and useful for the target children (see Replication and Evaluation sections for details).

The purposes of the O&M screening are to determine the following: (a) areas for further assessment, (b) basic programming needs, and (c) the child's need for O&M services. The O&M screening served all of these purposes when used as part of the Resource Center component of the Project. The screening is loosely based on the O&M curriculum in that it was designed to be used to determine a general idea of the child's level of functioning in each of the curriculum areas (mobility, orientation, gross motor, and fine motor).

Table 7

Major Content Areas Of O&M Screenings

Screening A (For Younger, Delayed, or Non-Ambulatory Children)	Screening B (For Older, Ambulatory Children)
Background Information	Background Information
Gross Motor Skills	Auditory Skills
Functional Vision	Tactual Skills
Auditory Skills	Visual Functioning
Tactual Skills	Motor Skills
Body Image/Concept Development	Mobility Skills/Safety
	Body Parts
	Body Planes
	Positional Concepts/Self-to-Object
	Home and Community Experiences
	Orientation Skills

The O&M assessment was not completed until all of the field test data on the curriculum skills were analyzed and final revisions of the skills were made. This was because the assessment is directly matched to every level within each skill in the curriculum. Consequently, the O&M assessment was not specifically field tested, but the levels of the curriculum were. The assessment was designed to identify the child's specific level of functioning within each relevant skill of the curriculum. This information can then be utilized by O&M instructors to develop detailed program objectives and an intervention plan for the children on their caseload.

C. O&M PAMPHLET

Throughout the 3-year grant period, parents and other family members repeatedly asked questions about O&M and expressed a need for written information describing O&M services, and suggestions that they could implement at home to enhance their children's O&M skills. Project staff developed the O&M Pamphlet for Families to meet these needs. The pamphlet provides a general overview of O&M, suggestions to families on how to encourage their children to develop O&M skills, and addresses questions about O&M which are commonly asked by family members. It is intended for families from various cultural, education, and economic backgrounds who have visually impaired children 0-5 years of age. It provides information about children who are just visually

impaired as well as children who have additional impairments.

The pamphlet was developed by the Project's O&M instructor in the summer of 1986. Five families involved with the Project critiqued the pamphlet on its usefulness, language, content, and relevancy to their own family situation. Subsequently the pamphlet was reviewed and revised by Project staff. The revised edition consisted of the following sections (see Table 8) was then sent out to 13 experts throughout the country (8 parents, 5 professionals). The expert review data indicate that the O&M pamphlet is appropriate and useful (see Replication and Evaluation sections for details). However, some of the experts suggested that more detailed information be provided about O&M for infants and multiply handicapped preschoolers.

Table 8

Major Sections Of O&M Pamphlet For Families

What is Orientation?
What is Mobility?
What is O&M Training?
What is O&M For Preschool Children?
What Can Family Members Do?
Questions Frequently Asked By Parents

D. USE OF TECHNOLOGY INTERVENTION

The final goal of the Project was to explore the use of two kinds of technologies as possible intervention strategies with young visually impaired children. Specifically two pilot studies were conducted, one using an Apple microcomputer and the other using the Sonicguide. A brief description follows. Procedural details and specific findings are presented for the microcomputer and Sonicguide interventions in the Evaluation Section (Questions 5 and 6, respectively) of this report.

1. Microcomputer Applications.

The variety and range of microcomputer technology applications for populations with special educational needs has exploded in the past 10 years. Examples of these applications have included the development of augmentative communication systems (Vanderheiden, 1976), the training of motor behaviors in multihandicapped children (Warren, Horn, & Hill, 1987), and data collection and data management systems (Hamlett & Hasselbring, 1983). Children with visual impairments have also benefited from this explosion in technology. Software and hardware adaptations have made it possible to translate printed text to braille and vice-versa so that both sighted and blind users can produce documents and exchange information in a format that each group can understand. Specialized hardware adaptations have made it possible for low vision persons to make ready use of commercially available software without the need for software adaptations. While these adaptations have had enormous benefits for persons with visual impairments, the applications, thus far, have focused more on academic and vocational needs and have been oriented to stationary or sedentary tasks. Little consideration has been given to the possibility of using microcomputer technology to facilitate the acquisition of such O&M skills as learning routes of travel within both familiar and novel environments.

A pilot study was conducted in the Project's classroom to examine the feasibility of using microcomputer technology to facilitate the acquisition of systematic route travel in the context of the classroom. The study used a single subject, multibaseline design to evaluate the effectiveness of computer-mediated teacher intervention on the acquisition of three different routes of travel by a 3-year-old visually impaired/multiply handicapped child. The results of the study were inconclusive. The specific methods and results of the study as well as recommendations appear in the Evaluation section of this report.

2. Sonicguide™ Applications.

During Year I, Bonnie Dodson-Burk received intensive and specialized Sonicguide training through the assistance of TADS. As a result of this training, she applied for Sonicguide Electronic Travel Aids (ETA) Certification through the Association for the Education and Rehabilitation of the Blind and Visually Impaired (AERBVI). A request to reprogram funds was granted and the Infant Sonicguide unit was purchased during Year 2 of the Project. During Year 3, a single subject changing criterion design Sonicguide training program was conducted. The purpose of the program was to determine if a congenitally blind preschooler could learn to systematically and accurately locate and move toward a given object in his environment with the aid of the Infant Sonicguide.

The subject was a congenitally blind 5-year-old boy with a significant developmental delay. The subject functioned cognitively between 2 and 3 years of age, and had no motor problems. The setting for the Sonicguide training program was the living room in the child's home. The trainers were Bonnie Dodson-Burk, Project O&M Instructor, and Mary-Maureen Hill, Ed.D, Research Assistant Professor of Special Education, Peabody College of Vanderbilt University. Both trainers have Sonicguide ETA certification through AERBVI. The child's mother was present during each training session. The training program included 15 training sessions which lasted from 15-30 minutes each.

Prior to beginning the program, the child was assessed using the Project's O&M screening tool to determine his abilities and needs in O&M. The trainers and the child's mother identified several skills for intervention, all relating to the child's need to systematically and efficiently locate and move toward given objects in the environment. The child did not consistently search for an object or turn to face a sound, nor did he move in an efficient straight line of travel to a sound. The Sonicguide training program was written to address these behaviors through sequentially more difficult levels of intervention.

Before implementing the training program, one of the trainers showed the Infant Sonicguide to the child, demonstrating the controls and parts of the device. The child was then given time to become accustomed to wearing the device. By the end of the third session, the child showed much pleasure with the sounds created by the Infant Sonicguide and was willing to keep the device on for over 5 consecutive minutes. During the fourth session, baseline data were collected for three trials and the child scored 0% on the behavior of systematically turning his head in both directions to locate an object. At this time, the training program was implemented.

As noted earlier, a changing criterion design with repeated measures was intended for this program. The design involved a baseline and several sequential levels of intervention in order to attain the final goal. The

program was revised slightly several times throughout the intervention in order to accommodate for the child's level of functioning and rate of learning new behaviors. A brief description of the steps or levels of intervention is as follows:

Intervention A: The child will sit quietly and listen to sound of person moving toward and away from him at midline.

Intervention B: The child will listen to sound of person moving toward and away from him at midline, showing some kind of anticipatory response before person touches him.

Intervention C: The child will reach out and touch a person moving toward him at midline before person touches him.

Intervention D: The child will scan or turn his head to search for and directly face an object held at 90 degrees to child's left or right at head level.

Intervention E: While standing, the child will turn his head to search for and locate an object, turn the front of his body to directly face the object, and walk toward it, stop in front of the object and reach out and touch it.

For a detailed version of the program, reinforcement activities, and specific data on each behavior, see Evaluation section, Question #6.

As the child progressed through the Sonicguide training program steps, the trainers recorded data and moved to the next step. The child successfully completed all skills included in Interventions A-D with 100% accuracy for three trials for 2 days. Because of previous commitments on the part of the family, the program was discontinued after criteria for Intervention D was met. The trainers and the child's mother were very enthusiastic about the child's progress and the potential the Sonicguide had for the child. The mother indicated that she planned to continue a Sonicguide training program as part of the child's education during the school year. The program completed by the Project has demonstrated that the Sonicguide is a viable and useful tool in enhancing systematic search patterns for a blind preschool child.

II. PROJECT ADMINISTRATION ACTIVITIES

The Project requested and was granted a 60-day no-cost extension in the final year of the grant. This enabled the Project to complete all its major objectives, despite the loss of some personnel in Years 2 and 3. The Project lost its full-time coordinator position in Year 2 and its full-time O&M specialist in Year 3. Many of the duties of those two positions were assumed by the Principal Investigator and a number of part-time professionals, graduate students, and volunteers in Year 3.

A. IDENTIFICATION AND REFERRAL

Numerous contacts with state and local agencies were made during the period of the Project. A mailing using a directory of community resources and mailing lists provided by the Kennedy Center was used to initially contact local current service providers, appropriate members of the medical community, and relevant state agencies such as the Department of Mental Health and Mental Retardation and the Tennessee Services for the Blind. This first mailing provided the initial pool of referrals for classroom and home-based components of the Project.

Since the initial mailing, follow-up contacts were maintained by a Project newsletter, through advisory board meetings, via conference presentations, and by working with other service providers in a consultative capacity. The Project staff twice participated as consultants with the Tennessee Services for the Blind at statewide meetings for parents of preschool visually impaired children and professionals working with that population. In addition, the Project provided consultative assistance to the Comprehensive Development and Education Center (CDEC), a state-wide service that provides assessment, screenings, and referrals to families with handicapped children.

A total of 80 children was referred to the Project for services during the period of the Project. Of those children, 7 were served through the classroom program; 11 were served through the home-based program; 6 were seen in conjunction with other agencies as part of a consultative service; 7 were referred, evaluated, and placed on a waiting list; 40 were seen through the Resource Center and provided with screenings and programming suggestions; 4 were evaluated and found to not meet the criteria for eligibility; and 5 were referred to other agencies or were beyond our service boundaries.

The referral and intake procedures were standardized during Year 2 to provide a more streamlined delivery of services. Upon receipt of a referral, a home visit was scheduled, parental permission for assessment was obtained, and children were seen for a functional vision and developmental screening to determine eligibility for services. Sample items from the Orientation and Mobility Screening Instrument were also used as part of the initial screening. Parents were also provided with introductory literature, an overview of the Project's services and invited to call if they had additional questions. If an opening was available, the family was so informed, but was also told of other agencies providing services so that an informed choice could be made. The intake procedure simply consisted of the completion of the prerequisite forms and arrangement of transportation, visitation times, etc. If no opening was available, families were informed that the child would be placed on a waiting list and also provided with the names of other service providers so they could pursue obtaining services from other agencies if they so desired. After

enrollment, developmental, functional vision, and orientation and mobility assessments were completed, an IEP was developed.

Changes in replication and field testing necessitated a change of plans for the screening and referral procedures. In Year 3, the Project was forced to go to the use of multiple field-test sites across the country to obtain the necessary numbers of children to field test the curriculum and assessment materials. Because most of these sites already had well-established intake and referral procedures and because our contact was limited to telephone and mail, it was decided to drop any attempts at replicating our intake and referral procedures in favor of an increased emphasis on using those sites to field test curriculum and assessment material. Project staff have continued to be active in attending workshops and conferences, providing consultative services, and making presentations in order to continue to identify children in the community who may be in need of services and to make the community more aware of the need for services.

B. ASSESSMENT

A series of assessment instruments was identified and reviewed in order to develop an appropriate assessment battery for use in screening, assessment, and programming for Project children. The Functional Vision Inventory (FVI) was used to evaluate residual vision and the child's use of that vision. The FVI was chosen because it is a performance-based instrument that could be used with nonverbal multihandicapped children as well as with higher functioning children. In addition, the inventory contains both a screening and assessment component as well as a list of suggested activities. When appropriate, a referral was made to an ophthalmologist or optometrist to obtain a comprehensive low vision assessment. This was particularly important when an evaluation for a low vision aid, such as a hand-held monocular device, was needed.

The Battelle Developmental Inventory was selected for use as the primary developmental assessment. The Battelle was selected because it was a standardized instrument that could be used to provide pre- and post-test data as a measure of child progress, it included visually impaired children in its standardization data, provided modifications for visually impaired children, was compatible with the major curricular domains chosen for intervention, included an easily administered screening, and accepted parent report as a valid measure of child function. Because of its broad age range (birth to 84 months), the Battelle sometimes did not provide a discrete enough breakdown of skills to be of use in developing IEP objectives. This was particularly true in the case of children who were visually impaired with multiple handicaps. In these instances, supplemental assessments including the Dunst protocol of the Uzgiris-Hunt Scales of Ordinal Development, the Gestural Approach to Thought and Expression (GATE), the Hawaii Early Learning Program (HELP), the Developmental Activities Screening Inventory (DASI), the Oregon Project, and the Developmental Programming for Infants and Young Children were used to help provide more guidance in identifying the child's strengths and needs and to develop programming objectives. In addition to these instruments, the Project used items from the curriculum and the Orientation and Mobility Screening Instrument to identify programming needs. The Battelle Developmental Inventory and the Functional Vision Inventory were administered on a 6-month basis. Data on child performance for children enrolled in the classroom and home-based components of the Project are included in the Evaluation section (Question #1) of this report.

In Year 3, the assessment procedures were modified to address parental concerns about the adequacy of the assessments, reduce the anxiety about age norms included in the assessments, and to integrate the assessment and IEP development processes more fully. The changes in the assessment procedure revolved around making the procedure more "age appropriate for blind children" and incorporating the parents more fully into both the assessment and IEP developmental processes. A full description of how the assessment was used in the development of the IEP is included in the Parent Involvement section. A description of the modifications made in the assessment procedures follows.

As a first step, the items from the Battelle were rearranged so that all the items from all the domains were grouped by age level rather than by domain. The items were then color coded by age and placed on 5"x 8" colored cards. The cards held the item's number for reference back to the test manual, a description of the items, and a description of the scoring criteria. The age levels were deleted from each of the items before being placed on the cards. For example, all the items from the 24-36 month level were placed on yellow cards. A score sheet that held the same information as the cards and corresponded to each set of cards was made up for the observers and parents. This made it easier to go through all the items at a particular level. A screening protocol was then developed. This protocol presented items selected from each of the domains and grouped by color/age. The groupings were not arranged hierarchically on the screening.

The assessment began with the lead person asking the parents to review the groupings presented on the screening and to identify the set of items that they felt most closely corresponded to where they thought their child was functioning. Parents were told that the groupings corresponded to age levels, but were not told what those levels were. Any additional information the parents might have requested such as a more detailed description of a particular item was provided upon request. Once the parents identified the group they thought best described their child, the lead person selected the corresponding set of cards and provided score sheets to each of the persons present. The score sheets included space for anecdotal observations and allowed everybody to follow along as the lead person presented items to the child. When the lead person finished with the first set of cards, everyone present reviewed the child's performance in each domain to determine which level of that domain should be assessed next. For example, if a child had successfully completed the items presented, the lead person might then move to the next higher set of cards. Similarly, if the child had had difficulty with a particular level, the lead person might then present items from the next lower level. By looking at performance within each domain, it was possible to simultaneously assess higher level skills in one domain while looking at lower level skills in another domain. Items were readministered, (if the item allowed) using different directions and/or materials whenever the family or another staff person disagreed with the results or thought the different materials or directions might provide a more accurate indices of the child's ability. In cases where a particular item could not be modified for readministration and still keep its validity, the lead person frequently used a test-teach-retest format. In this procedure, the materials and/or directions were modified to assist the child in learning the skill. After a teaching trial, the skill could then be retested to see what changes, if any, that the child had made and how closely his/her performance approximated the criteria specified in the item. This allowed families and staff to identify the child's current level of functioning as well as obtaining information on the child's potential for acquiring a particular

skill. Items were presented until the child showed a consistent pattern of success or failure. Parental input was consistently elicited throughout the assessment process. The children's performance was analyzed not only on the basis of their performance on a particular item but also how they solved that item or what things seemed to stand in the way of their success on a particular item. This facilitated the development of a profile of each child's strengths and needs based on his/her observed performance. After the assessments were completed, the items were scored according to the instrument's criteria and the results shared with the family. These results did include age equivalencies for the child's particular level of performance in each of the domains as the intent of this process was not to withhold information from families, but rather attempt to present it in a more useful manner. The modifications in the procedure helped to reduce the emphasis frequently placed by both parents and professionals on age equivalency scores. This procedure encouraged all involved to look much more closely at the child's performance and the factors that influenced that performance. The results of the assessment and the observations made by each person present were then used to construct a profile of the child's strengths and needs that could act as a foundation for the development of the child's IEP (see section on IEP).

A concerted attempt was made by this Project to identify and use appropriate assessment instruments in order to provide pertinent information for professionals and families. An emphasis was placed on using both standardized and criterion-referenced performance-based assessments. In addition, assessment procedures were modified to make parents more comfortable with the assessments, to help them better understand what things were being measured and how the assessment measured those items, and to make them better consumers when presented with assessment information. Therefore, they could not only evaluate the information presented, but also act as advocates when they felt that information presented was inaccurate or incomplete. As a final step, emphasis was placed on developing a more clear-cut linkage between assessment and IEP development.

C. ARRANGEMENT OF CLASSROOM AND HOME ENVIRONMENT

The Project staff continued to identify and review elements that were critical in structuring the classroom environment. Elements that were identified included: (a) arrangement and use of physical space, (b) scheduling of activities and materials, (c) delineation of staff responsibilities and use of staff, and (d) additional adaptations and modifications for visually impaired children. These elements were incorporated into the daily structure of the Project classroom where they were evaluated. Dr. Ann Kaiser provided an extensive evaluation of the classroom environment in Year 2 which formed the basis for many of the elements that were incorporated into the classroom.

The Project staff has developed training modules on classroom environmental arrangement (see Appendix A). The products have received limited field testing. However, many of the elements discussed in the modules represent well-researched current best practices that have proven effective in a wide range of applications.

The Project staff have made regular analyses of the home environments. These analyses have examined: (a) child's current level of movement within the home, (b) child's travel needs, (c) indoor and outdoor play areas, (d) identification of landmarks, clues, and reference points, (e) colors and

contrasts available in the environment, and (f) the variety and levels of illumination. These analyses have been completed on an informal basis as child behavior changes or parental concerns have arisen.

Separate work was begun on a Home Environmental Scale by a graduate student under the aegis of the Preschool Orientation and Mobility Project. After reviewing the materials and looking at product development objectives, it was decided that a home environment analysis might better be incorporated into the Orientation and Mobility Screening and the O&M Pamphlet. This was done to avoid redundancy in assessments and to reinforce the link between the arrangement of the home environment and the child's orientation and mobility skills.

D. SERVICE DELIVERY/OPTIONS

The Project operated a three-component service delivery system option to meet the needs of the targeted children and their families. The classroom and home-based components began in January of 1985. The classroom component was terminated in June of 1987 and the home-based component was terminated in July of 1987. In response to requests and identified needs outside our direct service area (Davidson Country), a Resource Center component was started in the beginning of Year 2 of the Project (July 1985). The Resource Center component served children and families from across the state of Tennessee, including several children and families from the rural areas. The Resource Center component was largely staffed by graduate students and professional volunteers. A request for more funds to continue and expand the Resource Center in Year 3 was denied and the Resource Center component was terminated in June of 1986.

The direct service components of the Project were fortunate to have been practicum placements for a total of 7 graduate O&M students (see Appendix B, Training Module: Use of Practicum Students). The Project also served as an administrative internship site for one doctoral student. Finally, on a continuing basis, the Project provided opportunities for several parents and professionals to observe the various service delivery options.

1. Classroom.

The center-based program operated from January, 1985 to May, 1987. The classroom offered services to seven children between the ages of 2-1/2 years through 5 years. Children were seen for 4 hours per day and received instruction in seven major domains: personal-social, adaptive/self-help, gross and fine motor, receptive and expressive communication, cognitive, functional vision, and orientation and mobility. Classroom children also received a home visit twice a month. Individual Education Plans were completed on each of the classroom children and updated on an annual basis. During Year 3, the assessment and IEP development processes were revised to increase parental input and to make the educational goals and objectives more reflective of both the child's home and classroom needs.

Training modules were completed on classroom environmental arrangement. These modules addressed both physical arrangement and the use of staff in the classroom setting. Some of the original product development goals were oriented toward replication of the classroom model at a specified site. Due to problems in securing such a site, some of the original development goals were modified to be incorporated into other Project products. For example, each section of the curriculum includes a section on classroom and home applications that provide

guidelines for integrating that skill into the classroom and home environment.

2. Home-Based.

Home-based services began in January 1985 and continued through June 1987. Eleven children between the ages of 8 months and 3-1/2 years received home-based services. Home visits were made on a weekly basis with each visit lasting 1-1/2 to 2 hours. Assessments were conducted on a regular basis and IEPs were developed that reflected parental concerns and the child's needs in the home environment. The major focus of the home-based programming was to help parents learn how to best teach their children. A variety of services was provided to accomplish this goal. These included: parent training on specific activities; working in tandem with occupational therapists, physical therapists, speech pathologists, and orientation and mobility specialists; providing or customizing adaptive seating equipment; and developing weekly lesson plans. Parents were asked to carry out teaching activities and to monitor their child's progress on these activities. Teachers also provided information for families on child development, the impact of visual impairment on that development, analyses of the home environment, and suggestions for changes in the home environment to facilitate the child's acquisition of orientation and mobility concepts and to increase the child's ability to move independently in that environment.

Project staff made a number of presentations on the home-based component to professional organizations and parent groups. In addition, they provided consultative assistance to other local service agencies who had visually impaired children on their caseloads. No specific training materials were developed although many aspects of the home-based training program were integrated into other Project products, such as the curriculum, the orientation and mobility screening, the assessment and IEP processes, and the parent pamphlet on orientation and mobility in the home.

3. Resource Center.

The Resource Center component operated from June 1985 to July 1986. The Resource Center provided screenings, consultation, and information to parents, teachers, and other professionals working with visually impaired children 0 to 5 years of age. A total of 40 visually impaired preschool children across the state of Tennessee and their families were served by this component. A multidisciplinary approach to screening was provided and included the following areas: (a) orientation and mobility, (b) functional vision, (c) developmental assessment, (d) speech and language, (e) occupational therapy, and (f) physical therapy.

Resource Center screenings and consultations took place one day a month at the Susan Gray School for Children in the Kennedy Center on the Peabody/Vanderbilt campus. Approximately 4-6 children and their parents and teachers were served in the monthly Resource Center services. A special Resource Center was conducted in Memphis, TN where Project staff collaborated with the therapy staff at Les Passees Rehabilitation Center to serve visually impaired children in West Tennessee.

Evaluation data on the effectiveness of the Resource Center services were collected in two phases. The first phase involved parents and teachers completing an evaluation form distributed after the screenings and consultations. A second evaluation form was sent home to the parents/teachers

with the final screening report. For a summary of the Resource Center evaluation data, see the Evaluation section (Question #8).

4. Transition.

Project staff developed procedures for the transitioning of students from the Project into Local Education Agencies (LEA) and day care centers. In Year 2, two classroom students were transitioned successfully into local day care centers. Transition services provided by the Project's O&M teacher included: (a) consultation with day care staff on the child's visual status/abilities, travel skills, and functioning in all the developmental areas, (b) suggestions on working with visually impaired children, and (c) helping one of these students become familiar with the day care center. The other child asked her day care staff questions and familiarized herself to this new environment. Both children demonstrated some generalization of O&M skills to these new settings and appeared confident in moving about independently by the third day of attendance. During Year 3, six children were transitioned into the LEAs. Project staff provided the above-mentioned transition services in addition to on-site inservice training in basic O&M and motor skills to the classroom teachers and assistants. Reference materials and follow-up consultation was made available. Project staff assisted parents in selecting the most appropriate educational placements for their child by visiting different classrooms, providing information on the optimal components of a good program, and attending the child's LEA staff meeting. Project staff recorded the types of information requested by parents and staff members at these local education agencies and day care centers during the transition process.

E. STAFF DEVELOPMENT

During the first 2 years of the Project, each staff member formalized a staff development plan. The Principal Investigator facilitated the implementation of these staff development plans through: (a) scheduled inservice presentations by Project staff, (b) scheduled inservice presentations by other professionals, (c) attendance at conferences and professional meetings, and (d) technical assistance activities (TADS). Completed staff development activities for the first 2 years are shown in Tables 9 and 10. The Dissemination section shows a complete list of conference presentations by Project staff.

Table 9

Inservice Presentations By Project Staff

Presenter	Topic	Date
Rosen	Ambulatory Aids	Nov. 1984
Cochran	Developmental Assessment	Dec. 1984
Hill	Curriculum Planning	Jan. 1985
Dodson-Burk	Analysis of Home Environment	Jan. 1985
Rosen	Positioning and Handling	Jan. 1985
Cochran	Development of Parent Education Plans	Feb. 1985
Cochran	Home-Based Services	Feb. 1985
Dodson-Burk	Fundamentals for C&M Preschoolers	Apr. 1985
Cochran	Curriculum Planning	July 1985
Smith	O&M for Multiply Handicapped	July 1985
Cochran	Parents/Families	Aug. 1985
Hill	Curriculum Planning	Oct. 1985
Smith	Microcomputer Technology	Dec. 1985

Table 10

Inservice Presentations By Other Professionals

Presenter	Topic	Date
Robert Estes, M.D. Pediatric Ophthalmologist	Common Eye Disorders	Nov. 1984
Dr. Bill Brown, Director of Kennedy Center Experimental School	Family Assessment and Intake	Dec. 1984
Jennifer Hamilton Social Worker, Kennedy Center Experimental School	Family Assessment and Intake	Dec. 1984
Dr. Ted Hasselbring Associate Professor of Special Education	Use of Microcomputer Technology	Jan. 1985
Shelly Komisar and Linda Bambara, ITLP Project	Individualized Curriculum Sequence	Jan. 1985
Mary Beth Langley Educational Diagnostician	Communication, Language, and Social Development	Feb. 1985
Cinda Buttorf, Speech and Language Specialist	Communication in Pre-Lingual	Mar. 1985

Eva Hooper, Special Education Doctoral Student	Making Chair Inserts	April 1985
Dr. Ann Rogers-Warren (Kaiser), Chair of Dept. of Special Education	Environmental Organization	May 1985
Shelly Wisdom-Long, Music Therapist at TN School for the Blind	Music Therapy in the Preschool Classroom	July 1985
Lirda Kjerland Director of Project DAKOTA	Parent Involvement	May 1986

Staff members attended weekly Project business meetings and weekly Project Research Cluster meetings. The Research Cluster group was started in February 1985 by the Principal Investigator to provide a forum for all proposed research and training activities involving Project children. The Research Cluster group also provided a forum for staff development activities. A list of Research Cluster topics and presenters is shown in Table 11.

Table 11

Research Cluster Presentations

Presenter	Topic	Date
Dr. Everett Hill	Perceptual Factors Influencing Spatial Orientation in VI Children	Feb. 1985
Dr. Dan Ashmead Assistant Professor, Psychology (Vanderbilt) and Dr. Rachel Clifton (Univ. of Connecticut)	The Role of Vision in Auditory Perception	Feb. 1985
Carla Brown, Project Director of Preschool Multiply Handicapped Project	Multiply Handicapped Preschool Project in Florida (Pinellas County)	Mar. 1985
Dr. Marty Banks Univ. of California, Berkeley	Role of Vision in Development	April 1985
Sandy Rosen Doctoral Student, Vanderbilt University	Analysis of Gait in VI Children	May 1985

Dr. Mary McEvoy Research Assistant Professor, Vanderbilt	Affection Training, Social Skills Project	Sept. 1985
Dr. Dan Ashmead Assistant Professor Psychology, Vanderbilt	Accuracy of Blind Children Reaching for Sound	Sept. 1985
Dr. Everett Hill	Use of Reflected Sounds by Blind Preschool Children	Oct. 1986
Dr. John Rieser Associate Professor, Psychology, Vanderbilt	Spatial Updating of Infants and Preschoolers	Jan. 1987
Dr. Dan Ashmead Assistant Professor, Psychology, Vanderbilt	Sensitivity to Auditory Information by Infants	Feb. 1987
Dr. Herb Pick University of Minnesota	Human Perception	Feb. 1987
Dr. Linda Acredlo Dept. of Psychology University of California-Davis	Spatial Orientation of Infants	Mar. 1987

The Project staff also completed two technical assistance plans based upon Comprehensive Program Reviews conducted in February of 1985 and January of 1986. As a result of the first review, Smith, Cochran, and Dodson-Burk visited and observed the preschool programs at Dallas Services for the Visually Impaired and the Texas School for the Blind; Smith attended a microcomputer workshop at Western Illinois University; Cochran participated in microcomputer/curriculum meetings at the University of North Carolina; and Dodson-Burk received specialized training in the use of an electronic mobility device called the Sonicguide. As a result of the second review, the Project staff received in-house consultation from Linda Kjerland of Project DAKOTA on the development of the O&M pamphlet and procedures for involving parents more in the IEP and assessment processes.

The Project staff was generally pleased with the quality of the inservice presentations the first 2 years (see Evaluation section, Question #7). Because of the heavy emphasis on field testing the major products in Year 3, there was little staff development activity. However, Smith and Hill participated in two TADS teleconference calls on dissemination/publication of products and final report writing.

III. PARENT INVOLVEMENT ACTIVITIES

During the 2-year period, parents and other family members of Project children were involved with the Project in a variety of formal and informal ways. Obviously there was a great deal of involvement through the Project's service delivery options (classroom, home-based, and Resource Center). The following description of activities documents how parents and other family

members have been involved with the Project over the 3-year period.

A. ADVISORY COUNCIL

The Project completed three scheduled meetings of the Advisory Council (May 31, 1985; December 6, 1985; and July 30, 1987). There was parent representation and participaton in all three meetings. Four Project parents were members of the Project's Advisory Council (see Appendix C). However, all Project parents were invited to all the Advisory Council meetings. Several parents attended from outside the Nashville area and provided continuous input to the Project on a variety of matters. Additionally, several parents served as the expert reviewers of the first and second drafts of the "O&M Pamphlet for Families."

B. TENNESSEE ASSOCIATION FOR PARENTS OF VISUALLY IMPAIRED (TAPVI)

Project parents, with the assistance of Project staff, organized a state chapter of the National Association of the Visually Impaired (NAPVI) during Year 2 of the grant. The Tennessee chapter (TAPVI) became incorporated in the Fall of 1986. As a result of the inception of TAPVI, two Project parents were asked to participate on the TN State Task Force for Parent/Professional Partnership for Special Needs Children. Dr. Hill was asked to be a technical advisor of TAPVI. Project staff joined TAPVI as associate members and were very active in the mid-Tennessee Chapter of TAPVI. Ms. Dodson-Burk helped organize the first annual TAPVI retreat in September, 1986 and gave a presentation at the retreat on O&M for children of all ages. The Project served as a resource to the middle, east, and west Tennessee chapters of TAPVI by attending meetings, loaning Project materials (slide shows, equipment, literature) to parents for TAPVI meetings, and referring all parents who contacted the Project to the local TAPVI chapter.

C. HOME VISITS

Parents and other family members were involved in a variety of ways through the regularly scheduled home visits of the home-based component (see Service Delivery Options section). During the home visitations, Project staff provided direct instruction, parent training, and consultation. Parents participated with Project staff in implementing direct instruction with children, collecting data, and assisting with the lesson planning process.

D. PARENT TRAINING

Parent training was ongoing and continuous through the various direct service options of the Project. However, formal parent training sessions also occurred, particularly during the first 2 years of the Project. Parents attended the following training workshops and meetings: (a) parent orientation meeting in February 1985, which focused on the direct service program and implications of being involved in a research study; (b) Tennessee Regional Conference for Parents and Educators of Visually Impaired Children in March 1985; (c) Effective Advocacy for Citizens with Handicaps (EACH) workshop on Public Law 94-142 in May 1985; (d) a 2-day training workshop, Preschool Visually Impaired Child Conference, held in September 1985, which was sponsored by the Tennessee Department of Human Services in conjunction with the American Foundation for the Blind; (e) 1986 Fall TAPVI workshop; (f) 1986 American Council for the Blind National Meeting - Parents Division; (g) 1986 NAPVI Conference; and (h) 1987 Annual TAPVI Conference.

E. INDIVIDUALIZED EDUCATION PLANS (IEPs)

A long-standing goal of the Project has been to increase parental understanding and involvement in their child's educational program. This goal has been closely linked to other Project components, including the direct service component and the development of Parent Education Plans (PEP). The intent of the PEP as outlined in the intial grant proposal was to identify parent training needs and to facilitate parent involvement for the purpose of promoting child change, developing parent teaching skills proficiency, and enhancing consistent practice of methods and skills developed as a result of this project's efforts.

Efforts in Year 1 and Year 2 of the grant focused on the development and implementation of direct service components and a review of literature on parent training. In Year 3, the Project enlisted the aid of Ms. Linda Kjerland, TADS-sponsored consultant from Project DAKOTA, to assist the Project in developing and implementing its Parent Education Plan. It was Ms. Kjerland's recommendation that rather than developing a new set of forms and procedures, many of the Project objectives for parent training and support could best be met by modifying the assessment and IEP processes developed by Project DAKOTA. These modifications focused on incorporating the parents more fully into the assessment process, increasing parental input about their perception of their child's needs at home and school, placing an increased emphasis on parental understanding of the issues involved in assessment and understanding how the information derived from an assessment could be used to develop a profile of their child's strengths and needs and finally, understanding how that profile could be used to develop an individualized education plan that addressed both the specific strengths and needs of their child.

The process involved five stages. The first stage involved setting up a time and place to conduct an initial assessment. Whenever possible, the assessment was done at the child's home with the primary persons (parent[s], sibling[s], grandparent[s], baby sitter[s], teacher[s], and other staff members) present. This was done to accommodate families needs and schedules, to bring together all the people knowledgeable about the child, and to assess the child in his/her most familiar setting.

The second stage involved the administering of the assessment. One staff member was assigned to be the lead person in conducting the assessment. He or she was assigned the responsibility of giving the assessment items and acting as a "go-between" between the child and the other persons present. For example, he or she might re-present an item in a different manner in response to a suggestion from a parent or another staff member. At other times, he or she might ask another person to administer a particular item. The use of a single adult to act as an intermediary greatly reduced the confusion during the assessment and made sure that the questions and concerns of each person present were addressed.

The third stage involved the staff members reviewing the results and identifying areas that were still of concern in order to prepare an initial summary of the results and to begin thinking about programming needs and recommendations they might make to the family.

During the fourth stage, staff members made a return visit to the families. During this visit, staff members administered or readministered any assessment

items that were still outstanding or whose results were questionable. The staff persons and family members then sat down to discuss the test results and to delineate a list of strengths and needs. During this discussion period, the staff member asked the family to develop a list of the child's strengths and needs based upon their observations of the assessment and their own knowledge of the child. The staff contributed its own observations as the discussion proceeded, but parents were always asked to go first. The critical part of this process was that parents were asked to take the lead role in identifying their child's strengths and needs. In addition, parents were asked to begin the process by identifying their child's strengths.

The use of the parents as the lead informants accomplished two things. The first was to insure that the child profile which developed, accurately reflected family concerns. The second was that the kinds of things identified as being important, or of concern, in the child's profile provided a natural foundation for the identification of IEP goals and objectives. As a final step in this fourth stage, the staff and families worked together to identify commonalities in the strengths and needs delineated by the families and to prioritize the areas thought most important. These priorities were then developed into behavioral objectives and incorporated into an IEP.

As a final stage, a formal IEP meeting with the family and requisite team members present was held. At this time, families were invited to make any additional recommendations or changes to their child's IEP that they might desire. The IEP was then signed by all involved and entered in the Project's records as the child's official IEP document.

The advantages of this process were: (a) that the assessment presented a more complete picture of the child because of the multiple input provided during the assessment and because the assessment was usually done in the child's most familiar and comfortable environment, (b) parental input was more easily elicited, (c) the process became much more focused on the child's strengths and consequently a more positive picture of the child was seen, (d) an IEP was developed that more clearly represented the needs and desires of the family and home environment as well as the child's more "traditional" kinds of educational or developmental needs, and (e) increased the family's ownership and understanding of their child's assessment and IEP.

A copy of the pamphlet that was given to families to describe the process in included in Appendix D.

F. PARENT RESOURCE LIBRARY

A small resource library of information for parents was developed by Project staff and housed in the Project classroom. It contained books, pamphlets, and brochures on information relevant to development, medical conditions, parents' rights, and service agencies and organizations. These materials were on continuous loan to Project parents throughout the period of the Project.

IV. REPLICATION ACTIVITIES

The process of replication was completed for two of the Project's three major products--the O&M curriculum and screening tool. The replication process varied somewhat depending on the particulars of the product involved, yet the following general process was adhered to whenever possible. First, after each product was developed (as described eariler in the Model Development section), it was pilot tested with appropriate direct service participants. Second, revisions were then made and the product was sent on for external expert review. Expert reviewers included professionals in direct service as well as college educators and program administrators. Suggestions and feedback were anlayzed and appropriate revisions completed before the product was sent on to the final stage of national field testing.

The national field testing process was used over a single replication site because problems occurred (instructor illness, loss of target children, etc.) at three different selected replication sites. Additionally, 25 programs contacted the Project and indicated an interest in field testing various Project products. It was determined that use of a nation-wide field test procedure would produce increased information regarding product use with a greater variety and number of children, therefore increasing generalizability and useability of the Project's final products. Feedback from this stage was carefully analyzed and utilized to evaluate each product. The specific processes and results for each major product are described below.

O&M Curriculum

Expert Review. The expert review process for the curriculum was handled in two different ways (see Table 1 for list of experts). The Mobility section was mailed to expert reviewers in one packet. The reviewers were asked to comment on this section in two ways. First, reviewers made narrative comments regarding content, organization, format, and wording of the curriculum. Second, the experts rated the group of skills for completeness and importance (see Table 12).

Skills from the remaining sections of the curriculum (orientation, gross motor, and fine motor) were sent to experts a few skills at a time as they were developed. For these sections, reviewers were asked to write comments directly on the skill sheets and return them to Project staff. Comments once again included those pertaining to content, organization, format, and wording. No qualitative ratings were requested due to skills being sent out in small groups as well as the fact that no significant changes were suggested from the ratings in the Mobility section.

For all sections, comments from all experts were compiled on a skill-by-skill basis. Comments on each portion of each skill were typed together and coded so the specific experts' comments were unknown to the readers. Project staff then examined the collective comments for each skill to determine if any specific or overall changes needed to be made.

For the most part, the expert review comments reflected support for the overall organization and content of the curriculum. In the early stages, a number of comments suggested minor wording and format changes. Additionally, the reviewers offered many ideas for teaching activities and complementary

Table 12

Expert Review Data: Formal Mobility Skills Ratings

SKILL	Experts A	B	C	D	E	AVERAGE
Sighted Guide						
Basic Sighted Guide	5	5	5	5	5	5
Narrow Space	5	5	4	3.5	4	4.3
Changing Sides	3	5	2	4	3	3.4
Reversing Directions	1	4	Ø	4	3	2.4
Closed Doors	5	4	5	3	4	4.2
Stairs	5	5	5	4	5	4.8
Seating	5	4	5	4	5	4.6
Auditorium Seating	2	1	1	3	4	2.2
Accepting Aid	4	5	1	2	4	3.2
Vehicles	5	5	5	4	5	4.8
Independent Seating						
At Child Seats	5	4	5	4	5	4.6
At Child Table	5	4	4	4	5	4.4
At Adult Seats	5	4	4	3	3	3.8
Self-Protection						
Using Objects As Bumpers	5	5	5	5	4	4.8
Lower Hand & Forearm	3	3	2	4	4	3.2
Upper Hand & Forearm	5	3	4	4	4	4.Ø
Independent Travel						
Stairs	5	5	5	4	4	4.6
Doors	5	5	5	3.5	5	4.7
Cane Skills						
Contacting Objects	3	3	5	4	2	3.4
Examining Objects	4	3	5	3	2	3.4
Diagonal	3	3	4	4	2	3.2
Placement	3	3	5	3	2	3.2
Walking w/Guide	3	2	4	3	2	2.8
Trail w/Diagonal	3	2	3	4	2	2.8

strategies. Overall, response by experts was supportive of the entire curriculum.

National Field Test. The field test version of the curriculum was mailed to 67 O&M specialists and teachers of the visually impaired who had expressed interest in testing it. Of the original number, 33 individuals responded by returning evaluative feedback information on all or portions of the curriculum. These 33 individuals in 18 states acted as field test sites for the replication process. The participants varied considerably in teaching experience. Experience in teaching O&M ranged from 0-19 years (mean = 3-1/2 years) with 1/5 of the participants listing 0 years of experience. Half of the participants were dually certified in both O&M and VI and the other half were almost equally divided between O&M (8) or VI (7) certification only. Approximately 50% of the participants were employed by public school systems, 25% by schools for the blind, and 25% equally divided between state and private agencies serving the visually impaired. Twenty-three percent of the respondents were male and 77% female (see Appendix E--Teacher Background Information Form for additional information collected).

A total of 96 children participants were chosen by their instructors to be included in the field testing process. Not all children were included in testing all portions of the curriculum. After receiving each skill packet, instructors matched their students with skills of appropriate level and functional use. Children participants ranged in age from 6 months to 5 years of age with the majority of children being 4 and 5 years old. Degree of visual impairment ranged from total blindness to visual impairment less than legal blindness, with approximately 50% of participants diagnosed as totally blind. Many children participants were multiply impaired in addition to their visual impairment.

Field test materials for the Mobility section were sent to testing sites in one complete packet (see Appendix F--Field Test Procedures Manual). Participants were requested to test a minimum of three skills. However, they were also encouraged to test as many of the other skills as possible. The Orientation and Motor sections were sent out a few skills at a time. For these skills, participants were requested to choose skills which matched their students' level and functional needs. They were asked to test approximately 10 skills (total) from these two sections. Field test participants were requested to utilize the skills with their students for approximately one month during normally scheduled contacts with their students.

A wide range of information was obtained from the field test participants through their response to Child Data (see Appendix G) and Curriculum Feedback forms (see Appendix H) for each skill. Demographic data included the following: age of child, degree of visual impairment, existence of additional impairments, and number of usual contact hours with the child per week. Additionally, specific number of hours spent teaching each skill and beginning and ending levels were recorded. Curriculum Feedback forms included information regarding format, content, and utility of each skill. Participants rated the appropriateness and usefulness of each portion of the skill. Rating was on a 4-point Likert scale ranging from "Very Useful/Appropriate" to "Inappropriate." Narrative responses were requested for each rating as well as general comments regarding format, content, wording, etc.

Data Analysis. All demongraphic and feedback information was coded and

statistically analyzed. By incorporating instructor background data, child demographic data, and feedback ratings, a number of comparisons were explored. In addition to descriptive information, hierarchy skill level gains were examined as a part of the curriculum evaluation through the national field testing process. Gains were calculated by subtracting a visually impaired child's starting level on a skill from that child's ending level on that same skill; starting and ending levels were determined by the child's orientation and mobility instructor or vision teacher based on the hierarchy skill level descriptions from the Project's curriculum. Responses were obtained for 20 skills in the orientation section, 20 skills in the mobility section, and 13 skills in the motor section for gain score analysis. Gain scores, hours of instruction, number of children, number of skill levels, and skills are presented in the Evaluation section (Question #1).

O&M Screening

Expert Review. Individuals serving as expert reviewers for the O&M Screening appear in Table 1. All experts except Kay Ferrell reviewed the O&M screenings. Expert reviewers for the O&M Screening were requested to examine the two forms of the screening tool and make narrative comments on each screening form. As with the curriculum data, narrative responses on the screening tools were compiled on each section for review by Project staff. Generally, few comments were offered by the experts.

Field Test. The screening tool was sent to 35 individuals expressing interest in field testing the screenings. Participants were asked to use the screenings with any appropriate children on their caseloads. Feedback was received from 17 field test sites regarding the use of the O&M screening forms with preschool children. Screening A was tested with 12 children and Screening B with 18 children. The children ranged in age from 6 months old to 5 years. Nine of the children were one year or younger and nine were 5 years old. Sixty-seven percent of the children were totally blind. Detailed evaluation data for the two O&M screenings are presented in the Evaluation section (Question #2).

Resource Center Feedback

Additional information about the screenings was obtained from a survey of parents/teachers of children attending the Resource Center. A total of 37 children attended at least one Resource Center; a total of 26 parents/teachers (70.3%) responded to a survey concerning Resource Center services. The survey (see Appendix I) consisted of a mail-in form sent to the parents or teachers who accompanied their child to the Resource Center. A follow-up letter was sent to all parents or teachers not responding to the first survey letter. Finally, one parent not responding to the second survey letter was interviewed over the phone.

Responses on the parent/teacher survey were coded into a 5-point Likert scale with 1 indicating a strongly positive score and 5 indicating a strongly negative score. The questions can be divided into three major categories of: (a) logistics, (b) timing, and (c) screening content. In general, the survey responses were positive, and tallies for logistics and timing are presented in Table 13. Tallies for screening content are presented and discussed in the Evaluation Section under Question #2. Logistic questions concerned travel and directions to the site, and whether the child met with scheduled specialists. Timing questions asked parents whether sufficient (or too much) time had been

spent to gather accurate information concerning their children. Although a majority of parents responded strongly positive to each survey item, three parents responded only somewhat positively for difficulties encountered in finding parking for the Center. Six parents responsed either somewhat positively or neutral to questions about timing; for most of these parents, more time was necessary for the screening.

Table 13

Resource Center Survey Responses--Survey Question Topics

	Strongly Positive 1	2	Neutral 3	4	Strongly Negative 5
Logistics:					
Parking, travel instructions	23	3	-	-	-
Parents met with scheduled specialists	25	1	-	-	-
Timing:					
Duration of screening appropriate	20	5	1	-	-

*26 parents or teachers participated in this survey

V. EVALUATION ACTIVITIES

Ongoing Project evaluation was conducted using the Discrepancy Evalaution Model (DEM) design (Yavorsky, 1976). In this design, major program components are defined and described in terms of inputs (resources), processes (intervention and activities to meet program goals), and outputs (major Project outcomes, accomplishments, and products).

Ten evaluation questions were proposed in the original and two continuation proposals (see Table 14). Data were presented relative to the 10 evaluation questions in the Year 2 and 3 continuation proposals. Because of the modifications in some of our model development objectives, it was necessary to change some of our evaluation questions in Year 3. Evaluation questions 2, 4, 5, and 6 were revised to reflect these changes and are denoted by an asterick in Table 14. Detailed, data-based responses follow for each question.

Table 14

Project Evaluation Questions

1. Are the children in the program demonstrating general and specific developmental gains?
2. Are the assessment strategy battery subsets complete and appropriate?
   * Are the O&M screenings complete, appropriate, and useful?
3. Are children adequately using appropriate O&M skills in novel environments?
4. Did parents adequately implement their Individualized Parent Education Programs (PEPs)?
   * Is the O&M pamphlet for families complete and appropriate?
5. Did the microcomputer application technology facilitate systematic search patterns with selected children?
   * Did the microcomputer technology application facilitate novel route travel by selected children in the classroom?
6. Did the Sonicguide facilitate environmental awareness and good posture and decrease stereotypical behavior with selected children?
   * Did the Sonicguide facilitate systematic search patterns with selected children?
7. Are staff gaining additional knowledge as a result of the inservice program?
8. Are parents satisfied with the program and their involvement in it?
9. Are the staff satisfied with their role(s), child progress, and parent involvement?
10. Is the program making adequate use of its resources?

EVALUATION QUESTION 1: ARE THE CHILDREN IN THE PROGRAM DEMONSTRATING GENERAL AND SPECIFIC DEVELOPMENTAL GAINS?

General and specific developmental gains are examined and presented in three areas. First, children in the classroom and home-based instruction have been assessed using a battery of multiple assessment tools, including the Battelle, the Functional Vision Inventory, and an O&M screening tool developed by Project staff. Second, parents of the children in the classroom and home-based instruction have been interviewed and their observations concerning general and specific developmental gains are presented. Third, gain scores for 20 mobility skills, 20 orientation skills, and 13 motor skills from the national field test are examined. These different methods of examining developmental gains are presented below.

1. Developmental gains for classroom and home-based children as measured from a battery of multiple assessment tools.

Students in the classroom and home-based programs were evaluated on a 6-month basis using the Battelle Developmental Inventory which provided a standardized measure of change. In addition, periodic assessments using the Functional Vision Inventory and the Project developed O&M Screenings were administered to obtain an anecdotal measure of changes in behavior. The Battelle reports results in five domains: Personal-Social, Adaptive, Motor (Gross and Fine Motor); Communication (Receptive and Expressive), and Cognitive as well as an overall score. Table 15 summarizes the results of those assessments. (NOTE: All results are reported in months age equivalencies).

Table 15

Summaries Of Battelle Assessments: Child Progress Data (N = 12)*

Domain	Pre-Program	Post Program	Time In Program	Change	Comments
		Child A: Classroom			
Personal-Social	5	10	17 mos.	5	Child was developmentally delayed
Adaptive	14	16		2	
Gross Motor	12	15		3	
Fine Motor	11	14		3	
Motor Total	12	20		2	
Receptive Com.	13	17		4	
Expressive Com.	14	21		7	
Comm. Total	14	20		6	
Cognitive	10	15		5	
Overall					
		Child B: Classroom			
Personal-Social	14	21	19 mos.	7	Child was developmentally delayed and had mild hemiplegia
Adaptive	16	26		10	
Gross Motor	21	28		7	
Fine Motor	16	22		6	
Motor Total	16	24		8	
Receptive Comm.	23	32		9	
Expressive Comm.	13	18		5	
Comm. Total	16	24		8	
Cognitive	16	25		9	
Overall	17	23		6	
		Child C: Classroom			
Personal-Social	11	1[illegible]	13 mos.	7	Child was developmentally delayed
Adaptive	12	16		6	
Gross Motor	15	19		4	
Fine Motor	8	14		6	
Motor Total	12	17		5	
Receptive Comm.	19	19		0	
Expressive Comm.	14	23		9	
Comm. Total	16	22		6	
Cognitive	11	18		7	
Overall	13	18		5	

		Child D: Classroom			
Personal-Social	12	20	13 mos.	8	child showed global developmental delays
Adaptive	11	23		12	
Gross Motor	15	21		6	
Fine Motor	12	20		8	
Motor Total	14	20		6	
Receptive Comm.	17-18	25		7	
Expressive Comm.	19	24		5	
Comm. Total	19	24		5	
Cognitive	9	17		8	
Overall	14	24		10	
		Child E: Classroom			
Personal-Social	24	37	14 mos.	13	
Adaptive	21	34		13	
Gross Motor	31	37		16	
Fine Motor	30	32		12	
Motor Total	30	34		16	
Receptive Comm.	30	50		20	
Expressive Comm.	31	44		13	
Comm. Total	31	47		16	
Cognitive	27	45		18	
Overall	26	42		16	
		Child F: Classroom			
Personal-Social	5	11	14 mos.	6	
Adaptive	13	20		7	
Gross Motor	17	21		4	
Fine Motor	10	23		13	
Motor Total	14	21		7	
Receptive Comm.	6	13		7	
Expressive Comm.	7	9		2	
Comm. Total	8	9		1	
Cognitive	14	18		4	
Overall	11	16		5	
		Child G: Home-Based			
Personal-Social	3	3	18 mos.	0	Child was severely handicapped with physical, cognitive, and auditory impairments
Adaptive	2	3		1	
Gross Motor	2	3		1	
Fine Motor	1	1		1	
Motor Total	2	2		0	
Receptive Comm.	4	4		0	
Expressive Comm.	4	6		2	
Comm. Total	3	4		1	
Cognitive	2	3		1	
Overall	2	3		1	

		Child H: Home-Based			
Personal-Social	2	5	21 mos.	3	Child was severely handicapped with physical and cognitive impairments
Adaptive	2	4		2	
Gross Motor	3	3		Ø	
Fine Motor	1	2		1	
Motor Total	3	3		Ø	
Receptive Comm.	5	8		3	
Expressive Comm.	1	6		5	
Comm. Total	1	6		5	
Cognitive	1	4		3	
Overall	2	4		2	
		Child I: Home-Based			
Personal-Social	1	4	12 mos.	3	Child was multi-handicapped. Was not seen on a regular basis due to multiple health problems
Adaptive	Ø	4		4	
Gross Motor	2	6		4	
Fine Motor	1	4		3	
Motor Total	2	5		3	
Receptive Comm.	Ø	6-7		6	
Expressive Comm.	2	4		2	
Comm. Total	Ø	4		4	
Overall	1	5		4	
		Child J: Home-Based			
Personal-Social	8	9	9 mos.	1	
Adaptive	8	14		6	
Gross Motor	7	15		8	
Fine Motor	6	8		2	
Motor Tot	7	12		5	
Receptiv .	11-12	13-14		2	
Expressi m.	10	11		1	
Comm. Tota	10	12		2	
Cognitive	7	10		3	
Overall	8	12		4	
		Child K: Home-Based			
Personal-Social	5	Ø	3 mos.		Child was not in the program long enough to complete 6-month follow-up
Adaptive	7				
Gross Motor	8				
Fine Motor	7				
Receptive Comm.	8-9				
Expressive Comm.	9				
Comm. Total	8				
Cognitive	10				
Overall	8				

		Child L: Home-Based			
Personal-Social	5	6	24 mos.	1	Child multihandicapped
Adaptive	4	6		2	
Gross Motor	2	4		2	
Fine Motor	1	3		2	
Motor Total	2	4		2	
Receptive Comm.	5	8		3	
Expressive Comm.	6	6		0	
Comm. Total	5	6		1	
Cogitive	2	5		3	
Overall	3	6		3	

*Data are presented on all classroom and home-based Project children served from January 1985 - June 1987

These results indicate that all children enrolled in the program made progress. Many of the home-based children had multiple impairments that greatly impacted on their ability to make significant gains. Each of the children enrolled in the classroom program demonstrated more substantial changes although again their progress was somewhat limited by the amount of the developmental delays (an average of 18-24 months) demonstrated by each child.

2. General and specific gains for classroom and home-based children as reported from parents.

Parents of children in both the program's classroom and home-based components were interviewed by phone (see Appendix J--Parent Telephone Questionnaire). A total of eight parents were interviewed. Additional information about the parents is presented later in this Evaluation section (Question #8). Parents were asked whether their children demonstrated gains in O&M skill development, and whether their children used the O&M skills learned from the program in their home and in everyday activities. All parents were positive in describing developmental and O&M gains of their children. The parent of one child described how her son uses travel, self-protection, search, and exploration (orientation) skills at home and at play. Another parent reported her child as using trailing when walking along the boundaries of rooms and the perimeters of her backyard. General gains from the program were described by one parent of her daughter in a number of skills fostering independence, such as feeding, brushing teeth, and dressing. Some gains by the children were limited by handicaps other than vision. One parent described her daughter as using several of the orientation skills to keep track of her environment, even though her daughter was largely non-ambulatory. Parents of two other non-ambulatory children reported improvements in the areas of tactile perception and fine motor coordination. In sum, parents reported use and improvement over time of a number of general developmental skills and O&M skills by their children.

3. Developmental gains for children receiving the field test curriculum in mobility and orientation.

Characteristics of the children participating in the mobility, orientation, and motor skills curricula in terms of additional handicaps are shown in Figures 1a, b, and c, respectively. The number of children of a given handicap particip in any particular skill can be identified by the appropriately marked bar.

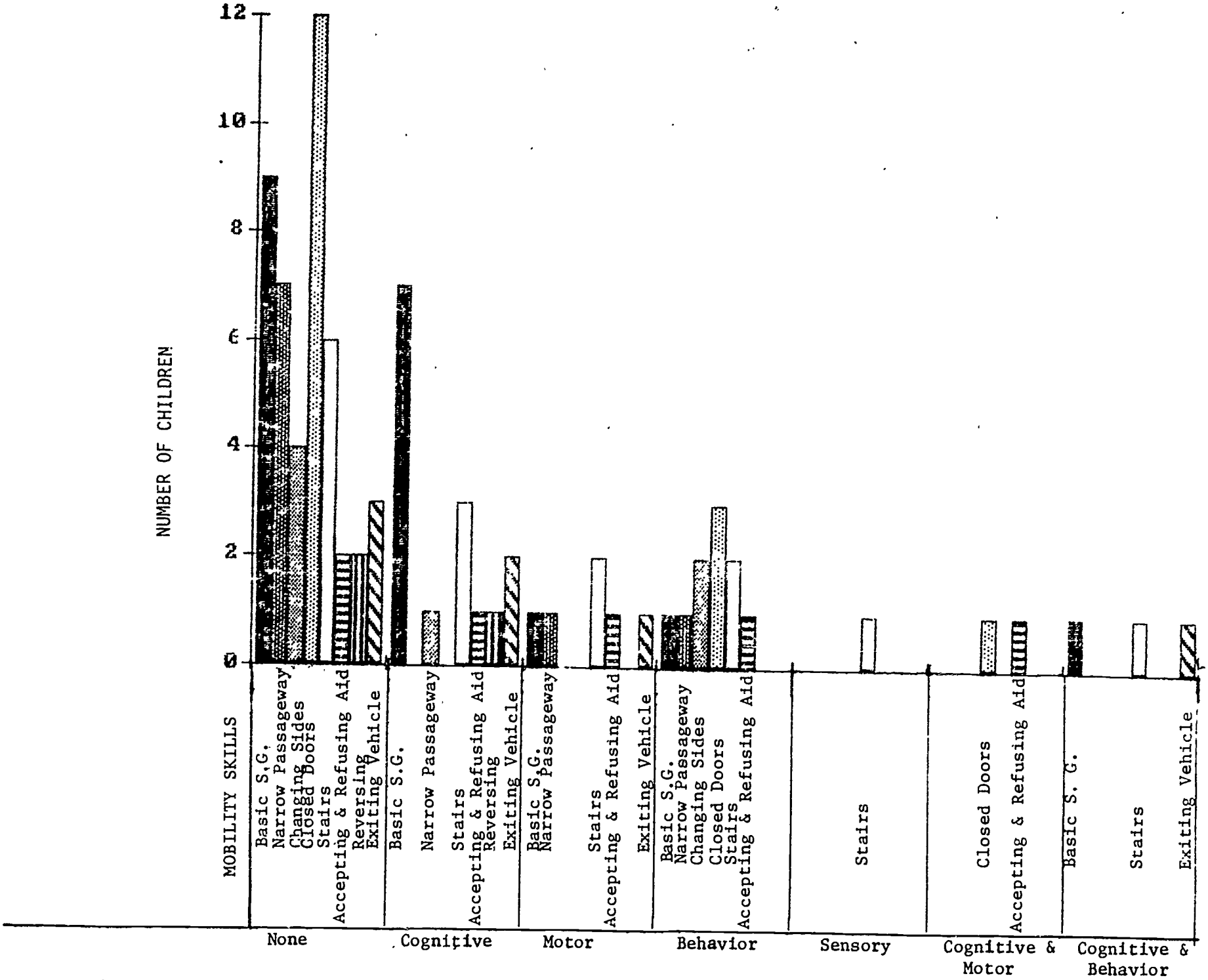


Figure 1a. Characteristics of children participating in the mobility skills curriculum.

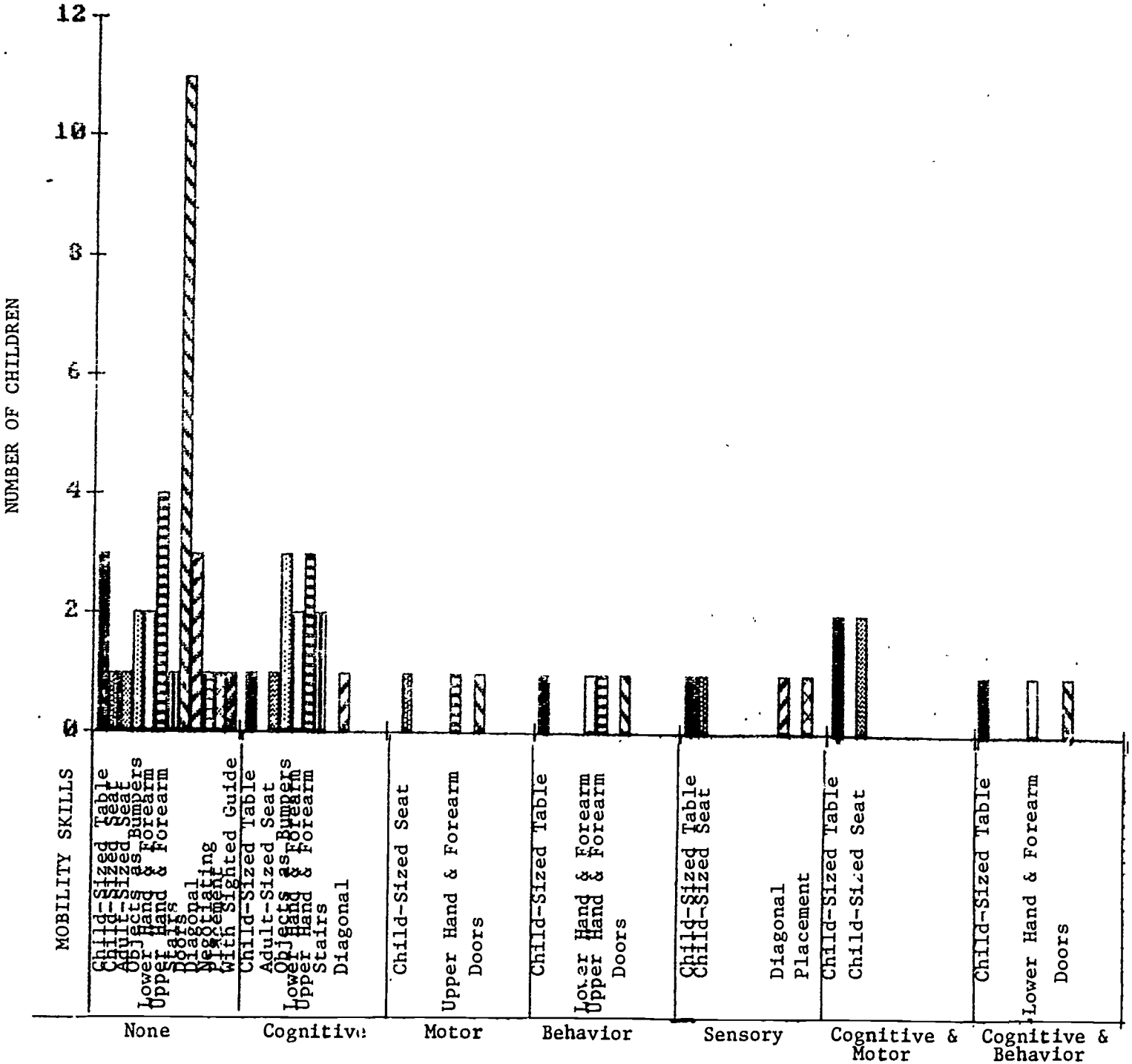


Figure 1a (continued). Characteristics of children participating in the mobility skills curriculum.

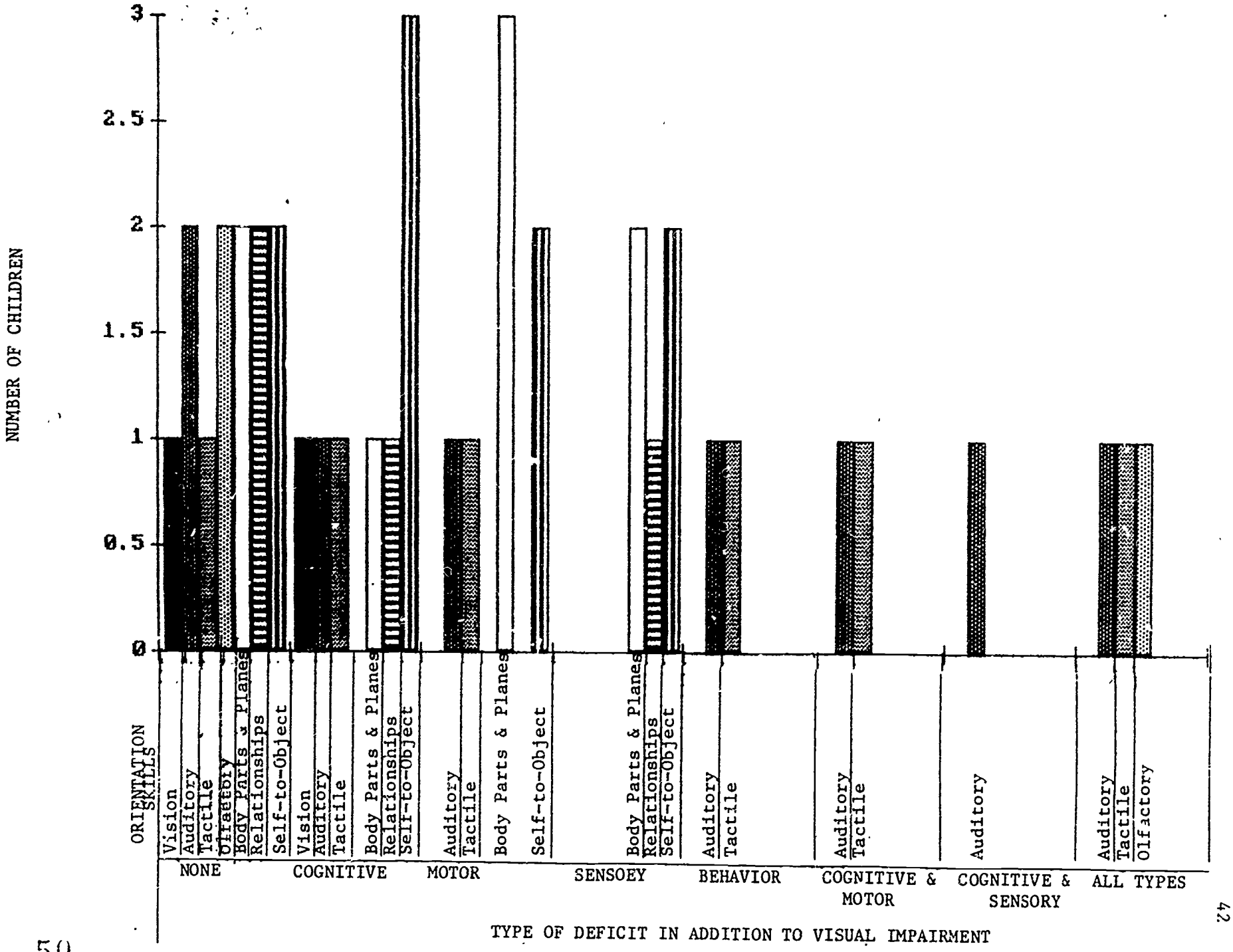


Figure 1b. Characteristics of children participating in the orientation skills curriculum.

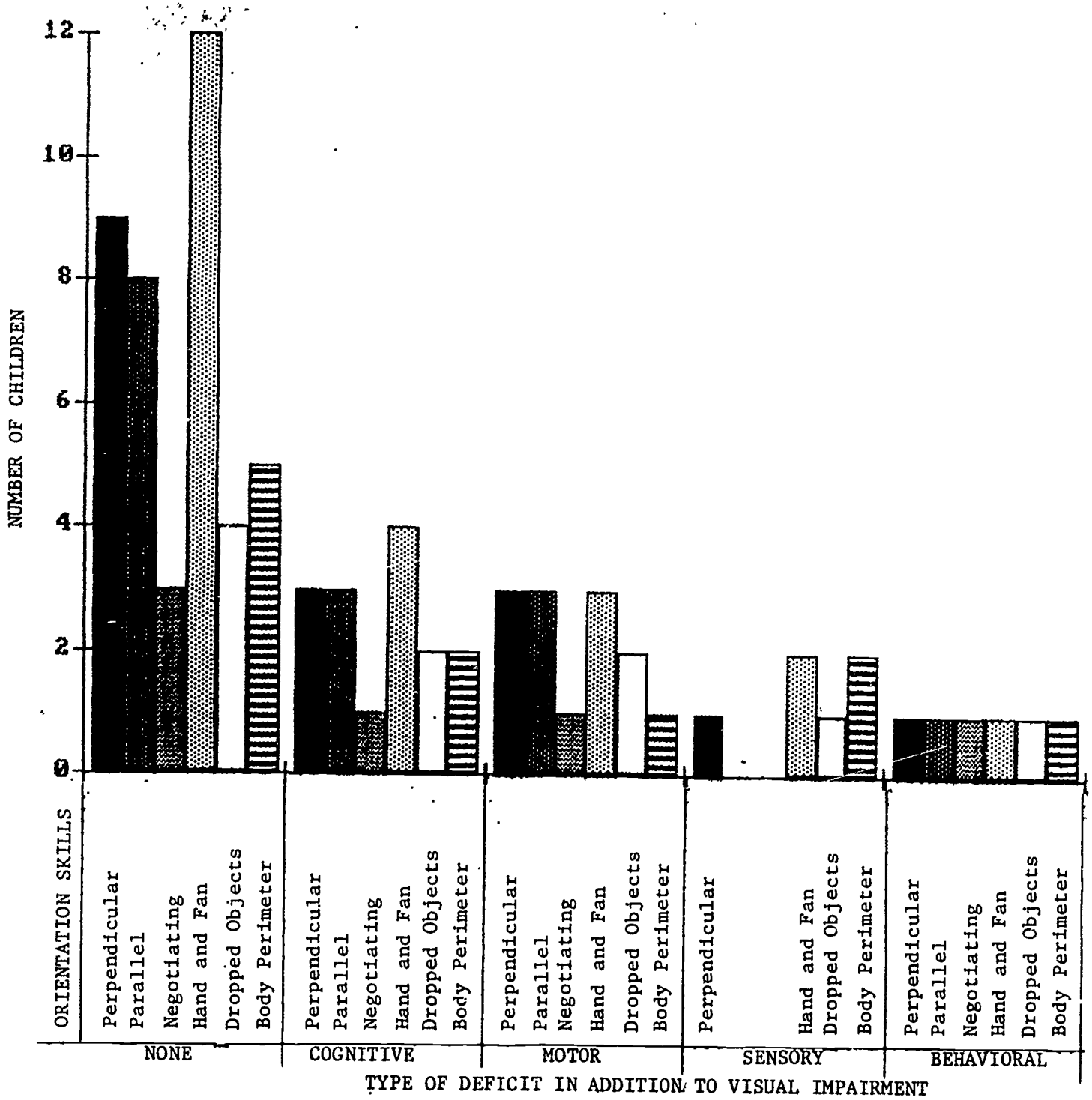


Figure 1b (continued). Characteristics of children participating in the orientation skills curriculum.

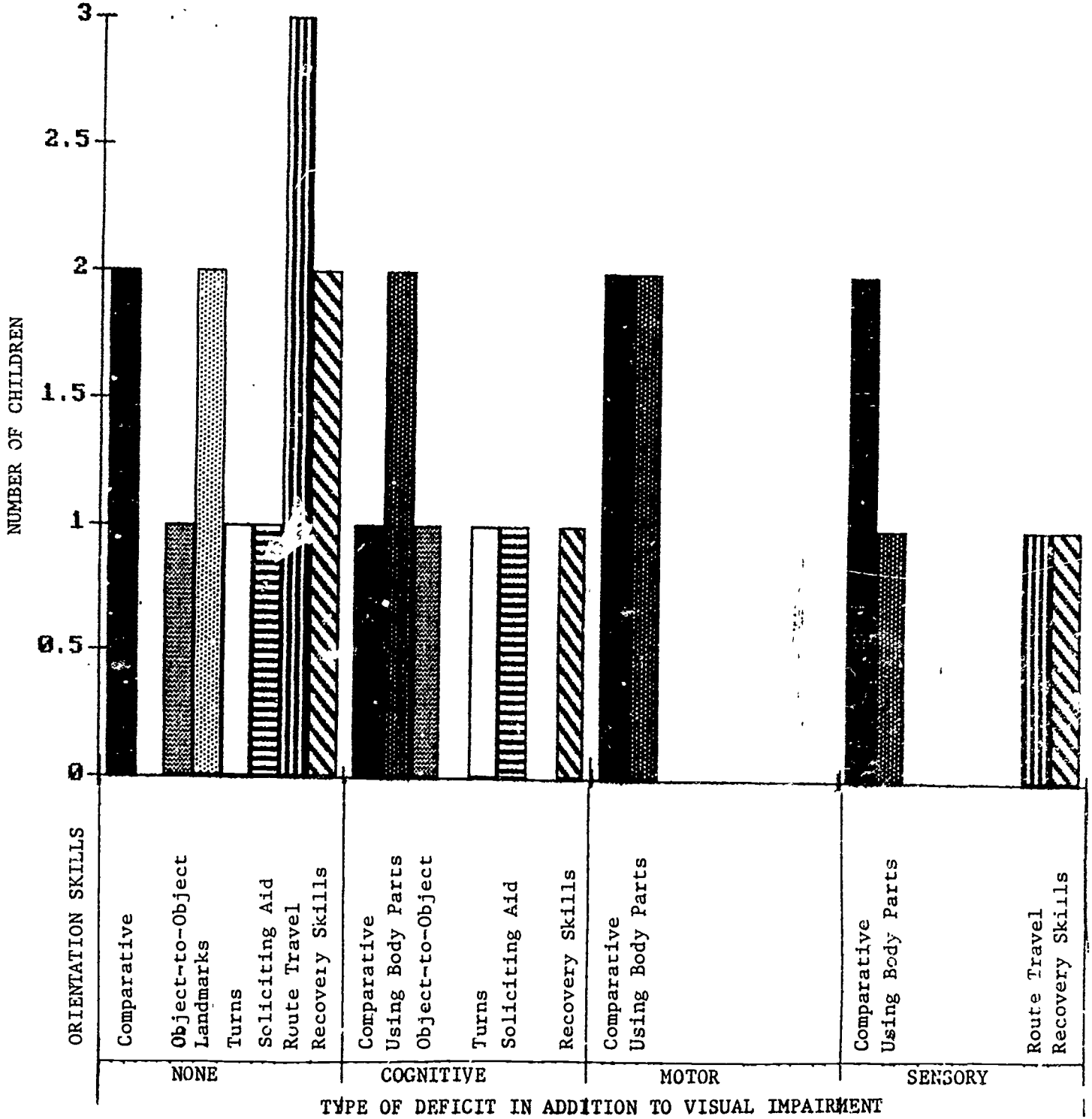


Figure 1b (continued). Characteristics of children participating in the orientation skills curriculum.

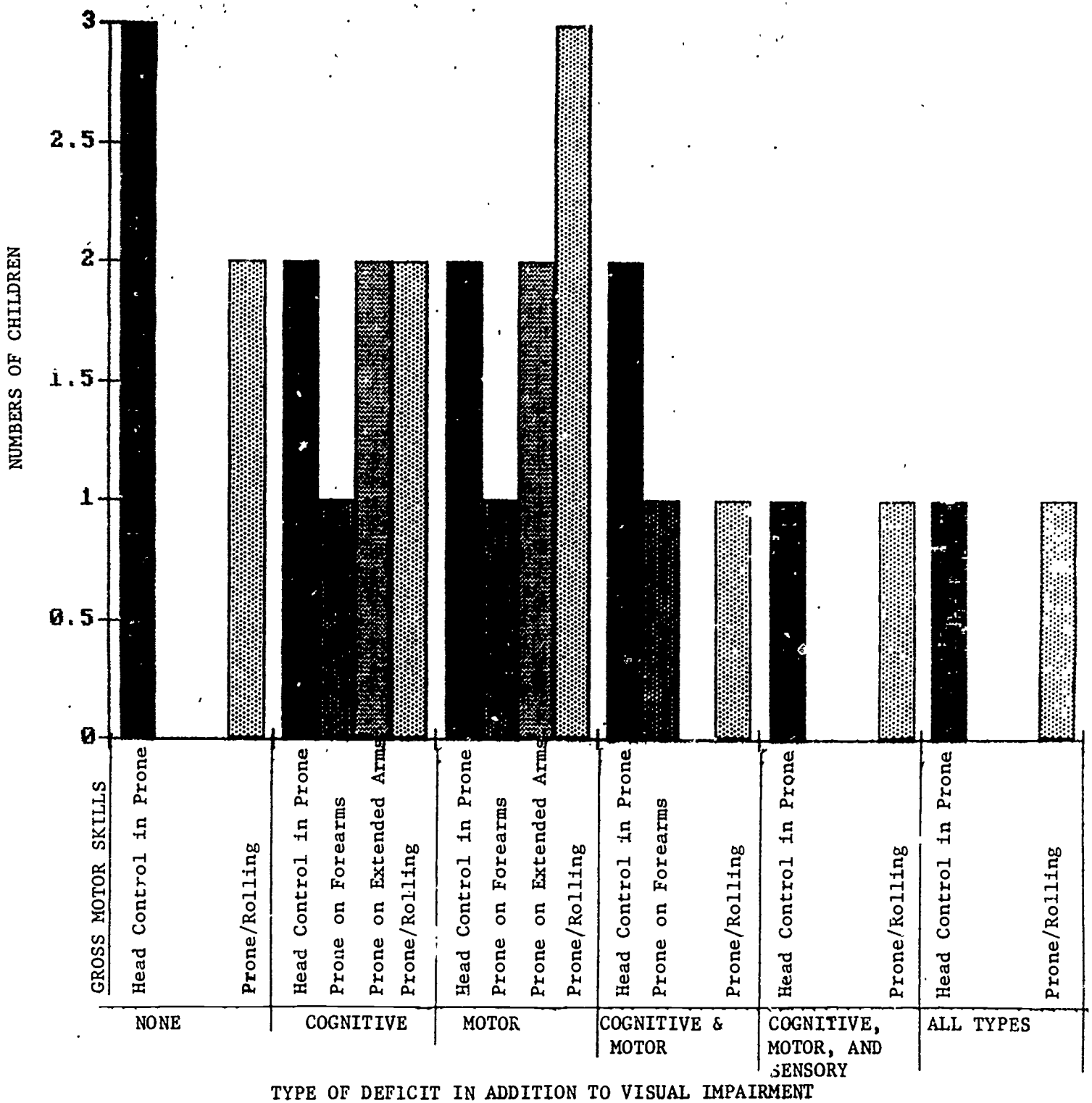


Figure 1c. Characteristics of children participating in the gross motor skills curriculum.

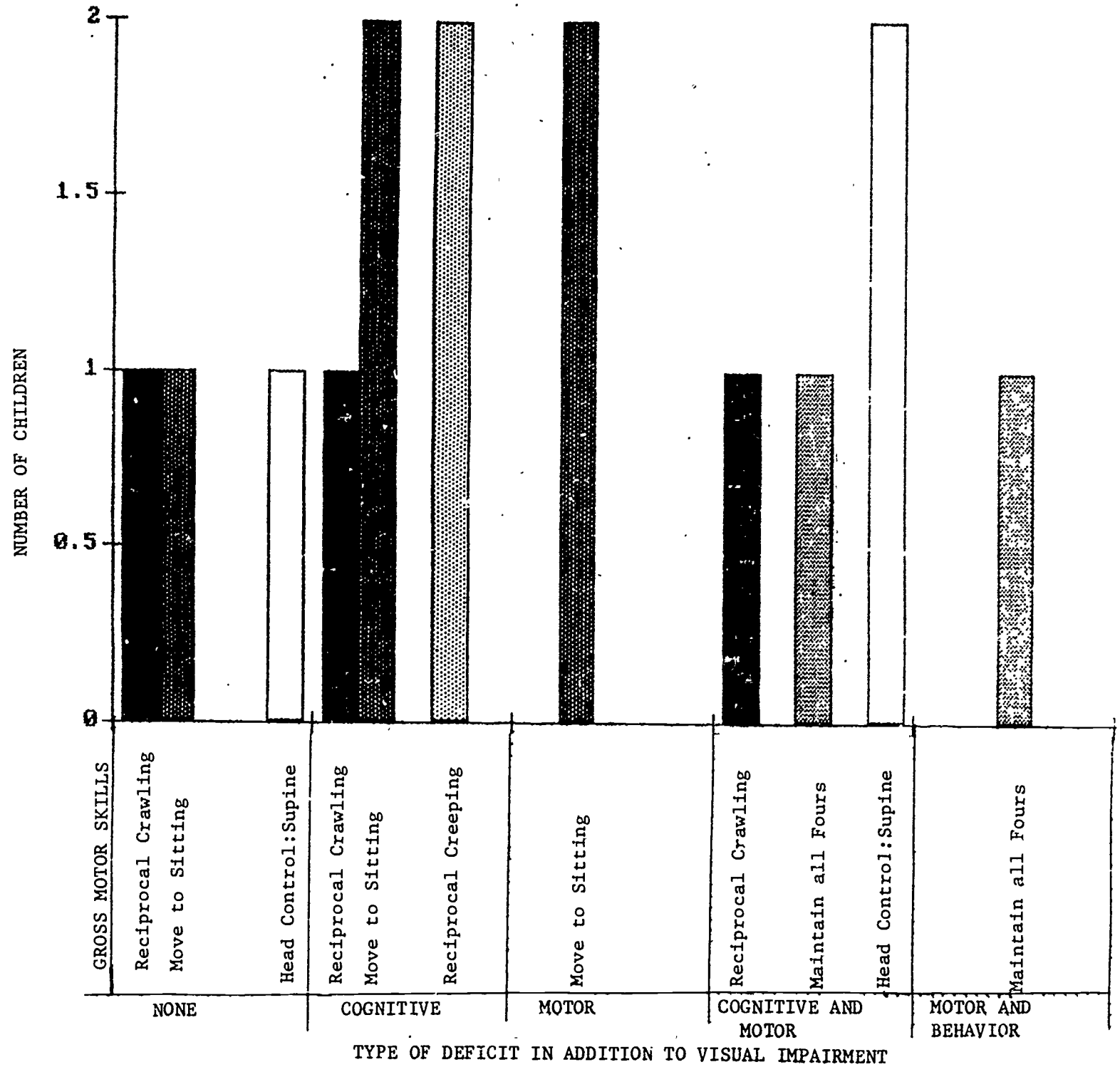


Figure 1c (continued). Characteristics of children participating in the gross motor skills curriculum

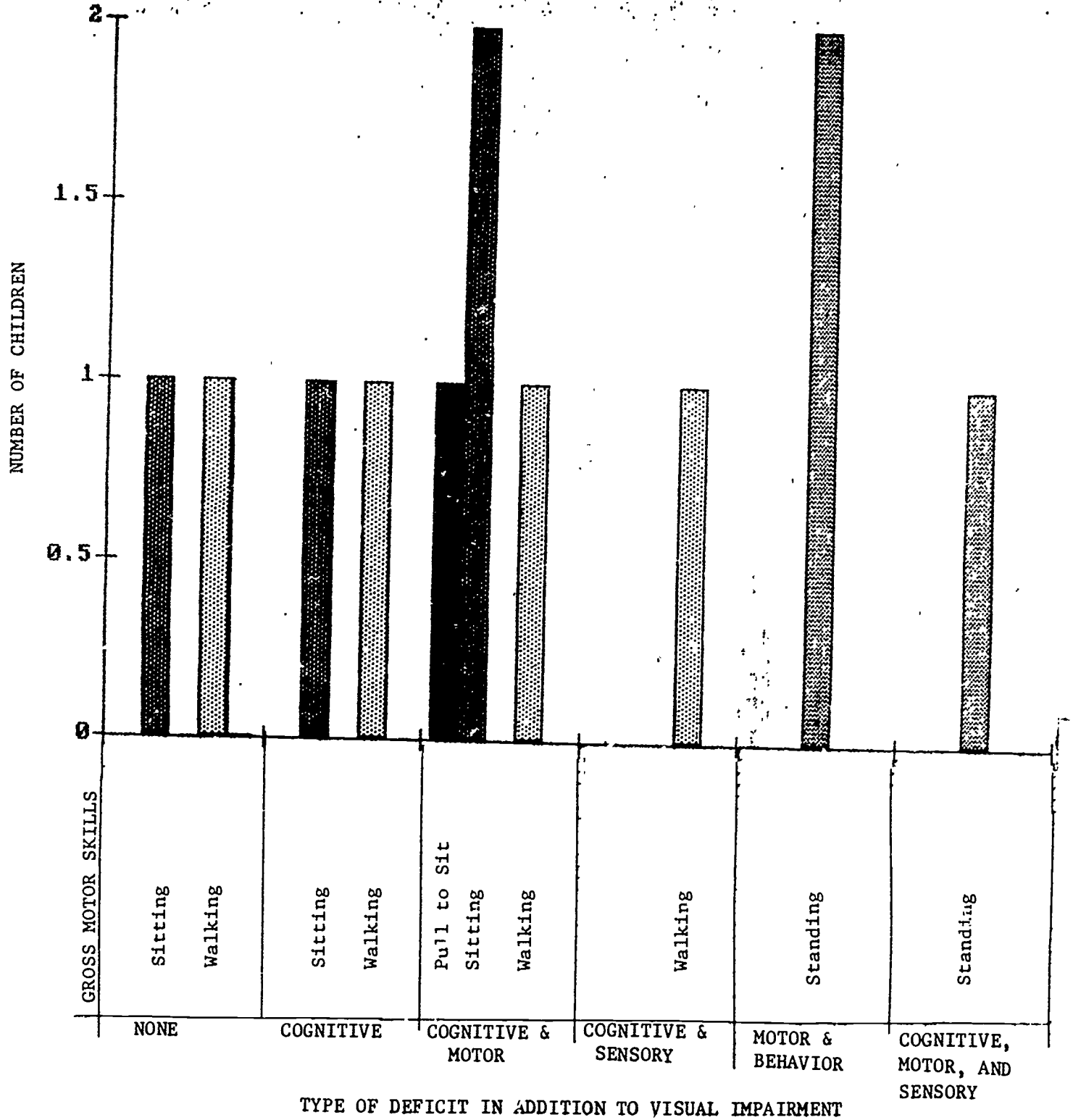


Figure 1c (continued). Characteristics of children participating in the gross motor skills curriculum.

Depending on the skill under examination, approximately one-third of the children contributing data to that skill had no additional handicap, with the remaining children evenly distributed over the main handicap categories of cognitive, motor, behavavioral and sensory deficits. A smaller number of children had more than one additional handicap (cognitive and motor or sensory and behavior). For example, in narrow passageways with sighted guide, 7 children had no additional handicap, 1 had a motor handicap, and 1 had a behavioral handicap. In closed doors with sighted guide, 6 had no additional handicap, 3 had a cognitive handicap, 2 had a motor handicap, 2 had a behavior handicap, 1 had a sensory handicap, and 1 had cognitive and behavior handicaps.

Gain scores from the field testing are available for 20 mobility skills, 20 orientation skills, and 13 motor skills. A total of 51 preschoolers was field tested for mobility skills; each preschooler was tested on an average of 2.76 different skills. In the orientation field testing, 29 preschoolers were tested on an average of 4.9 skills each and 26 preschoolers on an average of 2.19 were tested on the motor skills. Mobility gain scores are shown in Figure 2. Average mobility gains ranged from 0.5 hierarchy skill levels for sighted guide narrow passageways to 2.6 hierarchy skill levels for basic sighted guide. Most average gains for mobility skills ranged from 1 and 2 hierarchy skill levels, depending on the skill in question. Orientation gain scores are shown in Figure 3. Orientation gains ranged from 2.0 hierarchy skill levels (the use of auditory information) to 0.0 (using body parts to measure objects). Most average gains for orientation skills ranged from 0.6 to 1.5 hierarchy skill levels, again depending on the skill under examination.

The range of average gains observed in O&M skills is likely due to a number of factors. Since the needs of the preschoolers differed, the more basic level skills were usually provided to more preschoolers for longer periods of time than advanced skills. Some skills contained more hierarchy levels than other skills (range 3 to 11), the former providing a greater chance for developmental gains than the latter. Several skills require an ability to control or coordinate muscles which take time to develop. Lastly, some of the skills, especially orientation skills involving measurement and alignment, require abstract thought or comparison processes, which take more time to learn than skills which are more concrete. Taking these factors into account, good gains were found for nearly all mobility skills; four of the five skills with the lowest average gains (ranging from 0.5 to 1.0 skill hierarchy levels) contained only two or three hierarchy levels, and the fifth skill contained only four levels.

Gains for some orientation skills were restricted by the number of hours available to teach the skills and the abstract nature of some of the skills. Since the orientation section of the curriculum was completed and sent out for testing after the mobility section, less time was available for teachers to field test the orientation section. The average number of hours of orientation instruction ranged from one hour per child (measurement using the body, navigation of object-to-object relationships, and navigation using landmarks) to more than 3.0 hours per child (use of olfactory cues); most orientation instruction ranged from 1.5 to 2.5 hours per child (see Figure 4). Two of the four orientation skills showing the smallest average gain scores (measurement using the body and navigation of object-to-object relationships) also had the lowest average number of hours of instruction (one hour each); all four of the orientation skills showing the smallest gains were also very abstract in content. In contrast, the average number of hours field test teachers provided

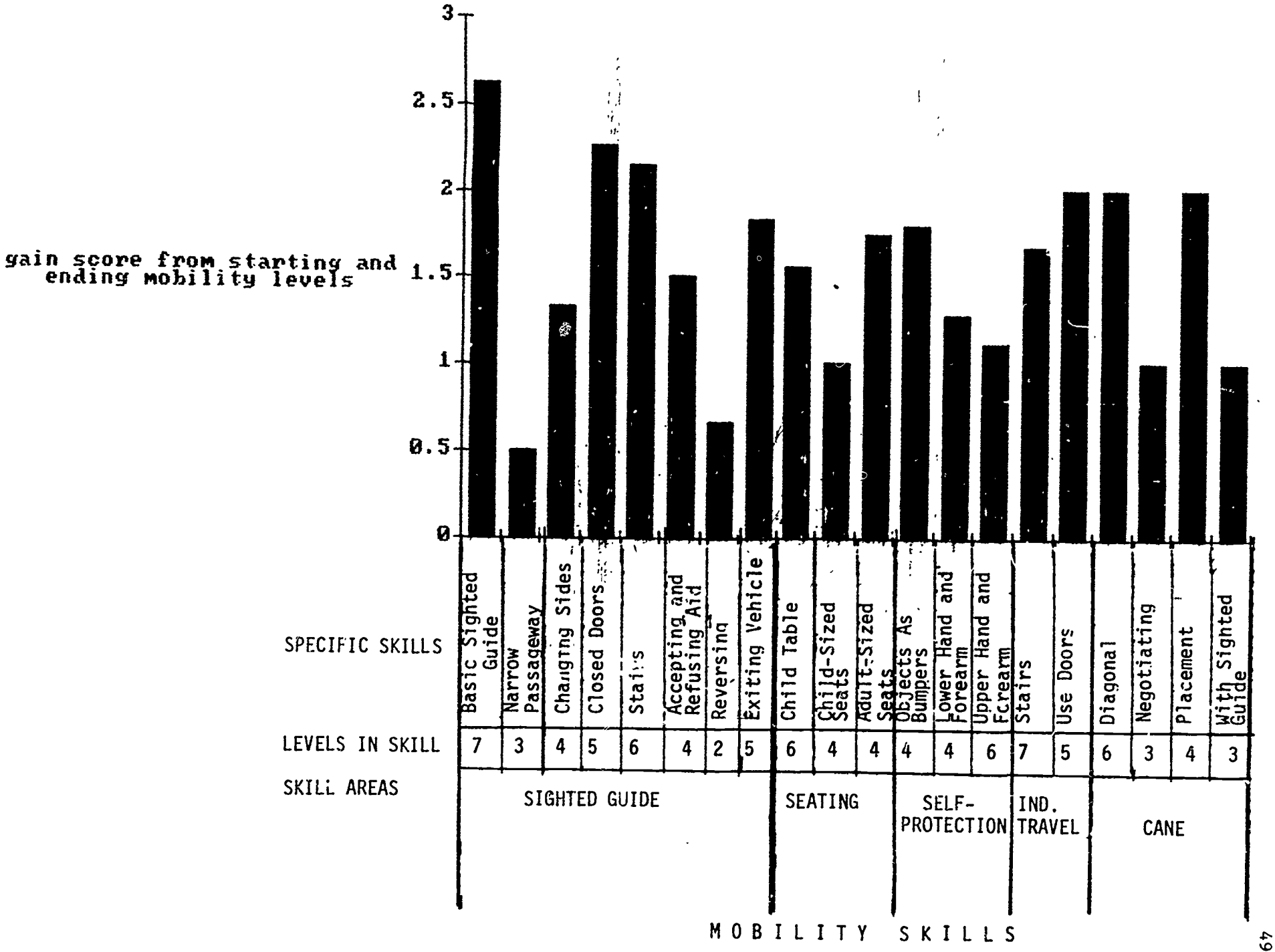


Figure 2. Average Gain Scores For Mobility Skills

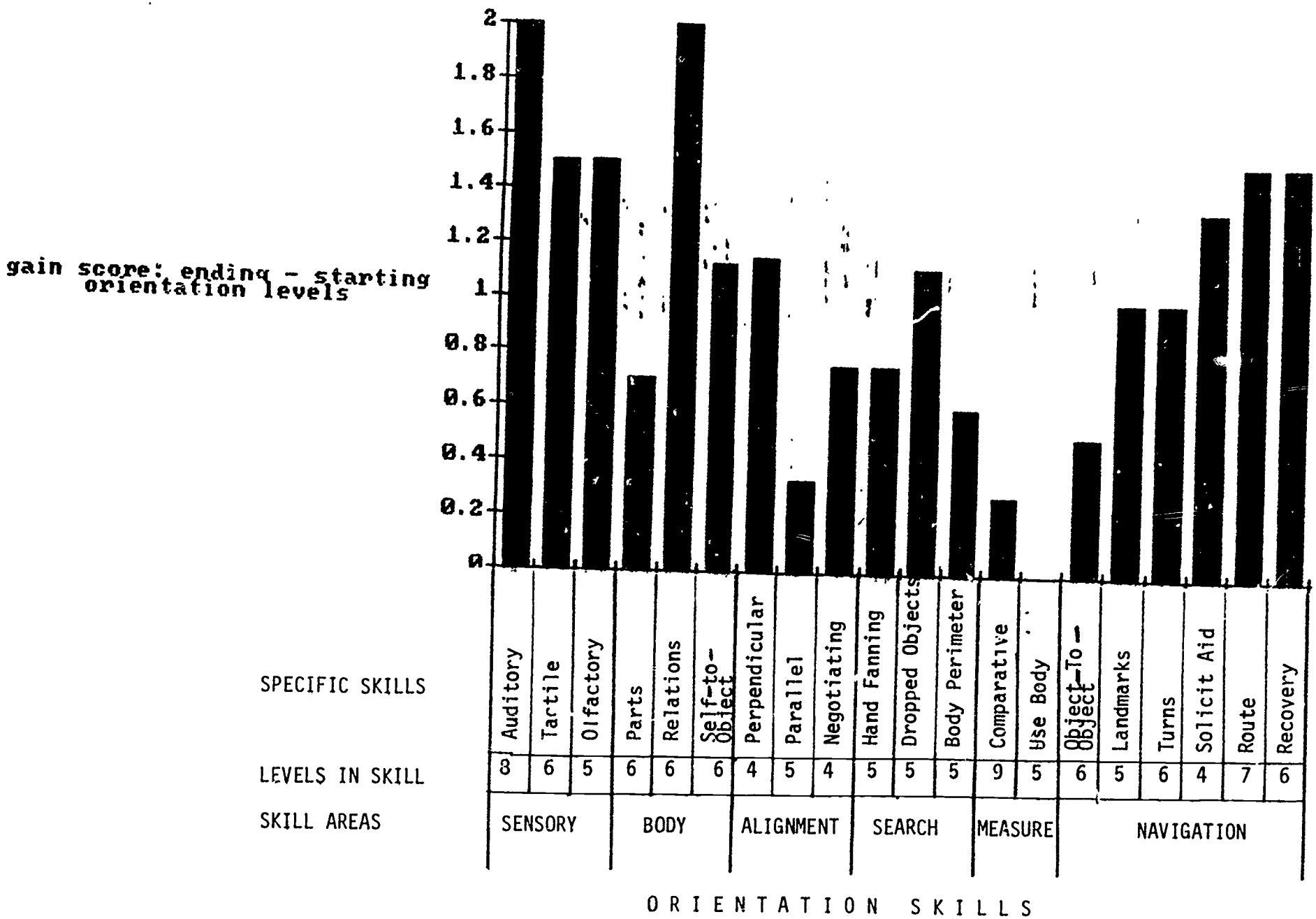
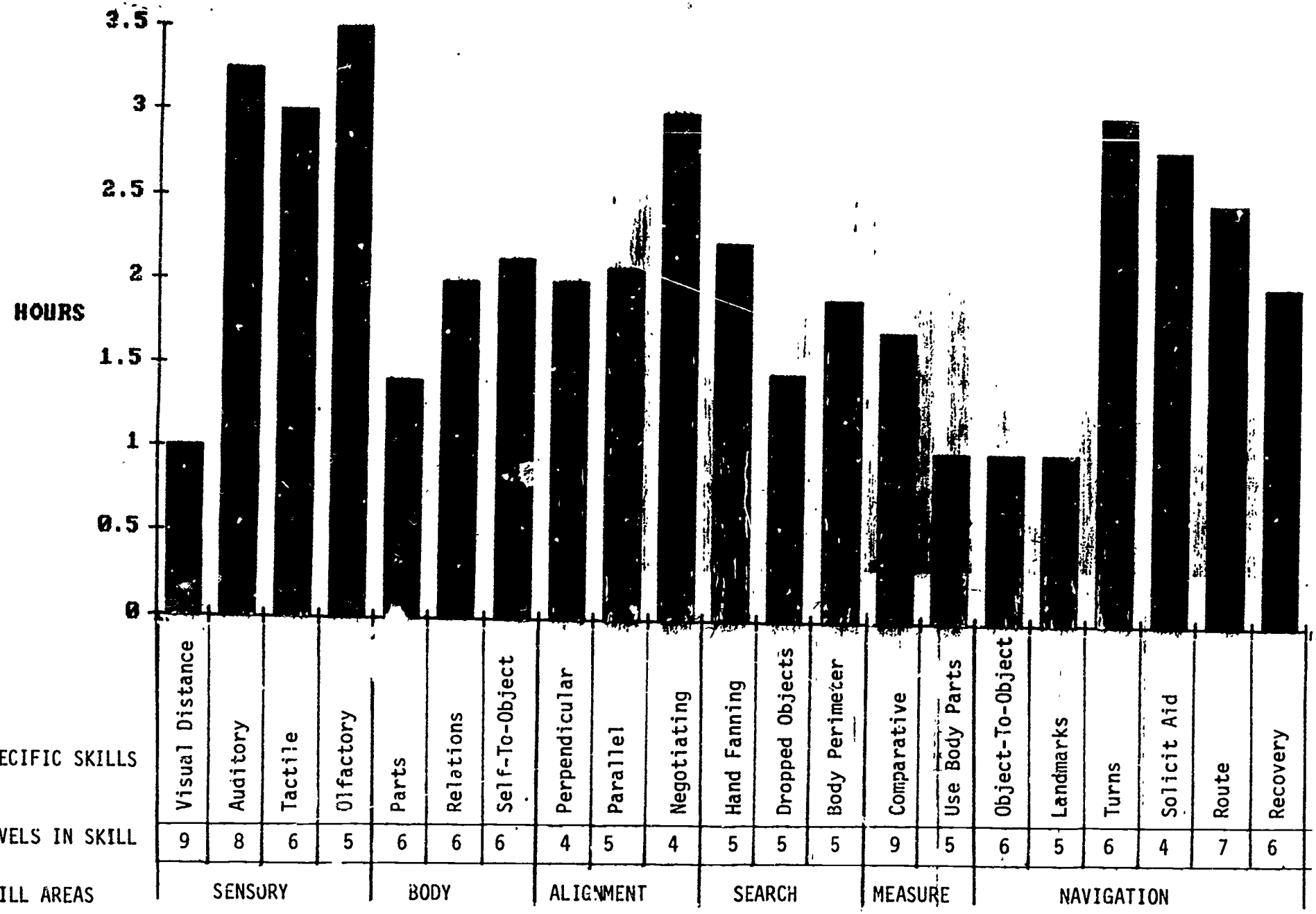


Figure 3. Average Gain Scores For Orientation Skills



ORIENTATION SKILLS

Figure 4. Average Number Of Hours Of Instruction For Orientation Skills

mobility instruction ranged from 1.5 hours total per child for sighted guide refusing aid to more than 13 hours total per child for self-protection lower hand and forearm; most mobility skills instruction ranged from 2 to 6 hours per child (see Figure 5). The average gains observed in the mobility, orientation, and motor skills sections are encouraging given the relatively limited number of hours the teachers spent providing instruction in the skills. Motor gain scores are shown in Figure 6. Average motor gains ranged from 0.0 hierarchy levels for reciprocal creeping on all fours from a prone position and pulling self to sitting from a supine position to approximately 1.8 hierarchy levels for maintaining a prone position with extended arms and walking. Most gains were between 0.7 and 1.5 hierarchy skill levels. The number of hours of motor skills instruction are shown in Figure 7; the average number of hours field test teachers provided motor instruction ranged from one hour of rolling from the prone position to more than 7 hours of reciprocal crawling. The gains observed for some motor skills were restricted by the number of hours available to teach a skill and the time needed by a child to learn to control and coordinate muscles to maintain [illegible] to make movements. One of the motor skills with the highest average gain scores also had the greatest average number of hours of instruction (walking), though several motor skills with high average number of hours of instruction also had relatively low gain scores (reciprocal crawling) or no gain (reciprocal creeping and the ability to pull oneself to sit from a supine position). In sum, developmental gains were shown for most mobility, orientation, and motor skills. Most of these gains were of between one and two levels for mobility skills, 0.6 and 1.6 levels for orientation skills, and 0.7 to 1.5 levels for motor skills.

EVALUATION QUESTION 2: IS THE O&M SCREENING COMPLETE, APPROPRIATE, AND USEFUL?

Information concerning the completeness, appropriateness, and usefulness of the O&M screening are examined from three sources. First, the O&M screening was pilot tested as part of the Resource Center screenings. The O&M instructor who provided the O&M screenings in the Resource Center was interviewed. Additional information is provided by a survey of parents and teachers of children attending the Resource Center. A second source of information is provided from an expert review of the piloted O&M screenings. Finally, use of the screenings by O&M instructors as part of the field test is presented.

1. Feedback from the Resource Center O&M screenings.

The O&M instructor responsible for the O&M screenings at all the Resource Centers was interviewed. The instructor indicated that the Centers were useful to pilot the screening, and that experiences at the Centers led to changes in the screening instrument. Information gathered from the Center screenings led to changes in: (a) the selection and sharpening of age appropriate skills, and (b) the timing of the length of the screening. The instructor felt that the opportunity to pilot the screenings at the Resource Centers helped create a more appropriate and useful screening.

Additional information about the Resource Center screenings was obtained from a survey of parents and teachers of children attending a Resource Center (see Appendix I).
A description of the survey participants and number responding is presented in the Replication Section under Resource Center Feedback. A total of 26 parents or teachers responded to the survey and anwered questions about the content of the Resource Center. Survey responses are presented in Table 16. The screening

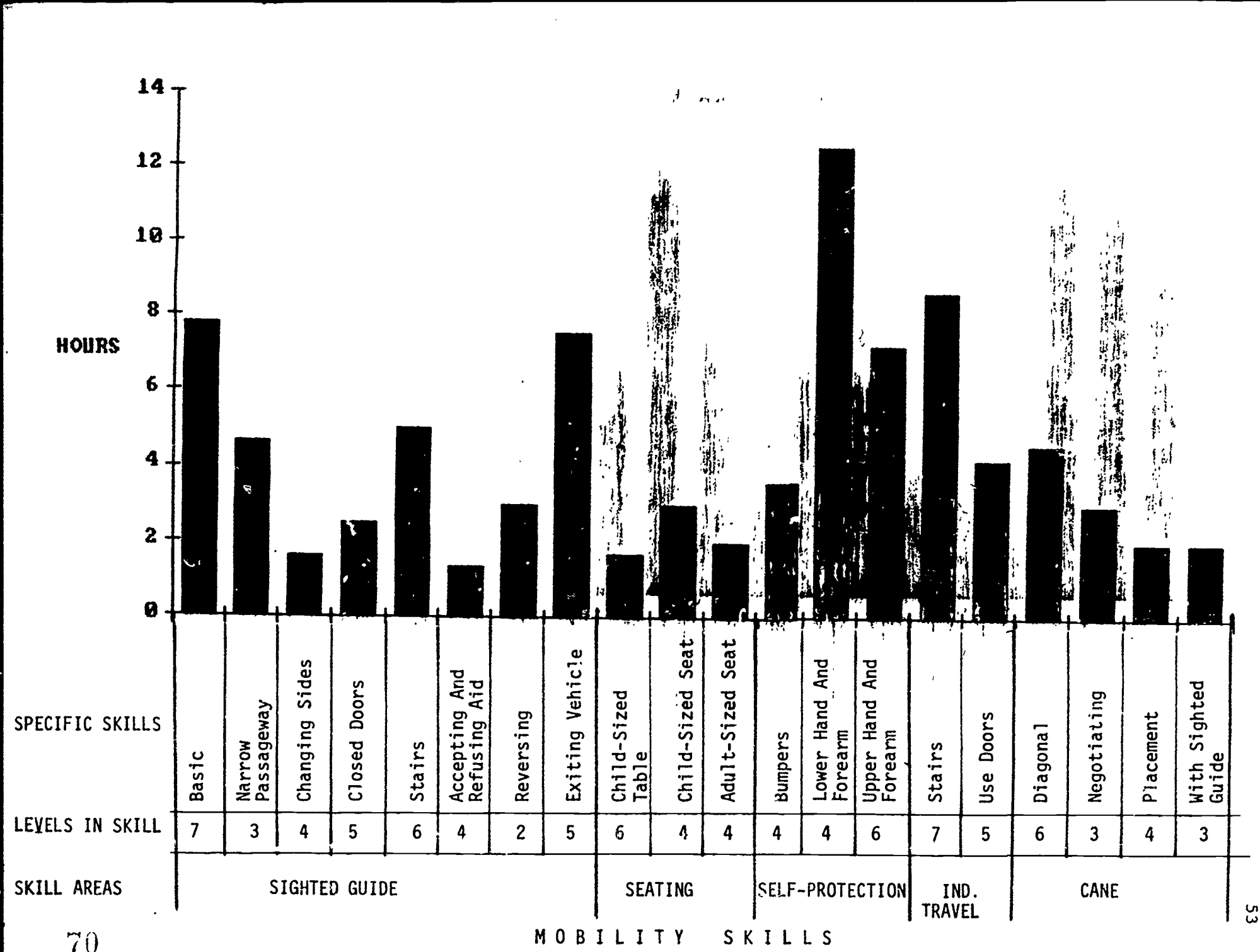
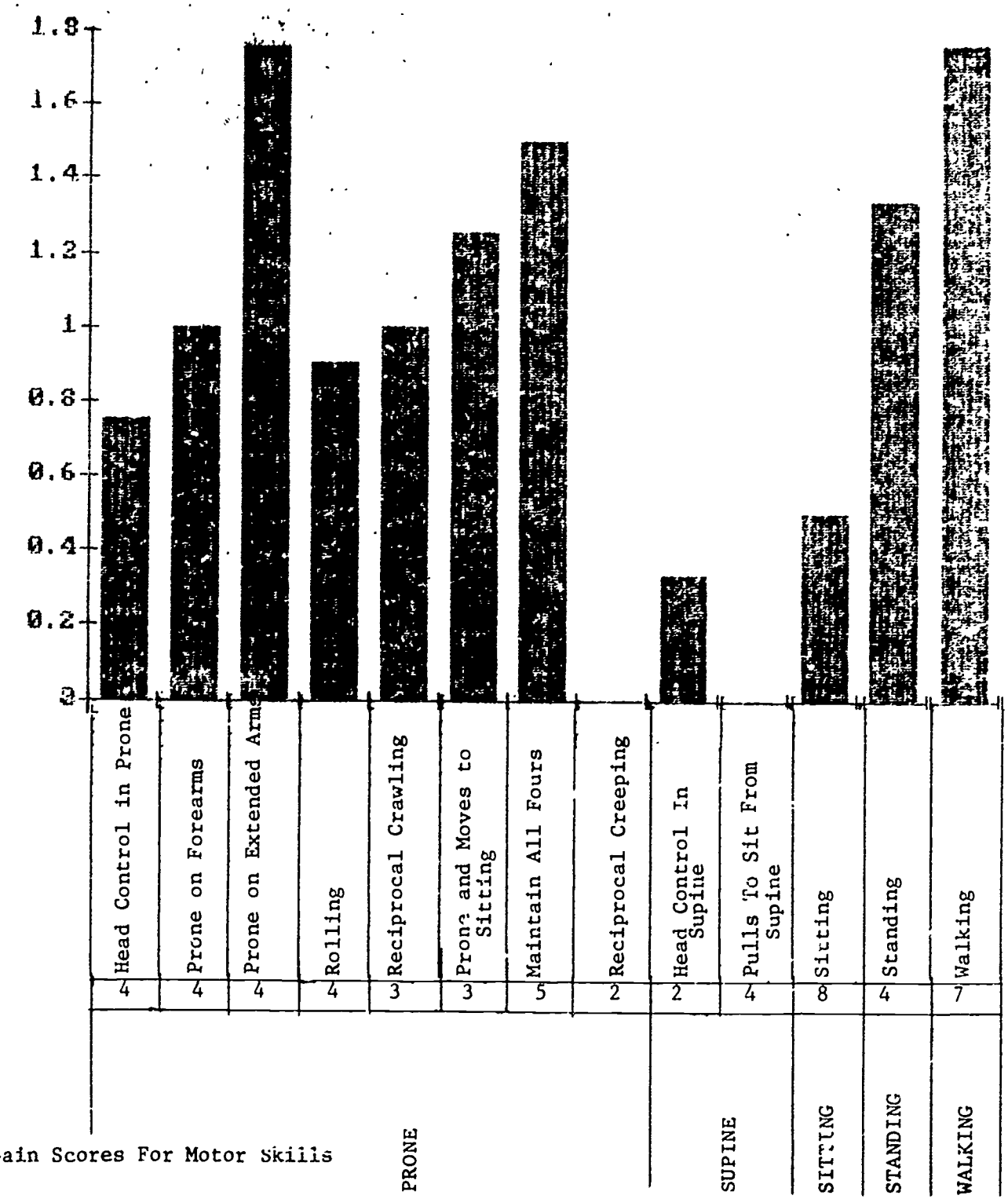
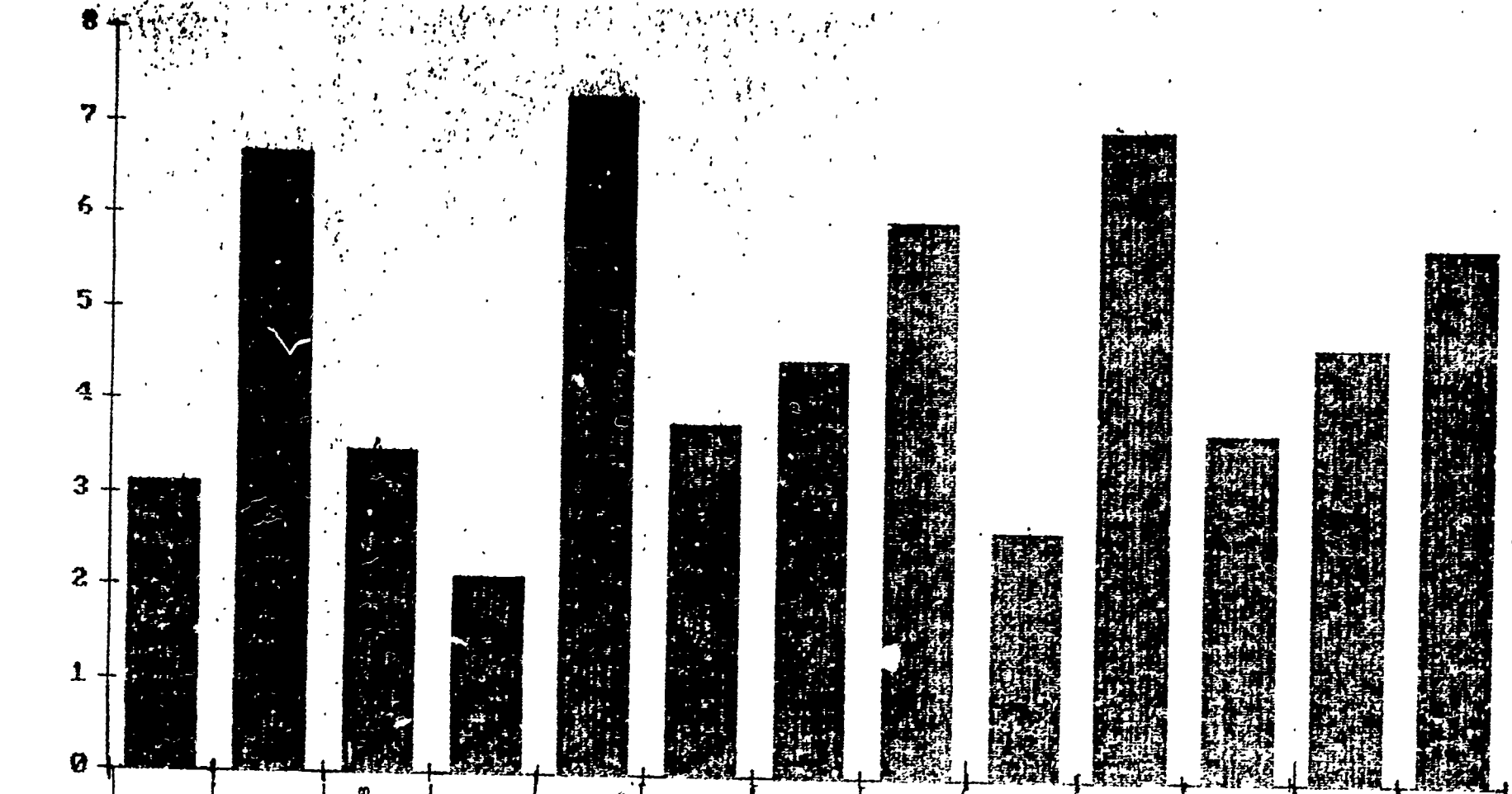


Figure 5. Average Number Of Hours Of Instruction For Mobility Skills



ure 6. Average Gain Scores For Motor Skills



Fi . Average Number of Hours of Instruction for Motor Skills,

content questions looked at parent/teacher ratings of completeness and usefulness of the screening. In general, all ratings were positive. All parents/teachers indicated they would attend future Resource Centers and all reported the suggestions from the screenings were useful for activities and learning for their children. Most parents/teachers (24/26) felt that all their questions were answered by the Resource Center staff. Six parents responded either somewhat positively or neutral to questions about seeing additional specialists beyond those scheduled for the Center that day; most of these parents thought that a hearing specialist would enhance the Resource Center screenings.

Table 16

Resource Center Survey Responses--Screening Content Questions*

	Strongly Positive 1	2	Neutral 3	4	Stronly Negative 5
Parents wish to see additional specialists (1=No, 2=Yes)	20	5	1	--	--
Suggestions from screening useful	26	--	--	--	--
Parents' questions answered	24	1	--	1	--
Parents would attend future Centers	26	--	--	--	--

*A total of 26 parents or teachers participated in this survey

2. Expert review of the piloted O&M screening.

Five experts in O&M were asked to review the O&M screening instrument piloted from the Resource Center screenings. Two screenings were reviewed--a screening instrument for younger, delayed, or non-ambulatory children, and a screening instrument for older, ambulatory children. All experts felt that the screening was appropriate for determining areas for further assessment, and to determine a child's needs and eligibility for O&M services. Four of five experts felt the screening could be used to determine a child's basic programming needs; the fifth expert felt the screening needed more detail to accomplish that purpose. All experts rated the screening as having a logical format, and four of five experts rated the directions to administer the screening as adequate. One expert felt that the screening needed more observations to give a more accurate assessment. Four of the five experts thought that the estimated time for giving the screening was accurate for the younger children. One expert thought that the screening should take longer--about 90 minutes. For the older children, only two of the five experts felt the estimated time for giving the screening was accurate. The remaining three experts thought more time was necessary--estimates ranged from 1 to 2 hours.

The experts were also asked to give detailed feedback on a number of specific O&M screening areas. The experts rated screening areas of background information, gross motor, functional vision, auditory ability, tactile ability, and conceptual ability for younger non-ambulatory children; ratings for the older children's screening included these areas plus self-protection, body relations, orientation, positions, and home environment. Experts rated these areas for appropriateness, relevance, and specificity. Generally, the experts gave high scores (1s or 2s) for the appropriateness of the screening area, and

for the specificity of directions for that area. The relevance of a few specific items within each screening area was questioned; for example, the young children's screening contained six areas containing a total of 45 specific items, four of which were questioned. For the older children's screening, 5 specific items were questioned out of 11 screening areas and 85 specific items. In general, the expert review suggests most screening items were relevant, with good levels of appropriateness and specificity. Most of the recommendations made by the experts were followed and incorporated into the next version of the O&M screening.

3. Use of the O&M screening by O&M instructors during the field test.

The O&M screening was further examined during field testing by 20 O&M instructors and teachers of the visually impaired from 17 states. Experience of these participants ranged from 0 to 19 years work with preschool-aged visually impaired children (mean = 4.75 years). Mean ratings show that the field test instructors and felt the screening could be used to determine areas for further assessment, determine a child's basic programming needs, and to determine a child's need and eligibility for O&M services (percentage agreement = 83%, 88%, and 75%, respectively). In addition, the field instructors felt that the general directions for conducting the O&M screening were adequate, that the content of the screening was complete, and that the format of the screening was logical (percentage agreement = 92%, 96%, and 88%, respectively).

The field test instructors were also asked to make ratings on the appropriateness of the screening and specificity of instructions on the different areas of the O&M screening. Ratings were made on a 4-point Likert scale. A separate screening was developed for older, ambulatory children and for younger, non-ambulatory children. The O&M screening areas and mean ratings for both younger and older children are listed in Table 17. The means indicate that the instructors rated all areas as being useful, and directions as being specific enough.

In sum, the examination of data from the Resource Center, experts, and field test instructors indicate that the O&M screenings contain the major areas which are important for ambulatory and non-ambulatory visually impaired children, and that the instructions for the screenings are specific enough, appropriate, and useful.

Table 17

Field Test O&M Screening Ratings

O&M Screening Area**	Mean Ratings*			
	Area Appropriateness		Specificity of Instruction	
	Younger Children n=10	Older Children n=14	Younger Children n=10	Older Children n=14
Background Information	1.40	1.63	1.40	1.39
Auditory Skills	1.30	1.24	1.20	1.32
Tactual Skills	1.60	1.48	1.30	1.39
Visual Functioning	1.50	1.60	1.50	1.60
Motor Skills	1.20	1.16	1.20	1.23
Mobility Skills	--	1.24	--	1.25
Body Image	1.80	--	1.80	--
Body Parts and Planes	--	1.41	--	1.11
Positional Concepts/ Self-to-Object	--	1.26	--	1.34
Home and Community Experiences	--	1.17	--	1.16
Orientation Skills Including Straight Line, Route Travel, and Turns	--	1.08	--	1.15
Exploratory Behavior	1.40	--	1.30	--
Protective Technique/ Independent Travel, Ascending and Descending Stairs	--	1.25	--	1.33

*For appropriateness, 1=very useful, 4=inappropriate.
For specificity, 1=directions are specific, 4=directions are incomplete
**Since the O&M screening areas were based on the developmental level of the children, somewhat different screening area were developed for young and old children.

EVALUATION QUESTION 3: ARE THE CHILDREN ADEQUATELY USING APPROPRIATE O&M SKILLS IN NOVEL ENVIRONMENTS?

Data to date suggest that students are generalizing O&M skills to novel environments. Information on generalization of O&M skills is available from: (a) a generalization study involving the use of a mobility skill (Basic Sighted Guide) in novel routes, (b) the microcomputer technology study involving novel route travel in the classroom and described in evaluation Question #5, and (c) transition reports from parents and teachers on three children now attending other programs.

1. Generalization of basic sighted guide skill by a visually impaired toddler in a novel route.

The purpose of this study was to examine the ability of one visually impaired toddler from the Project's classroom component to use basic sighted guide while walking a novel route. The child was 4 years old, had some useable vision, and was taking medications for seizures. Ratings were made on child behaviors of basic sighted guide technique, general on-task ratings, and number of off-task movements. In addition, verbalizations made by the guide were coded for statements and questions directed toward the toddler concerning: (a) orientation, such as "We're going to the office," or "Where are we?," (b) reinforcement and maintenance, such as "OK, that's good walking," or "You're doing a good job," and (c) specific corrections, such as "Stay behind me, please," "Where are you supposed to stand?" or "Where's your hand supposed to be?". Technique levels of basic sighted guide ranged from 1 (holding hands) to 5 (maintaining good spatial position with the guide, even when negotiating obstacles and hazards); these levels were adapted from the Project's skills hierarchy curriculum. On-task ratings were made on general levels of attentiveness shown by the child while walking basic sighted guide; the child was rated as being highly, moderately, or not on task for a given walk. Off-task movements were defined as every instance the child began leading the guide, or pulling the guide off the path of travel.

The child was videotaped across five sighted guide walks from his first floor classroom to a third floor office suite and back again. The goal of travel was for the child to give a note to a person in the third floor office. The walks were a part of the child's mobility lesson plan and were scheduled once a day (4 days a week). The familiar route contained approximately 675 feet of hallway travel, and the novel route contained approximately 1,000 feet of hallway travel. During the training phase of the study, the child was filmed walkng a familiar route to the office. The filming was made toward the end of the school year, so the child had been guided along the route approximately 50 times prior to the first filming session, and basic sighted guide training had been provided for approximately 7 months during that school year. The training phase was intended to familiarize the child to filming while traveling, as the familiar route was well known to the child, and he had been filmed a number of times in the classroom in non-travel situations. Filming was designed to be as unobstrusive as possible; only already existing light sources in the building were used, and the instructor and child were filmed from a distance of approximately 15 feet as they walked. After the first filming, 4 days and two more walks along the familiar route later, the child was filmed a second time being guided along the familiar route. One week later, the child's physician changed the child's seizure medication and provided a helmet to promote independent travel. After a delay of about 1 week, which allowed the child to adjust to any effects of the medication change and helmet, the child's first day on the novel route was then filmed. After 1-1/2 weeks and six more walks along the novel route, the child was again filmed being guided along the novel route. After 1 additional week, and four more walks along the novel route, the child was filmed being guided along the novel route a third and last time.

In order to eliminate context effects from an awareness that the child was walking along a novel or familiar route, every instance of basic sighted guide from the videotaped walks was identified and transferred in a random order to a second videotape for coding. The taped segments of basic sighted guide were edited according to naturally occurring divisions along a walk, though long

walks were divided into smaller 15-second periods. For example, one basic sighted guide segment with naturally occurring divisions may be a section of walk which begins with the subject leaving a narrow passageway and ends with the subject entering a staircase area. Walks along long hallways and sidewalks, which often took the subject a number of minutes to negotiate, was divided into smaller, more easily coded 15-second segments. An average of 13.8 segments were filmed in each walk. These segments were then coded by two graduate orientation and mobility students familiar with the Project's curriculum, but not familiar with the routes under examination.

Reliability ratings for basic sighted guide were determined by calculating percent agreement between raters across trials for each of the behavioral categories. High and moderately high levels of agreement were found for all categories (ranging from 83% to 99%); these percentages are shown in Table 18. All ratings were made independently. The raters then compared their ratings for every trial. Discrepancies between the raters on a particular trial were resolved by discussion and a review of the trial. The percent agreements were calculated from the original independent ratings. Ratings for the behavioral categories were calculated after all discrepancies were resolved.

Averaged ratings for the behavioral categories for each of the 5 days are presented in Table 18. Out of a maximum score of 5.0, technique ratings were 2.08 and 2.10 for the training walks, and 2.43, 2.61, and 2.83 for the testing walks. The number of off-task movements increased slightly from the first to second training days (0.50 and 0.67), but decreased steadily over the testing days (0.73, 0.64, and 0.17). The on-task rating indicates the child was generally attentive to mobility and travel on training days (1.70 and 1.50, maximum score of 2.00) and testing days (1.67, 1.79, and 1.78). Since the novel route was slightly longer than the familiar route, both in the number of steps required and time to complete the route, the novel route was probably as difficult as or more difficult than the familiar route. Improvements in mobility skills in walks along the new route are shown from the higher technique ratings and lower off-task movements across the first to third testing days. The improvements do not appear related to statements made by the guide. Averaging across days for each of the three verbalization categories shows that the guide made about the same number of orientation statements across training and testing (0.44 vs. 0.41), and slightly more reinforcement and specific correction statements in the training compared to the testing (0.61 vs. 0.34, and 1.66 vs. 1.46). That is, when a verbalization difference was found, more verbalizations occurred in training than testing. This is understandable since more reinforcement and specific correction statements may be necessary from a guide when a child's technique levels are lower.

Table 18

Averaged Ratings Of Basic Sighted Guide Across Routes

Behavioral Categories	Training Route		Testing Route			Percent Agreement
Filming Days	1	2	3	4	5	
Technique	2.10	2.08	2.43	2.61	2.83	.92
Off Task Movements	0.50	0.67	0.43	0.64	0.17	.99
On-Task Ratings	1.70	1.50	1.67	1.79	1.78	.95
Orientation Statemer	0.30	0.56	0.40	0.43	0.39	.92
Reinforcement Statements	0.30	0.92	0.40	0.29	0.32	.86
Specific Correction Statements	1.90	1.42	1.60	1.29	1.50	.83
Observations Per Filming Day	1	12	15	14	18	

In sum, the present observations indicate the generalization of basic sighted guide skills, as developed by the Project curriculum in a novel route. Across a 2.5-week period, the child was rated as improving in technique and decreased the number of off-task movements while walking the novel route. Further improvements may have occurred with continued observation, though this was not possible as the school year ended and the child was transitioned to another placement.

2. Microcomputer Technology Study.

The microcomputer study is described in detail in evaluation Question #5.

3. Transition Information.

Three children were transitioned from the Project classroom. Two children are currently attending the Tennessee School for the Blind, and the remaining child is attending a local day care program. In general, parents and teachers report that each of the three children is using O&M skills acquired in the program in their homes and new school settings. This generalization is also accompanied by significant decreases in the amount of time students take to be oriented to new surroundings and their confidence in moving within novel settings. The O&M instructor at the TN School for the Blind reports that one of the transitioned children now excels at using basic sighted guide in nearly all situations, and the child is also competent at guided narrow passageways and guided walking on stairs. The student transitioned to the local day care facility was able to familiarize herself to the new setting without assistance

of Project staff or parents. When she needed to ask the location of certain items in the day care setting, she was able to independently ask her day care teacher for this information. This student has also instructed family members in basic sighted guide procedures. Family members now use this method consistently when traveling with the child in the community.

EVALUATION QUESTION 4: WAS THE O&M PAMPHLET FOR FAMILIES COMPLETE AND APPROPRIATE?

The O&M pamphlet was evaluated by a mail survey of parents of visually impaired children and professionals specializing in instructing children in O&M. A total of 13 parents and professionals was surveyed; 7 parents and 4 professionals responded. Due to the small sample size of the survey, survey findings are considered tentative, especially for the two professional respondents. However, survey results are for the most part positive for both questions aimed at general issues and specific areas of the O&M pamphlet. The general issues are discussed first, followed by a discussion of the specific issues.

Responses to questions about general issues for the O&M pamphlet are presented in Table 19. The questions are categorized into six general areas of purpose, content, language, length, format, and diagrams. Parent responses to questions in each of these areas were positive, with responses ranging from 71% to 100% agreement except for a diagram question asking whether pictures would be preferable to the diagrams used in the pamphlet (3 preferred photographs and 4 preferred diagrams). The four professionals made responses similar to the parents on 10 of the 15 survey questions. The professionals diverged from parents on content questions concerning the needs of visually impaired babies, and visually impaired multihandicapped children (all responding disagreed); professionals were evenly split on the content questions concerning whether all important areas were included in the pamphlet and the usefulness of the pamphlet for older visually impaired children. These content areas are outside of the primary focus of the O&M pamphlet.

Averaged ratings on specific sections of the O&M pamphlet for families are presented in Table 20. Parents and professionals rated each of 18 sections on orientation, mobility, motor skills, motivation, social interaction, and expectations. Ratings from parents were strongly positive on all sections, and professionals were positive on all sections. Averages ranged from 3.75 to 4.67 for professionals and 4.6 to 5.0 for parents (1 = not appropriate to 5 = very appropriate).

In sum, data from a small sampling of parents and professionals show good agreement on the appropriateness and usefulness of the O&M pamphlet for families with visually impaired preschoolers. Although parents felt the O&M pamphlet was useful for parents with visually impaired babies, multihandicapped and older children, two professionals felt more work was needed on the pamphlet for such parents.

Table 19

Averaged Responses To Questions About General Issues On The O&M Pamphlet For Families

Question	Average Responses: Professional (N=4) Yes*	Professional (N=4) No	Parents (N=7) Yes	Parents (N=7) No	Total Yes	Total No
1. Purpose						
a. provides overview	4	0	7	0	11	0
b. provides O&M suggestions	3	1	7	0	10	1
c. addresses key issues	4	0	7	0	11	0
2. Content						
a. all important area included	2	2	6	1	8	3
b. addresses needs of babies	0	3	6	1	6	4
c. addresses needs of MH	0	3	6	1	6	4
d. useful for older VI child	2	2	5	2	7	4
3. Language						
a. pamphlet uses nontechnical language	3	0	6	1	9	1
4. Length						
a. length appropriate*	2	1	5	2	7	3
5. Format						
a. ideas clearly presented	2	1	6	1	8	2
b. pamphlet is interesting	3	0	7	0	10	0
6. Diagrams						
a. representative of VI children	1	2	7	0	8	2
b. are informative	3	0	7	0	10	0
c. are photographs better than diagrams	2	1	3	4	5	5
d. clarifies text	3	0	7	0	10	0

*The pamphlet was rated as being too long for one parent and too short for one parent and for one professional

Table 20

Averaged Ratings On Specific Sections For The O&M Pamphlet For Families

Section	Averaged Responses		
	Professional n=4	Parents n=7	Total n=11
Orientation	3.75	4.9	4.5
Mobility	4.33*	4.7	4.6
O&M Training	3.75	4.6	4.3
Sensory Development	4.33*	4.7	4.6
Concept Development	4.67*	4.6	4.6
Motor Skills	4.33*	4.7	4.6
Orient to Surroundings	3.75	4.9	4.18
Moving Safely	4.0	4.6	4.4
Motivation	4.0	4.9	4.6
Social Interaction	4.0*	4.7	4.5
Teaching Children	3.75	4.7	4.35
Everyday Events	4.67*	5.0	4.7
Arrange Home	4.33*	4.7	4.6
O&M Importance	4.33*	4.7	4.6
Cane	4.37*	4.6	4.5
O&M Service Provider	4.67*	4.7	4.7
Needing O&M Training	4.67*	4.7	4.7
Expectations	4.33*	4.6	4.5

*For professionals, N = 3

Note. All ratings were made on a 5-point scale; 5 = very appropriate, 1 = not appropriate

EVALUATION QUESTIONS #5: DID THE MICROCOMPUTER TECHNOLOGY APPLICATION FACILITATE NOVEL ROUTE TRAVEL BY SELECTED CHILDREN IN THE CLASSROOM?

Purpose And Description of Program Design

A pilot study was conducted in the classroom of the Preschool Orientation and Mobility Project to examine the feasibility of using microcomputer technology to facilitate the acquisition of systematic route travel in the context of the classroom. The study used a single subject, multi-baseline design to evaluate the effectiveness of computer-mediated teacher intervention on the acquisition of three different routes of travel by a 4-year-old child with a congenital visual impairment (Retinopathy of Prematurity). The child had light perception or less in each eye as determined by ophthalmological reports and a functional vision screening (The Functional Vision Inventory, Langley, 1980). Continuous baseline data were collected initially on each of the three routes to identify the first rank for intervention. A criteria of four data points showing either a consistent or upward trend in travel speeds was used to select which route to first target for intervention. A multi-probe baseline design was used to continue monitoring performance on the remaining routes once

intervention had begun on the first target route.

Intervention was provided using a graduated guidance procedure with the computer directing when and at what level to provide assistance. The computer evaluated two criteria--on/off route behavior and amount of forward travel. If the child failed to meet either off route or on route, but had not made any forward progress within a specified period of time, then the computer directed the instructor to deliver a prompt. Prompts were arranged in a hierarchical fashion--from least to most assistance. They were delivered in a cyclical fashion so that when the child returned to the designated route or made forward progress, subsequent prompts began again with the least amount of assistance.

Description Of Physical Set-Up

The study used an Apple IIe computer equipped with an OMNIBOX (Expert Systems, Inc.) interface card to allow the operation of the computer via single-switch input, and three project-developed foot plate switches. The switches were used as terminal points for each route. Stepping on the switch signaled a termination of trial to the computer, to save the data, and place them into the report file.

The designated routes of travel were three novel routes that could be used by the child on a regular basis and within a functional daily context. A schematic of the classroom and the three target routes are shown in Figures 8, 9, 10, 11, respectively. A sound cue was provided at the beginning of each trail for a period of 2 seconds. Subsequent sound cues were then provided on a regular interval (the interval between sound cues matched the time interval between the delivery of prompts). The sound cues were recorded on a cassette tape player which could then be activated by the computer via the OMNIBOX interface. The sound cues for each route were also functionally based in that they used sounds associated with that activity. For example, the route to the sink used the taped sound of water running. A gridline was developed and placed on the floor to divide the classroom into numbered blocks.

Two adults were used to conduct the study. One was responsible for entering the child's location (according to the numbered block the child was in) into the computer. The second adult was responsible for telling the computer operator where the child was and to deliver the specific prompts. Prompts were divided into three levels--verbal (a direction to return to the route), verbal and partial physical (a direction to return to the route and reorienting the child to the sound cue), and verbal and complete physical assistance (a verbal direction and moving the child back to the designated route).

Results Of The Study

The preliminary results of the study are inconclusive. Due to time constraints and erratic child performance, intervention was provided on only one of the three routes (the "Black Route" on the data graphs) (see Figure 10) and the child never met the criteria time of 12 seconds without assistance for three consecutive trials. The most notable trend on this route was a gradual decrease in the range of variability between the slowest and fastest performance, which may have been indicative of a trend toward a more consistent level of performance. It should also be noted that on the final data trial, the child met the target performance rate, but because the study was terminated at that

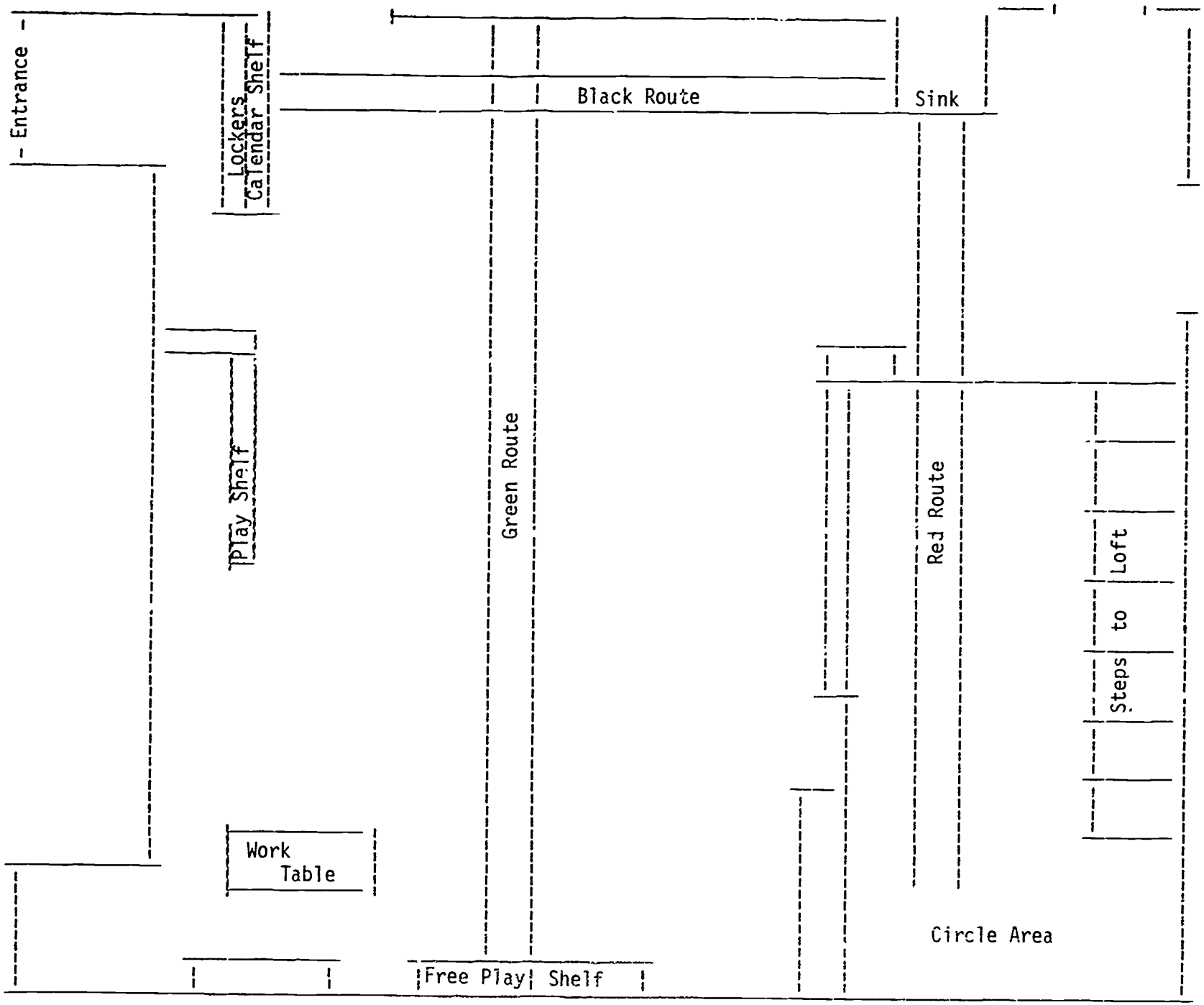


Figure 8. Classroom Layout

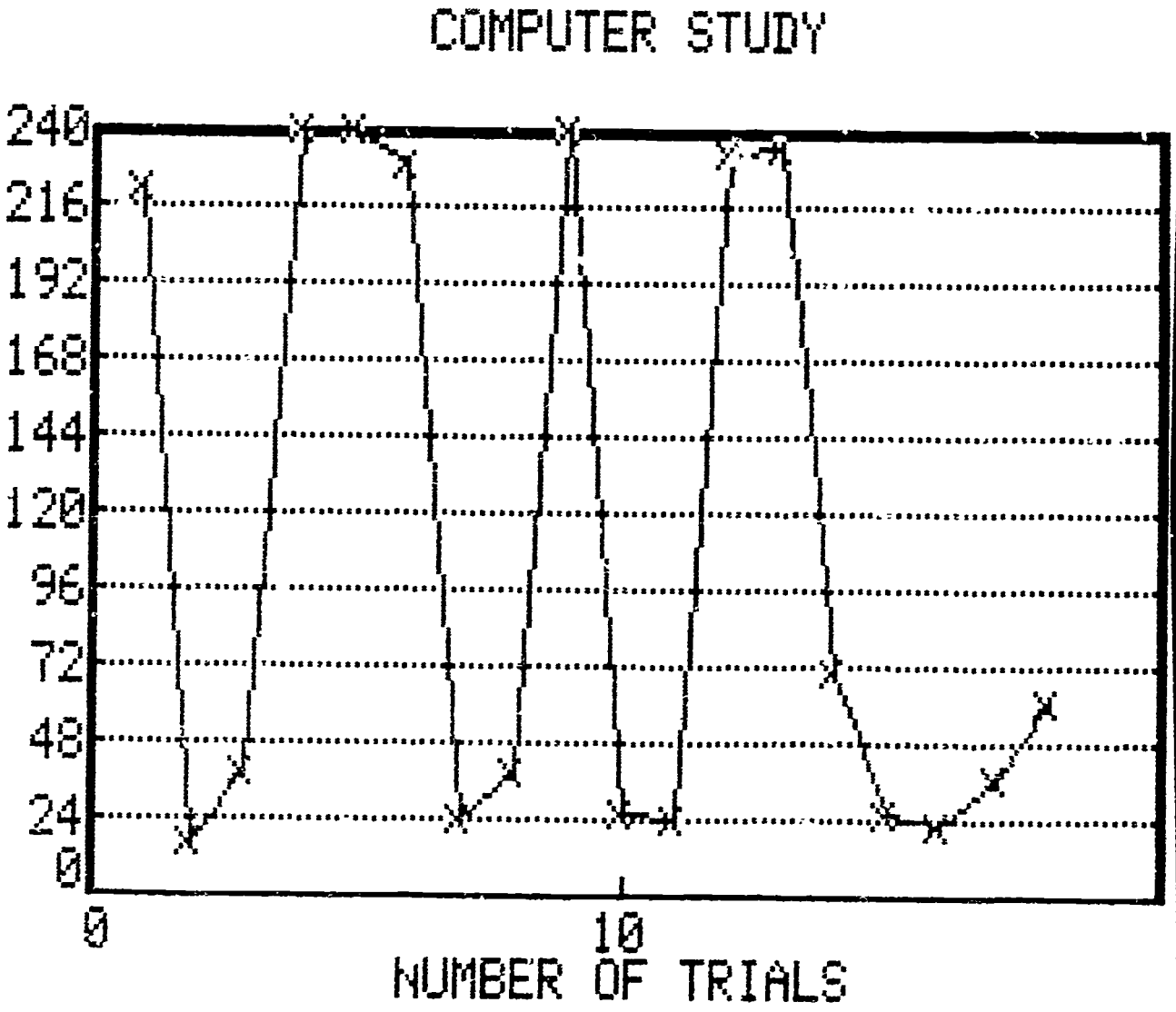


Figure 9. Pad Route

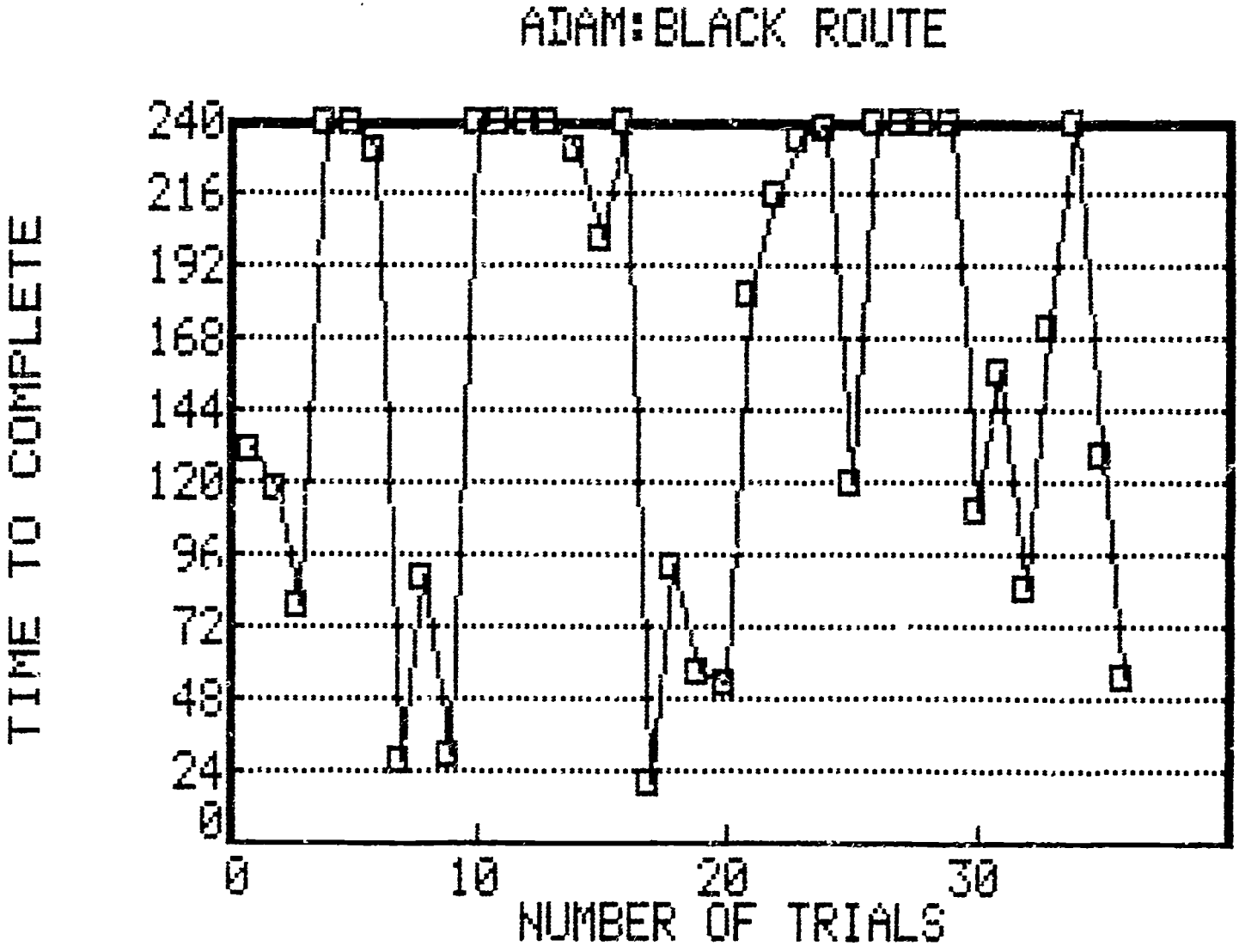


Figure 10. Black Route

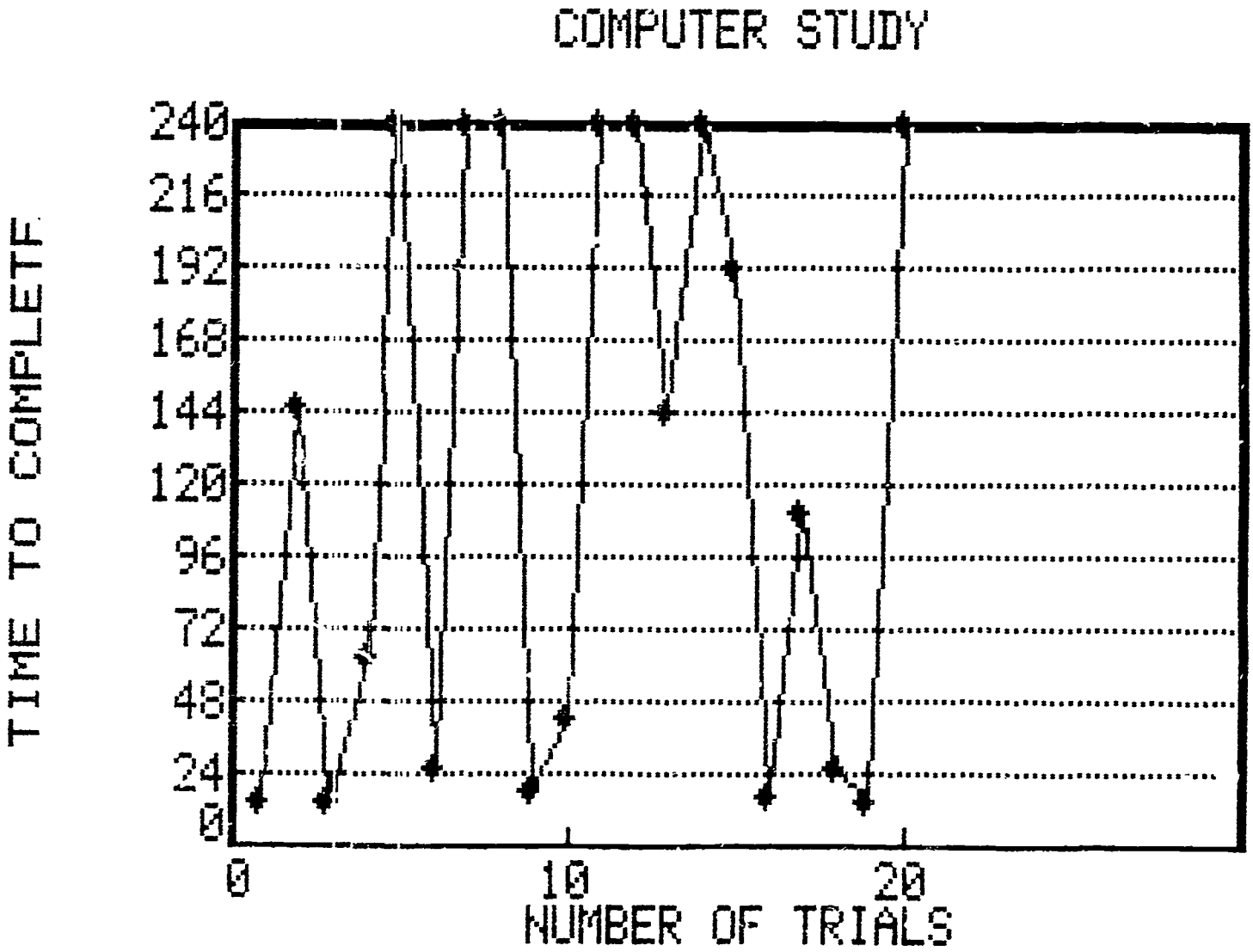


Figure 11. Green Route

point, it was impossible to know if the child would have met criteria, or if variability in performance would have continued.

Intervention was not begun on either of the additional routes. However, one of the routes (the "Red Route," see Figure 9) did show a gradual trend toward faster speed. While this indicates a lack of experimental control, it may also demonstrate a generalization effect of the training being received on the black route (see Figure 10). The responses on the "Green Route" (see Figure 11) show the variability of the child's performance on this third route. Any attempts to draw a conclusion about the child's generalization of training or the direction future data would have taken are speculative and show a need for future research in this area.

Although the study failed to yield any conclusive results, it did provide some important information on the mechanics of this kind of study and feasiblity of use with other students. Many of the problems associated with this study were linked to problems with an adequate subject base. Time and budget constraints made it necessary to identify a target child from within our own center-based program, which put severe limitations on the size of the subject pool with the consequence that only one child was identified as being appropriate for this form of intervention. The dependence on a single subject multi-route model makes it difficult to sort out what was child specific variance, what were methodological variables, and to what degree this was or was not a viable methodology for use with preschoolers with visual impairments.

The ability to make the delivery of a graduated guidance teaching methodology more precise should, in theory at least, make this an even more viable methodology than it is in its currently widely practiced form. The results of this study, while non-conclusive, do indicate the need for additional research. Recommendations for future research include:

1. The use of a multi-subject design. This would help to reduce some of the child variance demonstrated during this study.

2. The use of a remote data input device. This study depended on two persons--one to key in data and one to "call" the child's positions and deliver the specific prompt. Providing a modification in software that would allow the use of a power pad (Dunamis) as a remote input device would facilitate the data collection and allow the study to be run with one adult present. This would greatly enhance the feasibility for use in other settings where manpower might be an issue.

3. Retaining the functional context approach. The use of routes outside the classroom might have allowed more data trials and made data collection a simpler process in that mass trials could have been conducted rather than having to wait for opportunities within the child's daily routine to run trials. However, the use of functional context and incorporating trials into the child's daily routine made generalization more likely and allowed the child to immediately apply what he had learned, thus enhancing the child's ability to participate in the daily classroom routine.

4. Increasing the complexity of the routes used in the study. This study used a simple straight line path with no turns or variation in terrain (e.g., changes in levels). If a multi-subject study were to establish the feasibility of using computer-mediated intervention for straight line travel, the addition

of more complex routes such as those that incorporated turns or steps as part of their routes might further enhance the usefulness of this form of intervention in settings outside those used in the research study.

EVALUATION QUESTION 6: DID THE SONICGUIDE FACILITATE SYSTEMATIC SEARCH PATTERNS WITH SELECTED CHILDREN?

Learning to efficiently use the Infant Sonicguide to locate given objects in the environment should facilitate the blind child's ability to generalize this skill within a variety of environments, indoor and outdoor, familiar and unfamiliar. Furthermore, this skill should facilitate the child's ability to detect obstacles in the environment and, hopefully, establish spatial/positional relationships involving his/her body and the environment. The purpose of the Infant Sonicguide training program was to determine if a congenitally blind preschooler could learn to systematically and accurately locate and move toward a given object in the environment with the aid of the Infant Sonicguide.

The subject was a congenitally blind 5-year-old boy with a significant developmental delay. His diagnosis was retinopathy of prematurity (RCP) with probable light perception (LP) in his right eye (OD) and no light perception (NLP) in his left eye (OS). The setting for each of the 15 training sessions, which lasted 15-30 minutes, was the child's home. The primary area in which the training program was implemented was the living room.

Prior to the intervention program, the child was unable to demonstrate systematic search patterns to locate an object, turn his head in the direction of a sound, reach out in a systematic and efficient manner toward a sound or an object, or move in a straight and efficient line of travel toward a sound. The intervention program was designed to address these deficiencies through sequentially more difficult levels of intervention.

The first three training sessions were devoted to familiarizing the child with the controls and parts of the Infant Sonicguide and allowing him time to become accustomed to and comfortable with wearing the aid. During this time, the child's reactions to the device were recorded, including tolerance time, physical reactions, verbal reactions, and facial expressions. By the end of the third session, the child demonstrated much pleasure with the sounds created by the aid and was tolerant of wearing the device for over 5 consecutive minutes. During the fourth session, baseline data were collected on the child's ability to systematically turn his head while wearing the Infant Sonicguide to the right and to the left to locate an object. While sitting on the floor of the living room with the Infant Sonicguide on his head, the child was directed to find his favorite toy, i.e., "Listen! Find your favorite toy." Intervention and reinforcement were withheld during the baseline period. The child scored 0% over three trials at which time the training procedure was implemented.

A changing criterion design with repeated measures was utilized in the training program. The program involved a baseline and five sequential levels of intervention designed to attain the terminal behavior. The original program, however, was revised slightly several times throughout the intervention in order to accommodate for the child's level of functioning and rate of learning new behaviors.

The trainers utilized a graduated guidance scoring system to record the child's level of performance on each behavior. The following scoring system was

implemented: 4--full physical assistance (paired with verbal cue), 3--partial physical assistance (paired with verbal cue), 2--verbal assistance only, and 1--no assistance. The trainers provided verbal instructions paired with physical assistance according to the above schedule for one behavior in the training program. The child was given 20 seconds during which to respond after each prompt. If the child was unable to perform the correct behavior within the timeframe, the next level of assistance was implemented, moving from no assistance to full physical assistance. As the child progressed through the Infant Sonicguide training program steps, the trainers recorded a score in the appropriate spaces on the daily score sheets with comments as appropriate.

As the child met criteria for each level of intervention, the trainers continued to record data and moved to the next step in the program. The child successfully completed all skills included in Interventions A through D (see Appendix K) with 100% accuracy for three trials on 2 consecutive days. The program was discontinued, however, due to time constraints. Nonetheless, the trainers and the child's mother were very enthusiastic about the child's significant progress and the potential demonstrated through the use of the Infant Sonicguide with this child.

The reinforcement schedule implemented was continuous and immediate. Each time the child correctly completed a program step, social reinforcement, e.g., hugs, pats, and verbal praise such as "Good! You found your favorite toy!" was offered. During Intervention D, edible reinforcers were added to the reinforcement schedule.

The intervention program implemented by the Project has demonstrated that the Infant Sonicguide was a viable tool in enhancing the systematic search patterns of a blind preschool child. During the 15-day training program, the child learned several skills. He demonstrated pitch awareness by smiling and reaching out in anticipation of an object or person moving toward him at midline. He was able to systematically search for and locate a given object with 100% accuracy by turning his head to look for the object. Additionally, on consecutive trials, he would look for the object in the same place in which he had found it on the previous trial before continuing to search on the opposite side, generating the idea of object permanence/spatial memory.

This systematic intervention program could serve as a model for other O&M specialists who are training blind preschool children to use the Infant Sonicguide. The trainers will submit articles for publication to professional journals and will present this Infant Sonicguide training program at conferences for the purpose of encouraging further research in this area.

QUESTION 7: IS THE STAFF GAINING ADDITIONAL KNOWLEDGE AS A RESULT OF THE INSERVICE PROGRAM?

A list of inservice programs attended by Project staff, for the full term of the Project, can be found in the Staff Development section of this report. A copy of the questionnaire completed by Project staff on the inservice training program is included in Appendix L. Since entering the third and final year of the Project, the frequency of inservice programs has decreased as staff became increasingly engaged in completing program components and finishing the final report. In general, staff have reported inservices to be relevant and have been able to implement many suggestions from inservices in the provision of direct service to children and parents, and for the completion of the final report. The inservices reported to have been most helpful were those on language and motor development, environmental arrangement, and on the use of microcomputers.

QUESTION 8: ARE PARENTS SATISFIED WITH THE PROGRAM AND THEIR INVOLVEMENT IN IT?

Satisfaction ratings by parents with children in the program were obtained from two sources. First, a telephone survey of classroom and home-based parents was conducted. Second, a mail survey of parents with children attening the Project's Resource Center was undertaken. Ratings for both sources are discussed.

Telephone Survey. Parents of children in the classroom and home-based components of the Project were surveyed by telephone and interviewed regarding their child's placement in the program, child progress as parents perceive it, and parents' participation in their child's program. A copy of the Parent Questionnaire can be found in Appendix M. The interviews were conducted by the Project Evaluator. Four of five parents of classroom children and four of six parents of home-based children were interviewed. The parents of one of the classroom children and the parents of one of the home-based children had moved and could not be reached. One additional set of parents of a home-based child could not be reached by telephone.

The responses of the remaining eight parents are presented in Table 21. All parents interviewed felt the placement of their child in the classroom or home-based component of the Project was appropriate. Similarly, all parents stated they had the opportunity to become involved in their child's program and that they had the opportunity to ask questions and get answers about their child's services and progress. All parents rated the amount of service their child received as appropriate. Three parents indicated a need for additional services, one parent felt an all-day O&M program 5 days a week was needed, and two parents felt that transportation to obtain services was a problem. General comments by parents were generally positive, especially for the direct service providers. Parents said the teachers were "outstanding," and that they "enjoyed working with them." One parent of a child participating in the classroom-based program stated more emphasis was needed on providing direct service instead of writing the curriculum.

In sum, the telephone survey found that parents of both home-based and classroom-based children felt the services, placement, parent involvement, and feedback of the Project were appropriate. Criticisms of the services centered on transportation issues for two parents, and a desire for an increase in

services from the third parent. The two parents stating transportation difficulties stated that the difficulty was largely due to poor transportation services in rural areas of Tennessee which they felt was outside the responsibilities of the Project.

Table 21

Parent Telephone Interview Results For Classroom and Home-Based Children

	Classroom Children				Home-Based Children			
Question	A	B	C	D	E	F	G	H
1. Placement meeting needs.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2. Amount of service appropriate.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3. Are there additional services needed.	No	Yes	Yes	No	No	Yes	No	No
4. Had the opportunity to become involved in your child's program.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
5. Had the opportunity to ask questions and get answers to child's services and progress.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Resource Center survey. Parents of children attending a Resource Center screening were surveyed by mail. Twenty-six parents responded to the survey questionnaire out of a total of 37 parents attending a Resource Center (70.3% response rate). Parent responses on the program were generally positive or strongly positive. Most parents made strong positive ratings for usefulness of Resource Center suggestions for their children (100%), staff answering parent questions (92%), and whether they would attend future Resource Centers (100%). A majority of parents felt they had seen the most relevant specialists for their children (77%). Additional information on the Resource Center survey methodology and specific tallies are presented in Evaluation Question #2.

The responses from parents with children in the classroom and home-based programs and Resource Centers indicate satisfaction with the Project programs. Three parents in the classroom and home-based program stated a need for increased transportation services for direct services.

EVALUATION QUESTION 9: IS THE STAFF SATISFIED WITH THEIR ROLE(S), CHILD PROGRESS, AND PARENT INVOLVEMENT?

Project staff completed a questionnaire addressing the above issues. A copy of the Staff Questionnaire can be found in Appendix N. Staff responses to items on the questionnaire highlight the following points:

1. Staff roles and responsibilities are well defined for the direct service component of the Project.

2. The staff feel they generally do not have sufficient time to teach children, plan lessons, and perform all required duties including curriculum development, dissemination, etc. Staff report that they worked 10-12 hours per day, often 6 days a week to complete job duties. It is felt that this did not reflect a problem in time organization, but rather the time and effort required to provide service in three different service delivery designs, with an average per teacher of 4 hours a day in classroom instruction, 7-14 hours a week in individualized 1:1 service in the home, 2 hours monthly working in the Resource Center, as well as performance of all other duties.

3. Staff rated parents as participating as actively as the parents were able to do, given the parents' work schedules and transportation situations. Parents' participation was rated by one staff member as being one of the strongest components of the Project.

4. Child progress has been established. Gain scores for classroom and home-based children are further described in Evaluation Question 1.

EVALUATION QUESTION 10: IS THE PROGRAM MAKING ADEQUATE USE OF ITS RESOURCES?

The Project has extensively used in-house, community, regional, and national resources. The following list documents some of the resource usage by the Project.

- Assistance from TADS to visit programs, inservice conference calls, attend conferences and workshops, and receive specialized student team training.
- Assistance in dissemination has been provided by Kennedy Center Media and Information Service for arranging newspaper, radio, and television coverage of the Project,and helping with brochures, drawings, etc. for curriculum.
- Program evaluation was conducted with the assistance of experts from the Kennedy Center Program Evaluation Laboratory.
- Project's Advisory Council included members with specializations in many areas relevant to serving visually impaired preschool children. The Council members brought expertise in preschool, mental retardation, pediatric ophthalmology, and developmental and experimental psychology. Members also included parents who provided valuable input as to the needs of parents.
- Inservices and technical assistance was provided by Kennedy Center staff and by members of the university who have expertise in specialized areas such as motor development, microcomputers, working with parents, etc. Specialists from the Tennessee School for the Blind also cooperated in providing inservices on relevant topics.
- Telephone Pioneers organization donated money for materials to build a loft in the classroom. A parent of a Project child (a construction foreman), donated his time along with his employees' and constructed the loft.

-Supervision of the Resource Centers was undertaken by a doctoral student as his internship.

- Occupational therapy screenings for the Resource Centers was donated by an Occupational Therapist from Vanderbilt Hospital.

- Assistance in the classroom was provided by seven practicum students--graduate students in orientation and mobility.

VI. DISSEMINATION

Over the 3-year period of the Project, many accomplishments have been achieved in the way of publicizing the Project and disseminating information about the Project. A Project brochure was developed (see Appendix O); Project Newsletters were printed and widely distributed; a set of slides, depicting various Project components and activities was completed and used by Project staff when making presentations regarding the Project. The Resource Center served as a good source for disseminating information regarding the Project on a statewide basis. The Project also hosted an Open House in its classroom during Year 1 of the Project. Over 75 professionals and parents attended the Open House.

A. SUMMARY OF PROJECT DISSEMINATION ACTIVITIES THROUGH VARIOUS MEDIA

The Project was extremely fortunate to have had a great deal of media coverage. Table 22 shows the various media dissemination activities.

Table 22

Project Dissemination Activities Through Various Media

Article, TN Children's Services Commission Newsletter	October 1984
Article, American Foundation for the Blind Newsletter	December 1984
Newspaper Article, The Nashville Tennessean	December 1984
Article, Long Cane News	Summer 1984/ Winter 1985
Newspaper Article, The Nashville Banner	February 1985
Newspaper Article, The Nashville Tennessean	March 1985
Newspaper Article, The Nashville Banner	April 1985
Article, The Peabody Reflector (Alumni Newsletter)	Summer 1985
Newspaper Article, Associated Press Story (Several newspapers across the country picked up the story)	July 1985
Newspaper Interview, Boston Globe feature story	September 1985
Radio Interview - WLPN Public Radio Station, Interview with Dr. E.W. Hill	September 1985
Television Feature, Channel 2 (local ABC affiliate), feature for Handicapped Awareness Week	October 1985
Television Feature, Channel 5 (local CBS affiliate), feature story of the Preschool O&M Project	October 1985

B. VISITORS TO THE PROJECT

Due to our successful dissemination activities through the media, the Project was fortunate to have many visitors tour the model demonstration classroom. Table 23 is a partial list of visitors to the Project.

Table 23

Summary Of Visitors To The Model Demonstration Classroom

Carla Brown, Florida Instructional Materials Center, Tampa, FL
Linda Bess, Telephone Pioneers, Nashville, TN
Margaret Haberman, Reporter, Associated Press, Nashville, TN
Staff from the Vanderbilt Hospital Neonatal Intensive Care Unit, Nashville, TN
Dr. Sheri Trent, TN State Vision Consultant, Nashville, TN
Dr. LaRhea Sanford, Lead Vision Teacher, Metro Nashville Public Schools
Members of the Preschool O&M Project's Advisory Council
Jean Caldwell, Reporter from the Boston Globe, Boston, MA
Kathy O'Brien, O&M Specialist, Sarasota, FL
Dr. Michael Brambring, Professor from Universitat Bielefeld, West Germany
Sandy Olphie, O&M Consultant, Austin, TX
Derenda Hodge, Clinical Nurse Specialist, Vanderbilt Hospital Newborn Intensive Care Unit, Nashville, TN
Dr. Kay Ferrell, National Preschool Consultant, American Foundation for the Blind, New York, NY
Staff from Les Passees Rehabilitation Center, Memphis, TN
Staff from TN State Services for the Blind, Nashville, TN
Linda Kjerland, Director of Project DAKOTA, Egan, MN
Gayle Prilliman, Education Consultant, Franklin, TN
Dr. James E. Haralson, Principal, Indiana School for the Blind, Indianapolis, IN
Mary Griffiths, Supervisor of Multi-Handicapped Visually Impaired Students, Indiana School for the Blind, Indianapolis, IN
Janet Gacsko, Teacher of Multi-Handicapped Students, Indiana School for the Blind, Indianapolis, IN
Dr. Linda Acredlo, Department of Psychology, University of California, Davis, CA
Liz Zimmer, O&M Specialist, Birmingham, AL
Dr. Natalie Barraga, Professor, University of Texas, Austin, TX
Mark Uslan, National O&M Consultant, American Foundation for the Blind, New York, NY

C. REQUESTS FOR PROJECT INFORMATION

Dr. E. W. Hill was the first author on an article entitled, "Preschool O&M: An Expanded Definition." This article described the thecretical and philosophical notions of the Preschool O&M Project. The article was published in the journal, Education of the Visually Handicapped, 16(2), Summer 1984. Since the publication of that article, the Project has received many requests for reprints from around the country (e.g., Florida, Georgia, Illinois, Kansas, Kentucky, Louisiana, Missouri, Montana, New Jersey, New York, Ohio, Oklahoma, Tennessee, Texas, Utah, Virginia, and Wyoming, as well as several foreign countries (i.e., Australia, Canada, England, France, West Germany). A second

paper, "Orientation and Mobility for Preschool Visually Impaired Children," authored by Everett Hill, Bruce Smith, Bonnie Dodson-Burk, and Sandy Rosen has been accepted for publication by the Association for Education and Rehabilitation for the Blind and Visually Impaired in their publication, AER Yearbook (1987).

D. INVITED CONFERENCE DISSEMINATION ACTIVITIES OF PROJECT STAFF

During the 3 years of the Preschool O&M Project, staff have been invited to present various components and activities of the Project. Table 24 indicates the conferences, locations, and dates of those presentations.

Table 24

Invited Conference Dissemination Activities

Conference	Location	Date
University of TN, Infant Stimulation Workshop	Martin, TN	March 1984
13th Annual Midwest O&M Non-Conference	Madison, WI	September 1984
American Printing House for the Blind, Board of Trustees Annual Meeting	Louisville, KY	October 1984
University of TN Center for Health Services Conference on "Visual Impairment in Young Children With Neuromotor Dysfunction"	Memphis, TN	October 1984
Ohio Chapter for the Education and Rehabilitation of Blind and Visually Impaired (AERBVI)	Columbus, OH	October 1984
TN Chapter of the Council for Exceptional Children	Nashville, TN	November 1984
Middle TN Conference on Preschool Services	Nashville, TN	March 1985
14th Annual Southeastern Orientation and Mobility Association Conference	Birmingham, AL	March 1985
Arkansas Council for the Blind Annual Meeting	Little Rock, AK	March 1985
State of TN Annual E.A.C.H. Conference	Nashville, TN	April 1985
63rd Annual Council for Exceptional Children Conference	Anaheim, CA	April 1985
State of AL Preschool VI Conference	Montgomery, AL	May 1985
Ohio Chapter of AERBVI	Cincinnati, OH	June 1985
State of TN Annual Early Childhood Conference	Sewanee, TN	June 1985
State of AL Annual Meeting of Parent Trainers and Preschool Professionals	Talledega, AL	June 1985
University of Northern Colorado Conference of Preschool O&M	Greeley, CO	June 1985
American Foundation for the Blind, State of TN Preschool Conference for Parents of VI Children	Chapel Hill, TN	September 1985
14th Annual Midwestern O&M Non-Conference	Vinton, IA	September 1985

National Research Council Conference on Orientation and Mobility	Washington, DC	November 1985
State of Virginia O&M Specialists Conference	Richmond, VA	January 1986
15th Annual Southeastern Orientation and Mobility Association Conference	Jackson, MS	February 1986
TN Chapter of AERBVI Conference	Nashville, TN	March 1986
Annual State of TN Vision Teachers Conference	Clarksville, TN	March 1986
Florida Chapter of AERBVI Conference	Sarasota, FL	March 1986
Virginia Chapter of AERBVI Conference	Richmond, VA	April 1986
Association for Parents and Teachers of the Visually Impaired Annual Conference	Ontario, Canada	April 1986
American Foundation for the Blind National Forum on Issues for Preschool VI Children	Washington, DC	May 1986
National Conference of the American Council for the Blind	Knoxville, TN	June 1986
Alabama Chapter of AERBVI Conference	Huntsville, AL	July 1986
International AER Conference	Chicago, IL	July 1986
16th Annual Southeastern Orientation and Mobility Association Conference	Nashville, TN	February 1987
Vanderbilt University Technology Fair	Nashville, TN	March 1987
Texas Tech University	Lubbock, TX	April 1987
State of TN Annual Early Childhood Conference	Sewanee, TN	June 1987

Other dissemination activities included Project staff presenting information about the Preschool Orientation and Mobility Project in several Special Education undergraduate and graduate classes at Vanderbilt University; information about the Project to consumer publications (i.e., the National Association for Parents of Visually Impaired [NAPVI]; and consulting to the Tennessee Association for Parents of Visually Impaired [TAPVI].

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APPENDIX A

TRAINING MODULE: CLASSROOM ENVIRONMENTAL ARRANGEMENT

I. Purpose of this Module

The purpose of this module is to present guidelines and suggestions to maximize the delivery of classroom services. The module includes four major areas:

A. Arrangement of Physical Space
B. Scheduling
C. Use of Staff
D. Adaptations and modifications for children with visual impairments.

II. Introduction

Environmental arrangement, which here is defined as the organization of space, materials, activities, and personnel plays an important part in the success of any program. It is known through much of the current research that how the environment is arranged will effect that program's outcomes and how that program impacts on the child's behavior (Bailey, Clifford, & Harms, 1982). Many factors need to be considered in environmental arrangement. They include:

a) number of children
b) number of staff
c) programming objectives
d) activities to be carried out on a daily basis
e) kinds and amount of furniture available
f) length of day
g) kinds and amounts of available materials.

These factors form the concrete parameters in environmental arrangement for any preschool program. Children with visual impairments present additional kinds of environmental arrangement demands that must also be considered. These additional factors include:

a) kinds and amount of lighting available
b) the presence or absence of distinctive architectural, tactile, visual and/or auditory cues that can act as landmarks for assisting the child in traveling to the room
c) the presence of possible safety hazards such as shelves with overhangs, sharp or protruding corners, or obstacles in the paths that might be tripped over such the edges of carpet, tables or chairs placed in the middle of open areas
d) the accessibility of materials.

A final area of concern in environmental arrangement may loosely be described as those factors that contribute to the milieu or "spirit" of a classroom. Factors that influence the instructional atmosphere include:

a) arranging materials and space to prompt communication, social interaction, curiosity, and exploratory behaviors,
b) using the environment to reduce behavior problems
c) using the environment to form a naturalistic setting for the application and generalization of the skills they are being taught (Bailey, Clifford, & Harms, 1982; Halle, Marshall, & Spradlin, 1979).

A. Arrangement of Physical Space

1. Introduction

The use and arrangement of physical space encompasses a number of factors highlighted in the introduction such as kinds and amount of furniture available, size and number of groups, and the variety and number of activities that occur on a daily basis. Additional factors to consider in arranging physical space include traffic patterns, compatibility or incompatibility of adjacent areas, access to water for clean-up after toileting, toothbrushing, snack times, and after art activities.

2. Use of Furniture

a. Use of Shelving

The use of low shelving (3-4 feet in height) allows for ready division of areas, easy accessibility of materials by children and adults, and good sight lines for the adults so that they can readily view and supervise students in all parts of the room.

The arrangement of shelves so that they abut against each other at right angles or against walls amy facilitate the child with visual impairment using the shelves for landmarks and direction takers. For example, when reaching a corner where two shelves meet, the child might recognize that he or she should "square off" by placing his or her back to the shelf to cross over to another part of the room. A judicious arrangement of shelving and furniture can help the adult control the flow of traffic in the classroom. The use of large open areas, except for those areas needed for large group or gross motor times, should be avoided. The avoiding of large open areas reduces problems such as running and excessive noise in the classroom. In addition, the delineation of the classroom into small well-defined areas allows a more varied and multi-functional use of the classroom space.

b. Use of Tables

No one table shape is ideal for each setting although, the use of tables with straight edges such as rectangular or trapezoid shaped tables may help the child with visual impairment align him or herself more accurately with the work surface. The most important concern is that the table tops leave enough area for each child to work individually without overflowing into another child's area. The teacher may want to vary the number of children at a table according to the nature of an activity. Activities which have an emphasis on social interaction, sharing of materials, or working with a set of common materials may be facilitated by having more children together or using a portion of the work surface. This not only makes the exchange of materials easier but also increases the likelihood of the children interacting with one another. Activities which place more emphasis on individual task completion or in which the teacher is trying to minimize distractions may require more space per individual. The use of individual work trays such as those manufactured by the American Printing House for the Blind, cookie sheets, or T.V. dinner trays may make it easier for each child to keep track of his or her materials and to recognize the boundaries of the individual work areas. Careful consideration should also be given to table

and chair heights. Tables that are set too high or low may make it difficult for the child to carry out many fine motor manipulative tasks. If the table is too high, the child will not be able to lift his or her arms far enough to lift and move materials. If a table is too low, the child may end up leaning too far forward and having to depend on resting on his or her elbows or hands as a means of stabilizing his or herself. When this occurs the child's ability to move both arms freely to perform a task are impeded.

c. Use of Chairs

Chairs should be chosen that allow the child to place both feet on the floor. This is especially important for the child with visual impairment as it helps provide the child with a better sense of where he or she is in space. As in the case of table shapes, there is no one right kind of chair for a classroom. Wooden chairs provide more stability and are generally more durable but are more difficult to move from place to place. Plastic stacking chairs are less stable but are more easily moved from place to place and can be stacked and thus are useful in places where an area has to serve a double function such as when a large area is used for both large group and gross motor activities. Plastic cube chairs offer lots of stability and are easily moved by pushing but may take up too much room and may not allow the child to sit at the right height at a table. The final choice of seating is usually dictated by a combination of child and programmatic needs.

d. Choice of Table Surfaces

In addition to the considerations already listed above, care should be taken to select tables with surfaces that do not produce a harsh glare when placed under direct light. If glare is a problem, there are a number of possible options. The child's particular work area can be covered in a plain colored cloth that does not reflect light. Another option is to paint the table surface with a flat finish non-toxic paint. A third option is to use the work trays described above and cover them with cloth or flat finish paint when working with the child at that particular table.

4. Separation of Areas

The areas of the room should be delineated so that they are distinctive from one another. The use of different textures underfoot (e.g.,different kinds of carpet, tile, or linoleum) can help differentiate one area from another. It can also help in housekeeping. For example, using linoleum to mark off part of the room can help distinguish the area and make for easy clean-up after mealtimes or art activities.

Separation of areas also facilitates programming and classroom management. Arrangement of one area to act as a holding and free play area can help to reduce "down time"-the periods of unsupervised or undirected waiting and non-activity periods that sometimes occur during such activities as toileting, self-care, and mealtimes. Assigning a maximum of one to two different kinds of activities to a specific area helps to further define that area for the ch by helping the child understand the link between location and functio The understanding of the relationship between location and functio an have a number of benefits. For example, the child may become more excited and begin talking or communicating as he or she

moves into a favorite area or in other instances, association of the area and function may help the child in remembering the location of materials for that activity and thus increase the child's ability to participate independently in the activity.

In setting up activity areas, the compatibility or incompatibility of activities that may be going on concurrently in adjacent areas should also be considered. For example, it would not be advisable to place a relatively loud area such as a block play area nexty to a quiet area such as a reading center.

5. Handling the Movement of Visitors and Parents

The movement of people in and out of a classroom i.e., visitors, observers, or parents dropping children off can create additional kinds of organization problems. It is important to make these persons feel as welcome as possible without having them intrude on the daily classroom routine. Lockers or cubbies placed perpendicular to an entrance can be used to create a waiting or observation area that may help to minimize classroom distractions. If a teacher is blessed with extra space, this area can be expanded to include a table and some chairs for use as an information center where materials about the program, local agencies, upcoming meetings, children's art work, etc. can be posted.

6. Special Lighting Needs

In setting up the different areas of the rooms, it is important to consider the lighting needs of the different activities and the lighting available in each area. A child with low vision may need extra illumination such as a high intensity lamp when working with small materials or attempting to read printed materials. A child who is light sensitive may have difficulty at a table oriented toward or placed too close to a window. A child who "light gazes" as a self-stimulatory activity may work better with floor lamps or high intensity table lamps in an area away from windows and overhead lights.

7. Arrangement of Materials to Increase Participation

The arrangement of materials should facilitate the carrying out of the daily routine. One aspect to consider is how many materials to have out at any given time. Limiting the number of materials and rotating materials may help to cut down on confusion and clutter in the classroom and to keep children's interest in the materials at a higher level. If closet or storage space is at a premium, a teacher can hang a curtain over some parts of a shelf or enlist the aid of a parent to make doors for some shelves so that materials not being used can be placed out of sight. The use of child baskets at each work station can also increase materials accessibility and organization. The teacher can set up the baskets so that one basket contains all the materials the child needs for that particular activity or so that the materials are placed in 2-3 baskets so that as the child completes one task for that activity, he or she then returns the first basket to the shelf and obtains the basket with the materials needed for the second activity. Using the latter arrangement can be especially useful if one of the child's goals is to work on left-to-right sequencing. The teacher can also use the baskets to generalize skills being taught in other settings. For example, if the child was working on name recognition, the teacher could label the baskets with the child's name. Likewise, the

teacher could label the baskets with the child's name. Likewise, the teacher could label the baskets with various colors to help generalize color recognition skills. The use of baskets can also assist the child with visual impairments to participate more fully in the classroom routine. Setting up materials so that the child can easily locate and transport them reduces the child's dependence on the adult and reduces the incidence of "magic"; that is the phenomena of materials appearing out of nowhere and returning to nowhere. The teacher may also choose to arrange materials so that the materials needed for work times are placed in baskets while materials for free play times are placed openly on the shelves. This may help the teacher control how many materials are out at any given time and to reduce access to some materials that the teacher wants to reserve for certain work or activity periods by helping the child differentiate between those materials that he or she may play with and those materials that are reserved for teacher directed activities.

B. SCHEDULING

1. Introduction

Two factors [illegible]art to set the tone of the classroom environment. The first is arrangemer[illegible]ne physical space. This provides for the physical management of movement, activities, and materials, and thus, provides a foundation for smooth operation and a maximum amount of teaching time. The second complementary factor is scheduling--the use of the classroom time to take advantage of the physical spatial arrangement.

2. Mass Trials vs. Distributed Trials-Which To Use

a. The Mass Trial Format

Traditionally, children's educational goals and objectives, as embodies in the children's Individual Education Programs (IEPs) have been addressed in the context of scheduled activity periods, e.g., fine motor period by a mass trial format. For example, a child's IFP objective might specify that he or she put ten pegs in a broad on three consecutive trials. This objective would then be addressed by having the child work during the fine motor period doing repeated trials of putting pegs in a pegboard until the time was up or criterion was met. The massed trial format has some practical benefits, the greatest probably being the ease of data collection. The advantages are limited in comparison to the multiplicity of disadvantages. Among the disadvantages are that the use of massed trial format decreases the likelihood of generalization by restricting the learning to a specific set of materials, time and location; it confines learning opportunities to those designated training periods and fails to take advantage of the multiple learning opportunities that occur incidentally, such as during trasijtion times; and it reduces the motivation to participate in activities by making the activities highly repetitious and dependent on artificial reinforcement as a means of keeping the child's interest. Several researchers (Mulligan, Guess, Holovet, & Brown, 1980) have looked at the possibility of using a distributed trials format as a means of addressing educational objectives throughout the classroom day.

b. The Distributed Trials Format

The distributed trials format uses, as the name implies, a distribtuion of trials trhoughout the day as a means of addressing the chld's IEP objectives. This reduces the need to compress all the trials for a particular objective into one block of time and greatly increases the likelihood of generalization of the skill across time, persons, and materials. A distributed trial format also encourages the teacher to look at broader educational objectives. For example, rather than limiting fine motor skill training with a set of pegs, the teacher might write an IEP objective that specified that the student would work on a pincer grasp. The teacher could then work on pegs as part of free play skills, on holding a coin to put it in a soda machine as part of a leisure or recreational skill, on holding a clothespin as part of a self-help skill,

and on holding and turning the pages of a book as part of a story time activity. In addition, the use of a distributed trials format encourages the teacher to make greater use of transitional periods as teaching times. Too often transitions are viewed as something to be gotten through rather than as teaching opportunities. For example, some of the skills that might be addressed during a transition time are: following one and two step directions, discriminating landmarks based on texture, color or sound cues, seating, basic sighted guide skills with an adult or peer, and concept development.

2. Functional Curriculum Programming

The Individual Curriculum Sequencing (ICS) model helps the teacher in scheduling the classroom day to not only take maximum advantage of the time available but also to incorporate functional programming goals into the context of the daily schedule. Functionality has many kinds of meanings according to the age and handicapping condition of the children being served. In its most basic sense, it means using age appropriate materials to teach the child "functional" skills; that is, those skills that will most enhance the child's ability to be successful and happy outside the school setting. To be functional, a skill does ot have to be restricted to daily living and vocational skills. It is a functional activity to teach a 6-month-old to play with a rattle; however, it would not be functional to teach that same activity to a 16-year-old. It is functional to teach 3-year-olds to play with manipulatives such as pegs, beads, and puzzles, but if one wanted to work on those same kind of fine motor skills with a 15-year-old, it would be more functional to teach them to put a coin in a soda machine or to place materials in bags to be packaged for use in the school cafeteria. It is extremely functional that children work on communication and social interactin skills. This is often a facet that is overlooked in classroom settings, especially those that are geared to the mass trial format. In these kinds of settings, the need to get in the required number of trials in an activity may limit the opportunities for any communicat on or interaction not directly linked to the task at hand.

a. Identification of Functional Goals

The process of identifying the most critical and functional goals can be expedited tghrough the use of a ecological inventory. This analysis asks the teacher to look at the demands of the current school environment, the home environment, and future settings that the child might move into. The teacher then looks at the demands of those settings, compares them to the skills that the child has, and prioritizes the areas of need for the child to identify the edu tional objectives that might help the child best meet those needs. It should be emphasized in identifying the educational objectives that the child need not be able to do the ultimate level of skill in order for that skill to be included as an educational objective. Brown et al. (1980) talked about the principle of "partial participation." This simply means that just because there may be no realistic expectation that a child might fully acquire a skill; for example, learning to play a piano, that it need not preclude the child from being exposed to a piano or being allowed to bang on the keys. This same principle applies to the selection of educational objectives. For example, it may be unrealistic to expect that a certain child with physical handicaps might

ever learn to dress him or herself without assistance. It would, however, be a realistic objective that the child learn to participate in dressing by either moving an arm or leg when requested or by remaining passive and not tightening up when the adult attempts to dress him or her. The benefits of this approach are not only does it encourage more apropriate programming, but that it may also help families feel like they are more a part of the educational process if the needs of the home setting are recognized as an important part of the child's overall educational program.

b. Functional Goals and Classroom Schedules

The educational needs of the child should drive the classroom schedule, allocation of staff and materials, and dictate the physical arrangement of the classroom space. This does not mean that if a child's primary needs are self-help that the entire classroom be turned into a grooming center or that the entire day be given over to toileting times but rather that those times and activities should be given a priority and that the schedule and physical arrangement be set up to maximize the number of opportunities available to practice those skills. For example, most preschools have some kind of arrival period during which children are greeted, assisted with putting their coats away, toileted, etc. The scope of this period can be expanded so that the children are perhaps given more time to work on buttoning and zipping, encouraged to go around and greet the adults and other children, prompted to recognize their name on their locker, and assisted in hand and face washing and making a grooming check. The difference between this and the more typical approach is that the activity is not viewed as a housekeeping chore to be gotten through but rather as an important teaching time in which the child is given the time and opportunity to practice those skills which are the most functional and critical for him or her to learn.

c. Functionality with Fun

An additional point to consider is that functionality does not mean that a classroom has to be lacking in fun or that the teacher needs to drop activities such as finger painting, water play, sand play, or do away with areas such as housekeeping corners and block play areas. These are all things that can be used to a functional end and are an important part of a normal preschool learning enviroment. The often quoted adage that a child's work is play is important to remember. Opportunities need to be available for the children to get messy, to have opportunities for social interaction, to use their imaginations and to be self-directed in their choice of activities and play. The kay thing is to not expect things to happen without planning. It will be more difficult for social interaction to occur in a block area if the blocks are scattered around the area rather than in one central location. The proximity of materials make it more likely that the children will come together and interact than if the materials are scattered so that each child can go off on his or her own to play. It is also important, as noted previously, that each area be assisnged one to two functions. This will help the child with visual impairment being able to locate materials, activities, and peers for interaction without adult assistnace. An added benefit of these kinds of activities (e.g., finger painting) is that they can then pave the way for more "traditional" kinds of

functional activities. For example, at the end of the time the child can practice undressing to remove his paint shirt or apron, hand and face washing to clean up, and systematic search skills to use a sponge to clean his or her work area.

3. The Use of the ICS Model-A Means of Organizing the Day

a. Rethinking the Classroom Approach

The use of the ICS model requires the teacher to rethink his or her approach to the classroom. The steps include:

1. Considering what are the most functional and critical skills for each child to learn.
2. Considering what are the kinds of settings in which those children might learn, practice, and generalize those skills.
3. Looking at what materials are available and what additional materials are needed to teach each of the target skills.
4. Analyzing the room space that is available and using the guidelines laid out in Section A on the arrangement of physical space to set up the room with the activity areas and arrangement of materials that will facilitate the accomplishment of the IEP objectives.

b. Identifying When to Work on IEP Goals

The ICS model recommends the use of a matrix and teaching strands as a means of integrating the distributed trials format into the classroom routine. An IEP matrix is used as a means of identifying when and where to incorporate IEP objectives. One axis of the matrix lists the time and the activity for each activity that occurs during the day. This would include all regular activity periods, all transition times, all snack or meal times, and all self-care and toileting times. The other axis lists each of the child's IEP objectives. The teacher then smply identifies which objectives might be addressed best during each one of the times listed. It is important to not become overzealous about this as in many cases almost all objectives can be worked on during all times. In order to retain one's sanity and to keep data collection to a workable level, it is necessary to limit the number of objectives that are targeted for each period. Generally, 2-3 objectives per child for any given period is more than enough. The operative word is BEST--which skills are best addressed by the activity during that time period. In addition, the teacher needs to pay careful attention to the total number of IEP objectives.

5 Summary of the Process

The combinations of schedules and arrangements are infinite and should undergo constant analysis to see if they meet the need of the child. The process need not be complicated but it does need to be thought out and planned. An outline of steps is presented below as a means of summarizing the information presented above.

I. Identification of Functional Goals
   A. Conduct environmental analysis of current setting, home setting, and potential future settings.

B. Identify and prioritize skills needed to participate and succeed in each of those settings.
C. Assess child to identify present level of functioning
D. Develop educational objectives for IEP based on needs of environments and present level of functioning of child. Identify those skills which you can expect the child to acquire through intervention that will bring his level of functioning closer to meeting the demands of the settings.

II. Setting Up the Schedule
A. Set up the educational objectives along one axis.
B. Lay out the times of the day along the opposite axis. You can set these up in ten to fifteen minute blocks.
C. Identify those activities and periods that may be out of the teacher's control such as assigned lunch times, gym or playground times.
D. Block out times that need to occur on a regular basis, such as toilet times if the child is on a regular toilet schedule.
E. Identify activities that can help to meet the child's educational objectives. Be sure and include all the activities including transition periods.
F. Identify areas of common need that may exist across several children. For example, if one priority for several children is to increase their braille recognition skills then it may be important to assign a block of time to activities that might enhance those skills such as tactile play activities, story times with braille books, letter recognition games, and tactile discrimination activities.
G. Assign blocks of times for the remaining activities being sure to leave adequate time for transition, self-care, etc. in order to give the child to participate fully in the activity and become as independent as possible.

C. Assignment of Personnel

1. Introduction

There are two approaches to assigning personnel. The first is what might be described as "man to man" and the second is on a "zone" basis. In the first case, staff are assigned to specific children and move with those children. One of the outcomes of this approach is that it becomes necessary for children to move as a group. In the second approach, staff are assigned to specific areas and children move from area to area. This approach allows children to move individually as they complete activities. In a study of a day care setting in Kansas, LeLaurin and Risley (1972) compared the use of a man to man and zone system and found that the zone system greatly decreased the amount of "down" time-the periods of unstructured waiting time, experienced by children in the classroom.

2. The "Zone" System

The zone system works on the basis of assigning personnel to different parts of the room. The children move from area to area as they complete each activity. The zone system can also be used to maximize the number of personnel in one area for an activity and then to disperse them as the individual children complete the activity. For example, all the staff might be needed at the beginning of a lunch period. However, as individual children complete lunch one staff member can be assigned to the bathroom to assist children in cleaning up. As more children complete lunch and cleaning up, a third staff member can be assigned to a free play area. This way all the children can move to different areas and be occupied as they complete the activity rather than having to wait till all the children are finished before they can move to the next activity.

3. Advantages of the Zone System

One of the major advantages to a zone system is it allows children to work at their own pace within a concurrent series of activities. For example, one teacher is assigned to a reading area while a second teacher or staff person can be assigned to a free play area. As the children finish their reading work they can then move to the free play area.

4. Running Concurrent Activities

Setting up the free play area next to a bathroom would allow the second teacher to monitor children in the free play area while also supervising children in the bathroom and clean up.

5. Using the Zone System to Reduce Problems

Letting children move individually as they complete activities can, in many cases, serve to cut down on behavior problems in the classroom. These problems often arise as a result of waiting times imposed on other children as they wait for one child to complete a task so that they can then move en masse. Another problem that arises occurs during mass transitions when a teacher's attention may be directed in too many directions at one time. Letting children move independently may allow them more time to practice orientation and mobility skills such as trailing or use of objects as

bumpers and to familiarize themselves with the room layout. In addition, the use of a zone system lets the teacher use the Premack Principle in arranging the flow of activities. The Premack Principle simply places a high motivation activity after a low motivation activity. By making the high motivation activity contingent upon the completion of the low motivation activity the teacher can increase the likelihood of the child participating in and completing the first activity. It is well known that one of the most important pieces to reinforcement is that for the reinforcement to work it needs to closely follow the successful completion of the task. The zone system allows the child to immediately move to the reinforcing activity and thus increases its value as a reinforcer. In a man to man system, the child may have to wait for all the children to be finished before he or she gets to enjoy the reinforcing activity. This diminishes the value of the activity as a reinforcer and may inadvertently lead to additional problems. For example, a child may act out while waiting and have the favored activity taken away as a punishment or it may take so long for all the children to complete the first activity that they then have little or no time available for the second favored activity. Either of these scenarios has the effect of greatly diminishing the strength of the second activity as a reinforcer and increasing the likelihood that the child may balk at completing the first activity in the future.

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APPENDIX B

Training Module: Use of Practicum Students

I. Introduction

This module provides an overview of the procedures used for practicum students placed in any of the direct service components of the Preschool Orientation and Mobility Project. It describes the nature of the placement, a rationale for the placement, expectations of all participants, and some of the expected outcomes. In addition, it provides a summary overview of some of the pros and cons involved in providing practicum experiences.

II. Description of Placement

The Preschool Orientation and Mobility Project provided practicum experiences in two primary settings-the project's classroom program and the project's homebased program. Practicum students participated on a daily basis in the classroom and on a once a week basis in the homebased program. Students were responsible for a variety of interventions and programatic aspects. Students were supervised by project staff and by faculty responsible for their training. The length of placement varied from four to eight weeks depending on the number of students enrolled in the university program.

III. Rationale for Placement

The basic rationale for the Preschool O&M Project has been that preschool children with visual impairments represent a new population for orientation and mobility instructors and that in most cases there is a paucity of information, curriculum, and training for those professionals to direct them in how to best serve this population. The placement of practicum students within the project's direct services components represented a natural extension of this rationale. A second tenet of the project has been that, in many cases, the most appropriate model for the delivery of services is within the child's classroom setting rather than on an isolated 1-to-1 basis as is the traditional means of instruction. This is especially important because much of what forms the foundation for the acquisition of orientation and mobility skills by preschoolers occurs within the context of their daily program. Therefore, it becomes imperative that persons being trained to provide O&M to preschoolers should have an experiential understanding of what happens in a preschool classroom and how their expertise can be integrated within that setting to provide a program of instruction that meets all the child's needs. In addition, both direct service components provided appropriate settings for the acquisition of the basic competencies set forth in the university training program's classwork (see attach list of course objectives for SE255). Finally, the Preschool O&M Project's classroom program provided a good laboratory setting for practicum students to complete expected research competencies.

IV. Contractual Arrangements

A contract was used with each practicum student to provide a basic framework of expectations between the practicum student and the project staff. This contract identified basic parameters such as the number of hours to be completed, assessments and reports to be completed, and expectations of the supervisory personnel. A copy of this contract is given in figure 2. The use of a contract greatly simplified the mechanics of the practicum setting so that basic expectations of all parties were set out prior to beginning the practicum.

V. Use of Practicum Students

As stated previously, the practicum experience was conceived of as an opportunity for students to gain a first hand knowledge of what occurs in a preschool classroom and to assist them in understanding how their expertise could be integrated to provide a more complete program for the children. Consequently, the expectation of the placement was that the practicum students would participate in all aspects of the children's programming. The range of programming extended from toilet training to developing lessons to increase spatial awareness. A graduated model was used in working with the practicum students. An initial observation period was provided for each student followed by a period of time to complete any initial evaluations that might be appropriate. After this initial period, the practicum student was expected to gradually assume more responsibility for planning instructional intervention across the day. For example, during the first week the student was expected to plan for one large group activity. These responsibilities were increased so that at the end of the placement the student was expected to plan for the majority of large group, small group, and individual instruction time for targeted children. The supervising teacher provided guidance, resources, and reviewed lessons for appropriateness as well as assuming responsibility for long-term instructional goals, monitoring of the child's IEP goals, and providing instruction in areas that were outside the scope of the practicum student's training.

VI. Supervision

Supervision was provided at three levels. The first level consisted of ongoing feedback within the classroom setting and a regular review of the practicum student's lesson plans. This usually was done on an informal or unscheduled basis. The second level consisted of formal feedback on a regularly scheduled basis by the supervising teacher. The supervising teacher met with the student at least once a week to provide verbal feedback. In addition, a weekly written evaluation was provided to each student and to the faculty supervisor. The third level consisted of at least once a week observation by the faculty supervisor. The faculty supervisor then provided written and verbal feedback to the practicum student on a weekly or biweekly basis. In addition, the supervising teacher and the faculty supervisor met 1-2 times a month to discuss the current practicum student and any programmatic or supervisory needs that the student might have. A formal written evaluation of the student's practicum performance was provided at the end of the practicum by the supervising teacher to the practicum student and the faculty supervisor.

VII. Expected Outcomes

Each practicum student had a number of products he or she was expected to develop. The first was two kinds of behavioral programs-a concept analysis program and a task analysis program. The concept analysis program was used to teach some basic concept to the child such as body parts, up/down, or front and back. The task analysis program was designed to teach some basic skill to the child such as self-protective techniques (e.g., upper hand and forearm or lower hand and forearm) or ascending/descending steps. Each student was also expected to complete written lesson plans for use on a daily or weekly basis. In addition, each student was expected to complete an initial and final evaluation on a target student. The initial expectation was that each practicum student would complete an initial and final evaluation on at least 4 of the children in the classroom. This proved to be too time consuming and disruptive to the classroom setting. The information gathered also proved to be redundant given the short period of time between when one practicum student would

complete an assessment and when the next student would begin one.

VIII. Additional Components

In addition to the classroom placement, each practicum student was expected to participate in one home visit a week with the supervising teacher. These experiences were designed to provide the practicum student with more insight about familial aspects and the interaction of the home and school. Because many of the students that were seen through the homebased program were multiply handicapped, the experiences provided the practicum student with experience working with children who had other handicaps in addition to their visual impairment. The practicum student was expected to write up a weekly observation report and to develop one to two lessons to be used during the course of a home visit.

SE 255: Orientation and Mobility for Visually Impaired Children

3 Credit Hours
Instructor: Everett Hill
Office: 314D, 322-8182

Course Objectives

1. Students will acquire knowledge of the field of Orientation and Mobility (O&M) and its relationship to the education and rehabilitation of visually impaired (VI) persons.

2. Students will acquire sufficient knowledge and experience in the basic Orientation and Mobility skills and concepts to enable him/her to teach those skills and concepts to a child or adult who is visually impaired.

3. Students will acquire knowledge of the importance of the utilization of sensory information to the travel performance of visually impaired persons.

4. Students will acquire knowledge of the social and familial forces influencing the child's travel range and abilities.

5. Students will acquire knowledge of the cognitive, psychomotor, and affective aspects of O&M.

6. Students will acquire knowledge of the basic modes of travel available to blind persons.

7. Students will acquire knowledge of teaching methods and materials for the remediation and/or enhancement of O&M.

8. Students will acquire knowledge of basic sighted guide, protective and familiarization techniques through blindfold practice.

9. Students will demonstrate knowledge of selected activities of daily living skills.

10. Students will demonstrate knowledge of the effects of additional handicaps on the development of O&M skills.

11. Students will demonstrate knowledge of inservice training procedures for parents, teachers, aides, auxillary personnel, administrators and other primary caregivers of VI children.

12. Students will demonstrate knowledge of visual, auditory, tactual and other sensory systems.

13. Students will demonstrate knowledge of the historical development of O&M, as well as current issues and trends.

14. Students will demonstrate the ability to critique O&M research.

1. The practicum period will extend for six (6) weeks, from September 16, 1985, through October 24, 1985, for four (4) days a week, four (4) hours a day Mondays and Tuesdays, five (5) hours a day Wednesdays and Thursdays, for a total of 108 hours. An additional 12 hours will be arranged through participation in home visits.

2. The cooperative teacher(s)/supervising instructor will be provided with each day's lesson plans at the start of each day.

3. The practicum student's schedule of lessons for the day will be left in the classroom/supervising instructor's mailbox daily so that at any time project personnel and the supervising instructor will know with whom the practicum student is working and where.

4. The cooperative teacher(s) and the supervising instructor are to be notified at least five (5) school days in advance of intended absence for reasons other than illness.

5. In the event of illness, the practicum student will call the office before 8:00 a.m. and inform the cooperative teacher/supervising instructor directly or leave a message with the secretary that she will be absent that day. The same procedure will be followed on consecutive days of absence due to illness.

6. All missed time will be made up either by extending the actual practicum period or by extending the days within the practicum period the appropriate number of hours. This is to be determined jointly by supervising instructor, cooperative teacher, and student.

7. The practicum student will spend at least the first three (3) days observing before assuming responsibility for individual children/adults or small groups of children/adults.

8. Initial and final assessments will be completed on a minimum of four (4) children/adults.

9. Two data-based programmes, one a task analysis and the other a concept analysis, will be developed and implemented, each with one child/adult.

10. A copy of all written reports generated by the practicum student will be given to the cooperative teacher(s) and to the supervising instructor.

11. Orientation and mobility skills are to be implemented during any feeding programme in which the practicum student assists.

12. The supervising instructor will observe the practicum student working with the children/adults at least once a week.

13. The practicum student will consult with the cooperative teacher(s)/supervising instructor as often as is necessary to develop and implement all programmes.

14. If the cooperative teacher(s) and practicum student are unable to resolve any problems, the supervising instructor will assist.

Mary Maureen Hill, Ed.D.,
Supervising Instructor

Cooperative teacher(s)

Practicum Student

George Peabody College Weekly Practicum Student Evaluation

Cooperative Teacher_____ Date_____

Practicum Student_____ Placement_____

Rating Scale: (Based on practicum student's performance)
0 - Non-applicable (i.e., no assessment observed)
1 - Poor
2 - Fair
3 - Good
4 - Excellent

Please assess the student's performance during his/her weekly observation, addressing the following:

Performance	Score	Comments
Knowledge of O&M skills and techniques		
Assessment skills (choosing appropriate assessments, administering assessment, interpreting assessment results)		
Planning and implementation of appropriate instructional programmes		
Rapport with students		
Rapport, communication with other professionals and parents		
Areas or skills in which the student demonstrated exceptional strength		
Areas or skills needing improvement		

George Peabody College
Student Teacher Evaluation

Please describe the student's performance during his/her practicum experience, addressing the following:

Knowledge of O&M skills and techniques
Assessment skills (choosing appropriate assessments, administering assessment, interpreting assessment results)
Planning and implementation of appropriate instructional programmes
Rapport with students
Rapport, communication with other professionals and parents
Areas or skills in which the student demonstrated exceptional strength
Areas or skills needing improvement

APPENDIX C

ADVISORY COUNCIL

Dr. Al Baumeister
Director, John F. Kennedy Center

Dr. John J. Rieser
Associate Professor, Psychology
Vanderbilt University

Ms. Rebecca Crowell
Preschool Counselor
TN School for the Blind

Mr. Raymond Hunter
Superintendent
TN School for the Blind

Robert Estes, M.D.
Pediatric Ophthalmology

Ms. Sally Dunn
State of Tennessee
Dept. of Human Services

Ms. Betty Berry
Preschool Services
TN State Dept. of Education

Mr. Terry Smith, Director
State Services for the Blind

Dr. Karen Edwards, Director
TN Children's Services Commission

Ms. Elizabeth Gerlock
Clover Bottom Developmental Center

Stephen Femar, M.D.
Director of Retinal Services
Dept. of Ophthalmology
Vanderbilt Hopsital

Ms. Laura Davis
TN State Dept. of Education

Dr. Cornell Lane, Director
Dept. of Special Education
Metro. Nashville Public Schools

Dr. Steve Warren
Associate Professor, Sp. Ed.
Vanderbilt University

Ms. Cathy Alpert
Research Assistant Professor
Special Education
Vanderbilt Univesity

Parents

Mrs. Susan Womack

Mr. Richard Eastep

Mrs. Phyllis Cunningham

Mrs. Carolyn Moore

Mrs. Lindy Caughen

Mr.and Mrs. Chris Cook

APPENDIX D

Preschool Orientation and Mobility Project
Assessment and IEP Process
Introduction

Reasons for Assessment:

We use assessments for four major reasons:

1. To provide us with information about your child in a variety of areas and to pinpoint possible goals and objectives to work on as part of your child's Individual Education Program (IEP).
2. To give us a way of measuring your child's progress over a period of time.
3. To provide a comprehensive picture about your child's strengths and needs by combining parent and staff observation and knowledge with standardized assessment tools.
4. To measure the impact of our program's services.

How We Chose Our Tests:

Our main test, the Battelle Development Inventory, was chosen after reviewing a number of tests. We used four main criteria in choosing a test. They were:

1. That it be comprehensive so that we could get a picture of your child's skills and needs in a variety of areas.
2. That it include children with visual impairments in its normative sample so that hopefully the test results would not penalize your child because of his or her visual impairment.
3. That the test accept parent reports since you have more opportunities to observe your child than we do.
4. That the test have some kind of standardization. This means that the test can be used with confidence for a number of years to provide us with an additional way of measuring your child's progress over time.

The Battelle was chosen because it fits all of the above criteria. We do not pretend that it fits all the criteria as well as we would like or that it's a perfect test but we do believe that it provides us with a good starting point.

In addition to the Battelle Developmental Inventory, we have two supplemental tests that we use. They are the Functional Vision Inventory and the Preschool Orientation and Mobility Project's Orientation and Mobility screening. These two tests are not standardized tests but are used to provide us with additional useful information about your child's visual functioning and orientation and mobility skills.

******OUR TESTS ARE ONLY A STARTING POINT******

We believe good assessments are important in the development of good programming. As we (parents and teachers) complete the assessments, it is important that when anyone feels that the child's responses aren't giving an accurate picture of the child's abilities that they say so. We can then work together to find a better means of testing that response--for example, using a supplementary test, redoing the item, or changing materials.

Psychological Tests

Definition

Our assessments are not the same as standardized psychological tests that can only be given by a licensed psychological examiner or under the supervision of a licensed psychological examiner. These are standardized tests that are used to identify your child's level of functioning in order to determine eligibility for services.

Use in our Program

Your child will be required to have a psychological test as part of the intake procedure for enrolling your child in the Susan Gray School. This is done in order to keep us in compliance with the school's accreditation standards. This test must be appropriate for use with children with visual impairments. The psychological test will have no bearing on your child's eligibility for services through our program. There is no charge for this service.

Use in other Programs

In addition, your child will need to have a psychological test as part of the intake procedure for the public schools. The public school systems do use the psychological tests as one of the criteria for determining your child's eligibility for special education services through the public schools. The public schools will accept a current psychological test from the Susan Gray School so your child won't have to go through repeated psychological testing.

OUR ASSESSMENT PROCESS

Introduction:

We use a multi-step process for completing our assessments and writing your child's IEP (Individual Education Program).

Time and Place

We will conduct the assessment at your convenience and wherever you think we will be able to get the best picture of your child's abilities. This can be done at home, at a baby sitter's home, at a day care center, or at school. We ask that at least one parent be present at the time of the assessment.

How We Do the Assessment

We will start the assessment process by giving you several cards that will have selected items from the Battelle, the O&M screening, and the Functional Vision screening. We will ask you to tell us which ones you think best reflects your child's skill level. This will give us a beginning point for testing your child.

We will then pick assessment cards that will provide a more in-depth picture of your child's skills at the level you have chosen. Depending on your child's responses and your input, we will give more items from different skill levels until everyone feels that we have gotten a good picture of your child's skills.

Please keep in mind that we are trying to get a picture of what your child is typically able to do and to learn both what your child's strengths and what your child's needs are.

Who Gives the Assessment

One person from the Project will be the lead person. He or she will give most of the items from the assessment. As much as possible, we ask that the other persons present to direct their questions and suggestions to the person doing the testing in order to minimize confusion for the child. However, if you feel that the child is not responding as well as she or he typically does, please feel free to ask the tester if you could try the item with the child.

Length of Assessment

We estimate that most items can be completed in two visits of approximately 1 1/2 hours each. This is only an estimate and it be changed to fit both your needs and the child's needs.

What Happens after the Assessment

We will schedule a third visit for everyone to talk about what your child did and what might be goals for your child's educational program. What we will try to do in this third session is to talk about your child's strengths and your child's needs. Our procedure is simple.

1. We will ask you how you thought your child did and how typical his or her performance was.
2. We will try an answer any questions that might still be remaining from the assessment.
3. We will ask you to talk about your child's responses and what you thought were some of the **Strengths** that you saw during the testing. We will then add our observations so that we can develop a complete picture of your child's strengths.
4. We will ask you to talk about what you thought were some of the **Needs** that you saw during the assessment. We will again add our observations so that we get a complete picture of your child's needs.

5. We will ask you to tell us about the things you see your child doing from day to day and what you think are things you would like the school program to work on to help him or her in these other settings.
6. Together we will try to identify what might be the possible areas to focus on in your child's IEP. The IEP gives us a 6-month "road map" for your child's educational program. It will include both board goals and specific objectives.

The Individual Education Program

As a final step, you will be invited to come to the Susan Gray School for Children for a formal IEP meeting. This meeting is attended by the staff from the Preschool O&M Project, a representative from the Susan Gray School, yourselves, and anyone you wish to bring with you.

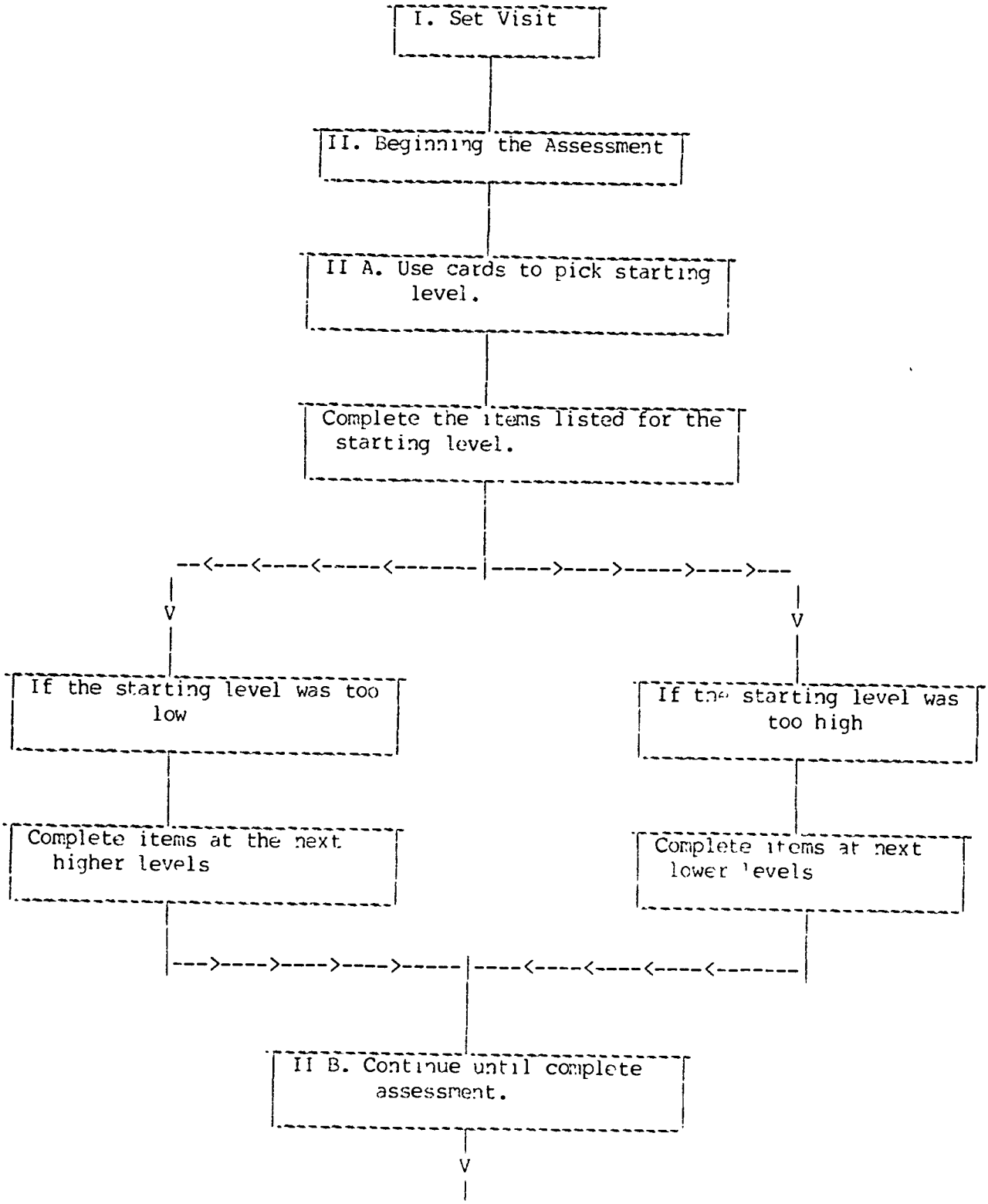
The purpose of this meeting is to formalize the goals and objectives and to put them into a written program for your approval. As part of this process, the team (yourselves, the teachers, and representatives from The Susan Gray School) will be writing the specific goals to be incorporated into your child's IEP. We will write up a draft of those goals based on the assessment process and our discussions with you and send them to you prior to the meeting for your review. We invite you to make suggestions, revisions, additions, or deletions as you see fit and to bring those changes to the meeting so that they can be incorporated into your child's IEP. The IEP is an important part of you and your child's legal educational rights and your attendance is critical in helping to develop the best possible education plan for your child.

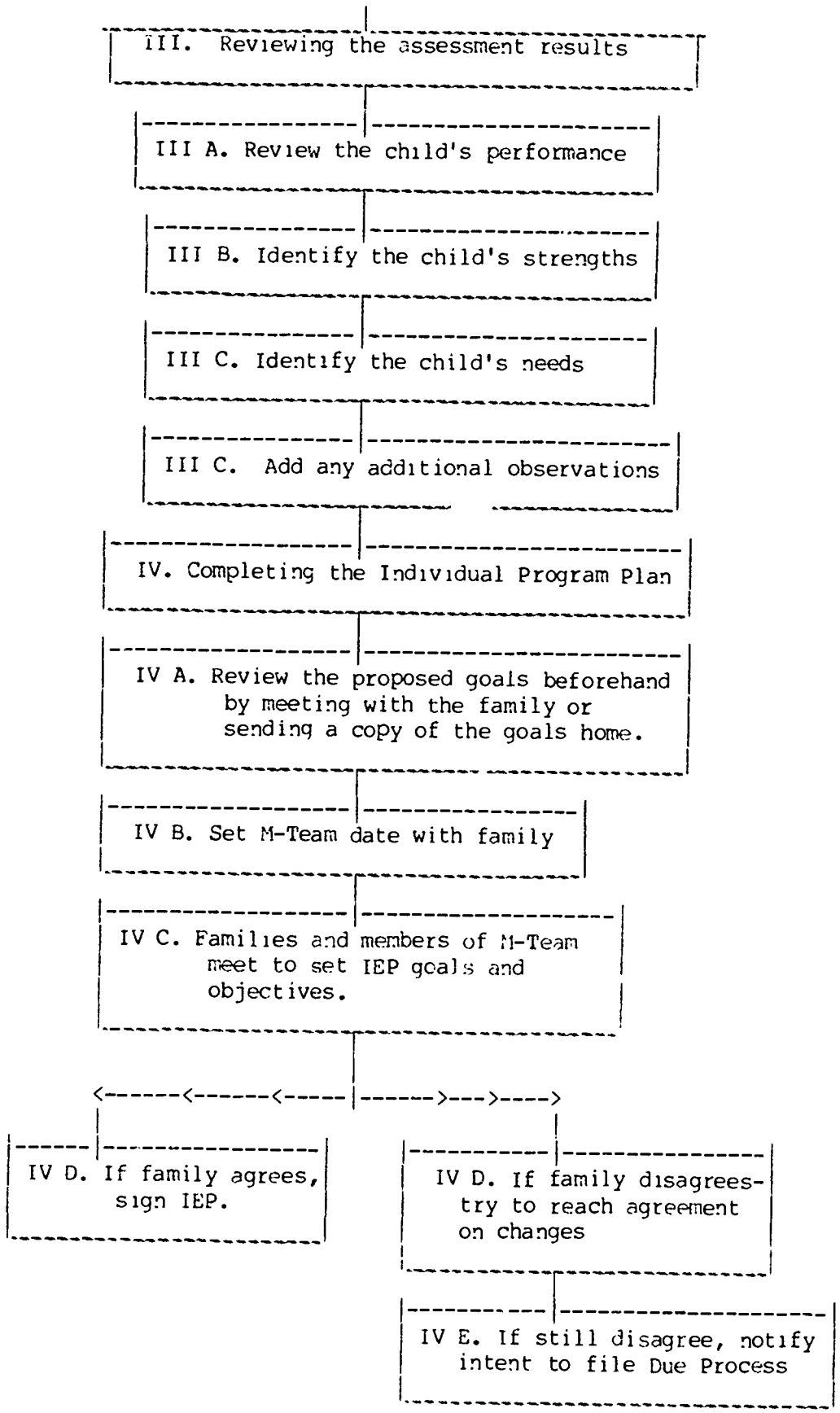
Conclusion

We hope this information will be helpful and informative. Your child's education is our primary concern. If there is anything we can do to provide clarification or additional information please let us know. Our address is:

Preschool Orientation and Mobility Project
Department of Special Education
Box 328, MRL
Peabody College of Vanderbilt University
Nashville, Tn. 37203
(615) 322-8182 or 322-8466

THE ASSESSMENT AND IEP PROCESS




III. Reviewing the assessment results
III A. Review the child's performance
III B. Identify the child's strengths
III C. Identify the child's needs
III C. Add any additional observations
IV. Completing the Individual Program Plan
IV A. Review the proposed goals beforehand by meeting with the family or sending a copy of the goals home.
IV B. Set M-Team date with family
IV C. Families and members of M-Team meet to set IEP goals and objectives.
IV D. If family agrees, sign IEP.
IV D. If family disagrees- try to reach agreement on changes
IV E. If still disagree, notify intent to file Due Process

APPENDIX E

TEACHER BACKGROUND INFORMATION

NAME: _____

ADDRESS: _____ TITLE/POSITION _____

_____

_____

WORK PHONE: _____ HOME PHONE: _____

EDUCATION/EXPERIENCE:

1. Which of the following best represents your current educational level? (Check only one)

___bachelor's degree
___post-bachelor's degree
___master's degree
___post-master's degree
___doctoral degree
___other (please specify)

_____

2. Please list the type of certificate(s) you hold: _____

_____

3. Are you AER certified or AER certifiable in O&M? _____

4. How many years of teaching experience in O&M have you had? _____

5. How many years of teaching experience with visually impaired children ages 0-5 years have you had? _____

CURRENT CASELOAD INFORMATION (Please answer the following questions for children you currently serve)

1. Of the visually impaired persons you currently serve, how many are:

___0-24 months
___ 25-72 months

2. How many of the VI preschool children (0-5 yrs.) you serve are:

Vision	None	Additional Impairments (Check all that apply)			
		Cognitive	Motor	Sensory	Behavior
totally blind or light perception only					
legally blind					
visually impaired but not legally blind					

Total number of children should equal same as total in question #2.

3. Please specify the total number of VI persons of all ages that are on your current caseload. _____

4. Do you serve persons who are not visually impaired? _____
   If so, how many on your current caseload? _____

5. What % of your total time do you spend on direct and indirect services for VI preschool age children? _____

6. Of the time specified in #4, what percentage of time is spent doing the following: (should add up to 100%):

   ____ work with parents
   ____ direct instruction to infants and preschool children
   ____ consult with classroom teachers and other specialists

7. What type of service delivery setting do you work with VI infants and preschoolers? Check all that apply.

   ____center-based ____ home-based

8. Please list the assessment and curricula materials you currently use for VI infants and preschoolers:

   Assessment: _____

   _____

   _____

   _____

   Curricula: _____

   _____

   _____

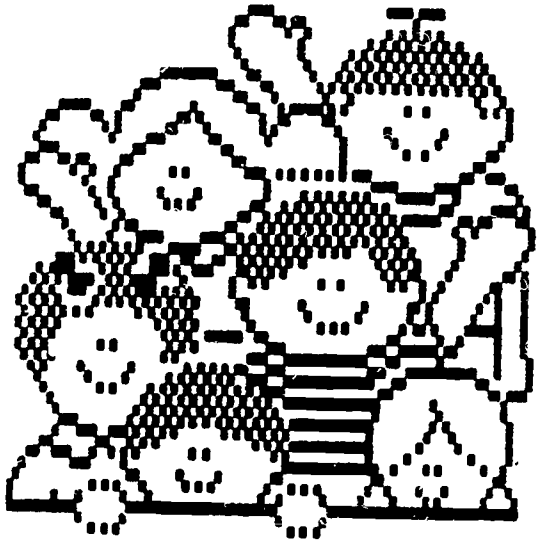
   _____

Please return completed form by: _____

Return to: Dr. Everett W. Hill
Dept. of Special Education
Box 328, Peabody College
Vanderbilt University
Nashville, TN 37203

THANK YOU VERY MUCH FOR YOUR ASSISTANCE!

PRESCHOOL O & M PROJECT



FIELD TEST VERSION
NOT TO BE DUPLICATED

FIELD TEST

PROCEDURES MANUAL

PRESCHOOL O&M PROJECT
SKILL PRIORITY LIST - MOBILITY

Based on your input regarding your current caseload and the necessity to ensure that all skills are field tested adequately, we have selected 3 skills for you to field test. We would like you to teach the 3 skills we have circled to at least one child. If any of the skills we have selected are inappropriate for any of the children on your caseload, please select alternate skill(s).

Please Note: If you would like to field test additional skills, please do so. Additionally, we are particularly interested in learning about your experiences with 4-5 year old cane travelers and what you consider to be the prerequisite cane skills, as the number of 4-5 year old cane travelers is limited.

I. SIGHTED GUIDE SKILLS

Basic Sighted Guide
Narrow Passageway
Changing Sides
Closed Doors
Stairs
Accepting and Refusing Aid
Reversing Directions
Entering/Seating/Exiting A Vehicle

II. SEATING

At A Child-Sized Table
In Child-Sized Seats
In Adult-Sized Seats

III. SELF-PROTECTIVE TECHNIQUES

Use of Objects As Bumpers
Lower Hand And Forearm
Upper Hand And Forear...

IV. INDEPENDENT TRAVEL

Negotiating Stairs
Use of Doors

V. CANE SKILLS

Diagonal Technique
Contacting and Negotiating Objects
Cane Placement
Walking With Sighted Guide
Trailing With Diagonal Technique

PRESCHOOL O&M PROJECT
FIELD TEST MANUAL

TABLE OF CONTENTS

PRESCHOOL O&M PROJECT

FIELD TEST PROCEDURES AND TIMELINES

Note: Please read these instructions carefully before utilizing skills. If you should have any questions regarding the field testing process, please contact Annette Skellenger or Everett Hill at (615) 322-8182.

How To Field Test Skills From Curriculum And Provide Feedback

1. Complete Teacher Background Form and return to Project, if you have not already done so.
2. Receive cover letter and Field Test Manual.
3. Select 3-10 skills to field test, using Project's Skill Priority List.
4. Look over Skill Analysis Format and sample skill, Basic Sighted Guide, simultaneously to see how skills are formatted.
5. Use each of the 3-10 skills with at least one child for about 6-8 weeks. Please note which level of Skill Hierarchy with which you began instruction for each child.
6. When you have completed instruction with a skill, fill out a Curriculum Feedback Sheet. Do this for each skill.
7. When you have completed all of the 3-10 skills you have selected, fill out a Child Data Sheet for each child who used the skill(s).
8. Return completed Curriculum Feedback Sheets and Child Data Sheets in the selfaddressed envelope (no later than 12 weeks after you received the Manual and skills).
9. You may keep these field test versions of curriculum skills, but we ask that you do not duplicate them.
10. If you would like to field test additional skills, your help would be greatly appreciated. Please send us the Feedback Sheets as you complete them.
11. Your field test number is _____. This number is part of our data analysis system and should be written on ALL forms you return to us.

Important Dates To Remember

Field Test Manual was sent to you on _____

Feedback Sheets due back to us by _____

PRESCHOOL O&M PROJECT
CURRICULUM - MOBILITY SKILLS

I. SIGHTED GUIDE SKILLS

Basic Sighted Guide
Narrow Passageway
Changing Sides
Closed Doors
Stairs
Accepting and Refusing Aid
Reversing Directions
Entering/Seating/Exiting A Vehicle

II. SEATING

At A Child-Sized Table
In Child-Sized Seats
In Adult-Sized Seats

III. SELF-PROTECTIVE TECHNIQUES

Use of Objects As Bumpers
Lower Hand And Forearm
Upper Hand And Forearm

IV. INDEPENDENT TRAVEL

Negotiating Stairs
Use of Doors

V. CANE SKILLS

Diagonal Technique
Contacting and Negotiating Objects
Cane Placement
Walking With Sighted Guide
Trailing With Diagonal Technique

Preschool O&M Project Curriculum - Orientation Skills

I. SENSORY SKILLS

- Visual-Distance
- Auditory
- Tactile
- Olfactory

II. BODY IMAGE

- Body Parts and Planes
- Relationships and Movements of Parts and Planes
- Self-to-Object Relationships (Direction and Distance)

III. METHODS OF ESTABLISHING AND MAINTAINING ALIGNMENT

- Perpendicular/Squaring Off
- Parallel/Trailing
- Negotiating Open Spaces

IV. SYSTEMATIC SEARCH PATTERNS

- Hand & Arm/Fan, Gridline, Perimeter, Circular
- Locating Dropped Objects
- Whole Body - Perimeter
- Whole Body - Gridline

V. MEASUREMENT

- Comparative
- Using Body Parts
- Time/Distance

VI. NAVIGATION/TRAVEL

- Object-to-Object Relationships
- Utilizing and Establishing Landmarks
- Turns
- Soliciting Aid
- Route Travel
- Recovery Skills

Preschool O&M Project Curriculum - Fine Motor Skills

I. REACH

Prone
Supine
Sitting

II. GRASP

Grasp: Cube-Size Objects (approximately 1")
- Palmar
- Radial - Digital
- Three Jaw Chuck

Grasp: Pellet-Size Objects (approximately ¼")
- Raking/Scissors
- Inferior Pincer
- Fine Pincer

III. RELEASE

Involuntary
Voluntary
Drops/Places

I. PRONE

- Head Control in Prone
- Prone on Forearms
  - Maintan and Assume
  - Head Control
  - Reach
- Prone on Extended Arms
  - Maintain and Control
  - Head Control
  - Reach
- Rolling
  - Prone to Supine
  - Prone to Sidelying
- Prone
  - Crawls Reciprocally
- Prone
  - Moves to Sitting
- All-Fours
  - Maintain and Assume
- All-Fours
  - Creeps Reciprocally
- Teaching Strategies - Prone/All Fours

II. SUPINE

- Head Control in Supine
- Pull to Sit
  - With Head Lag
  - Without Head Lag
- Rolling
  - Supine to Prone
  - Supine to Sidelying
- Supine
  - Moves to Sitting
- Teaching Strategies

III. SITTING

- Sitting
  - Head Control
  - With Support
  - Without Support
- Teaching Strategies-Sitting
  - Protective Reactions
  - Righting Reactions
  - Equilibrium Reactions
  - Seating Selection

IV. STANDING

- Move to Standing
  - Pull to Stnad
  - Rise from Floor
- Standing
  - With Support
  - Without Support
- Teaching Strategies
  - Movement in Half-kneeling
  - Protective Reactions
  - Equilibrium Reactions

V. WALKING

- Cruising
- Walking with Support
- Walking without Support
  - Forwards
  - Sideways
  - Backwards
- Walking without Support
  - Push/Pull Toy
  - Carrying an Object
- Teaching Strategies
  - Running/Squatting/Components of Walking

V. STEPS

- Nonwalking
  - Scooting/Creeping up steps
  - Scooting/Creeping down steps
- Walking with Support
  - Up Steps
  - Down Steps
- Walking Without Support
  - Up Steps
  - Down Steps
- Teaching Strategies

PRESCHOOL O&M PROJECT - SKILL ANALYSIS FORMAT

Area/Component:_____ Age Range _____ and up

Rationale: Purpose(s) of skill.

SKILL HIERARCHY LEVELS

What Child Does	Prerequisites
Sequential levels of child behavior from lowest to highest refinement of skill	General developmental and O&M skills which are prerequisite to performing skill at each particular level.
Moves from lowest requirements of cognitive and motor skills to highest levels of ability.	Can be used to determine child's readiness for particular level.

This section should be read across columns so that #1 under "What Child Does" is related to #1 under "Prerequisites."

Terminal Objective: Terminal behavioral objective for skill performance. This pertains to skill as written under "Skill Analysis & Sequence - (Level #__).

SKILL ANALYSIS & SEQUENCE - (LEVEL #__)

What Adult Does	What Child Does	Modifications

This section is basically a task anlaysis of one of the levels in the Skill Hierarchy (refer to Level # above). Numbered columns under "What Adult Does" and "What Child Does" correspond.

Mobility

a. All sighted guide skills are written for adult guide as teacher. Peer guide information is included under "Modifications."
b. All self-protective and independent mobility skills are written in this section without adult assistance.
c. Written as step-by-step procedures of the technique.

Orientation

a. Some skills are in-depth analysis of how child and adult should perform skill at each level.
b. This section in other skills is a task analysis of step-by-step procedures of a technique.

Motor

a. Includes how adult should position child for each level.
b. In-depth analysis of how child should perform skill at each level.

"Modifications" section includes modifications of skill for following:

a. Children who may be unable to perform skill as written due to motor abilities, size, or age.
b. Specific environmental situations.

TEACHING STRATEGIES

This section includes the following information:

a. Methods of teaching skill.
b. Points to stress when teaching skill.
c. Levels of teacher assistance.
d. Suggestions for sequencing intervention in skill.
e. Environmental considerations, limitations of skill.

CLASSROOM/HOME APPLICATIONS

This section includes suggestions on how parents and classroom teachers can incorporate skill into daily setting and routine. Specific situations in which child can utilize/practice skill are provided.

RELATED O&M SKILLS

Orientation

Mobility

This section will be used as basis for cross referencing the mobility and orientation sections of the curriculum. It addresses the relationship between curriculum skills.

PRESCHOOL O&M PROJECT - SAMPLE MOBILITY SKILL

Area/Component Sighted Guide/Basic Sighted Guide Age Range: 2 yr. and up

Rationale: 1. To enable student to travel safely and efficiently with sighted persons in different environments.
2. To provide student with basis for subsequent guiding skills.

SKILL HIERARCHY LEVEL

What Child Does	Prerequisites
1. Walks holding hand with sighted person.	1. Walks independently.
2. Walks holding onto guide's wrist using any grip.	2. Can tactually or visually identify guide's wrist.
3. Assumes proper grip with adult guide and maintains approximation of proper position in relationship to guide.	3. Sufficient muscle strength to grasp and maintain proper grip and position.
4. Uses proper grip and position with either hand when traveling with adult guide.	4. Sufficient muscle strength to maintain proper grip and position.
5. Uses proper grip and position with either hand when traveling with peer guide.	5. Can tactually or visually identify guide's elbow.
6. Takes active role by responding to all of guide's nonverbal cues and maintaining orientation.	6. Attends to task, discriminates and processes sensory input.
7. Instructs inexperienced guide on proper sighted guide position.	7. Functional communication abililty.

Terminal Objective: Child uses correct basic sighted guide grip and position when traveling with familiar or unfamiliar guides in various environments

SKILL ANALYSIS AND SEQUENCE - (LEVEL #4)

What Adult Does	What Child Does	Modifications
1. Contacts child's hand with back of his hand.	1. a) Moves hand to guide's wrist. Grip: thumb is positioned on inside of wrist with fingers outside in secure, but comfortable grip. b) Bends arm at elbow. c) Upper arm is positioned parallel and near side of body. d) Shoulder is aligned directly behind shoulder of guide's gripped arm. e) Consistently walks remaining 1/2 step behind guide.	For Physically Handicapped a) more supportive --such as leaning on guide's forearm or using two hands. b) Child may cup entire hand around guide's wrist.
2. Provides physical and/or verbal cue to break contact.	2. Releases grip.	For Children Too Short to Reach Adult's Wrist Hold adult's small finger or side of hand. For peer guide Child grips arm above peer guide's elbow.

TEACHING STRATEGIES

1. Initially, guide should use the following:
   a. Paired verbal/physical cue and fade to nonverbal only.
   b. Slow pace and work up speed.
   c. Straight line of travel and then add turns and lateral movement.
2. Child should practice sighted guide using either hand.
3. Teacher should instruct child in using basic sighted guide position with peer guide after child is proficient in skill with adult guide.

CLASSROOM/HOME APPLICATIONS

1. Sighted peers and/or siblings may be guides for VI child.
2. Use sighted guide on field trips, travel within school building, outside walks, shopping, or when walking in any unfamiliar environment.
3. Use in any situation where an adult would typically hold the child's hand for safety purposes (street crossings, parking lots).

RELATED O&M SKILLS

Orientation

Landmarks/Utilizing Landmarks
Body Image/Body Parts
Negotiation/Travel and Reversing Routes
Negotiation/Soliciting Aid
Measuring/Using Body Units to Measure
Negotiation/Planning and Selecting Routes
Negotiation/Turns

Mobility

Sighted Guide/Reversing Directions
Sighted Guide/Changing Sides
Sighted Guide/Accepting and Refusing Aid
Sighted Guide/Narrow Passageways
Sighted Guide/Doors, Stairs, Seating
Self-Protective Techniques
Cane Skills/Walking with a Guide

PRESCHOOL O&M PROJECT CURRICULUM SKILL FEEDBACK SHEET

Name of Skill: Sighted Guide - Basic Sighted Guide

Total number of children to whom you taught skill: 2

How many of the above children were:

___ 0-1 years	1 3-4 years
___ 1-2 years	___ 4-5 years
1 2-3 years	___ 5-6 years

How many of the above children were:

1 Visually impaired only
1 Visually impaired with additional impairments.

1. Do you feel suggested Age Range is appropriate? (YES) NO

2. Do you feel the Rationale is appropriate? (YES) NO

3. Was the section Skill Hierarchy Levels useful in programming for your students? Circle best answer.

Very Useful	Somewhat Useful	Not Useful	Inappropriate
1	(2)	3	4

4. Are the levels in Skill Hierarchy in the correct order? (YES) NO
If no, please explain why.

5. Please add any comments or suggestions regarding Skill Hierarchy Levels. We are particularly interested in knowing if we missed any levels.
#1 prerequisites - is independent walking really a prerequisite or doesn't a toddler learn first to walk holding someone's hand? Is a preschooler really capable of reaching all these levels?

6. Was the Terminal Objective useful in programming?

Very Useful	Somewhat Useful	Not Useful	Inappropriate
1	2	(3)	4

7. Was the section Skill Analysis & Sequence (Level #) useful in programming for your students?

Very Useful	Somewhat Useful	Not Useful	Inappropriate
(1)	2	3	4

8. Do you have any additions or suggestions regarding Skill Analysis & Sequence (Level #)? If so, please comment.

No, it seems complete.

9. Do you teach any other Modifications not listed on skill? YES (NO)
If yes, briefly list modifications you teach and why.

Please comment on appropriateness/usefulness of information in each category. Please list other strategies and applications for skill. Your ideas may be added to our curriculum.

Teaching Strategies

Very Useful 1 | Somewhat Useful (2) | Not Useful 3 | Inappropriate 4

Please add other strategies you use to teach this skill.
1. May teach a child with low vision how to visually follow a person.
2. Be sure to point out landmarks and clues when guiding child to assist child in being oriented.

Classroom/Home Applications

Very Useful 1 | Somewhat Useful (2) | Not Useful 3 | Inappropriate 4

Please list other applications:
Use sighted guide when familiarizing child to a new area.

Related O&M Skills:

Very Useful 1 | Somewhat Useful 2 | Not Useful (3) | Inappropriate 4

THANK YOU VERY MUCH FOR YOUR ASSISTANCE WITH OUR CURRICULUM!

Please return by: _____ to Dr. Everett Hill

PRESCHOOL O&M PROJECT - CHILD DATA SHEET

1. Child's Initials: T.D.W. Date of Birth: 8-15-83

2. Amount of vision, please check one.
   ___ Totally blind or light perception only
   ✓ Legally blind
   ___ Visually impaired, but not legally blind

3. Additional impairments, please check all that apply:
   ✓ Cognitive or significant developmental delay
   ___ Motor or physical impairment
   ___ Sensory impairment (other than vision)
   ___ Behavioral problem

4. At present, how many hours per WEEK does child have contact with O&M instructor? 1hr/wk.

++

1. Name (Area/Component) of Skill: Sighted Guide / Stairs

2. Level number of Skill Hierarchy which you began instruction: 3
   Level number at field-test deadline: 4

3. Total amount of hours spent teaching skill to child: ___

4. Will you continue instructing child on this skill? YES ___ NO ✓

5. Additional comments:
   I feel child is proficient enough on this skill at this time and wish to focus on other skills.

++

1. Name (Area/Component) of skill: Independent Travel / Doors

2. Level number of Skill Hierarchy which you began instruction: 2
   Level number at field-test deadline: 3

3. Total amount of hours spent teaching skill to child: 3

4. Will you continue instructing child on this skill? YES ✓ NO ___

5. Additional comments:

THANK YOU VERY MUCH FOR YOUR ASSISTANCE WITH OUR CURRICULUM. PLEASE RETURN BY ____________ TO DR. EVERETT HILL.

APPENDIX G

George Peabody College for Teachers

VANDERBILT UNIVERSITY

NASHVILLE, TENNESSEE 37203

TELEPHONE (615) 322-7311

Preschool Orientation & Mobility Project • Box 328, Peabody College • Direct phone 322-8182

CHILD DATA SHEET

1. Child's Initials:_____ Date of Birth: _____

2. Amount of vision, please check one.
   ____ Totally blind or light perception only
   ____ Legally blind
   ____ Visually impaired, but not legally blind

3. Additional impairments, please check all that apply:
   ____ Cognitive or significant developmental delay
   ____ Motor or physical impairment
   ____ Sensory impairment (other than vision)
   ____ Behavioral problem

4. At present, how many hours per WEEK does child have contact with O&M instructor?_____
   Vision teacher?_____

---

1. Name (Area/Component) of Skill:_____

2. Level Number of Skill Hierarchy which you began instruction:_____
   Level Number at field-test deadline:_____

3. Total amount of hours spent teaching skill to child:_____

4. Will you continue using this curriculum to teach this skill? YES_____ NO_____

5. Additional Comments:

---

1. Name (Area/Component) of Skill:_____

2. Level Number of Skill Hierarchy which you began instruction:_____
   Level Number at field-test deadline:_____

3. Total amount of hours spent teaching skill to child:_____

4. Will you continue using this curriculum to teach this skill? YES_____ NO_____

5. Additional Comments:

1. Name (Area/Component) of Skill: ____________________

2. Level Number of Skill Hierarchy which you began instruction: ________
   Level Number at field-test deadline: ________

3. Total amount of hours spent teaching skill to child: ________

4. Will you continue using this curriculum to teach this skill? YES____ NO____

5. Additional Comments:

---

1. Name (Area/Component) of Skill: ____________________

2. Level Number of Skill Hierarchy which you began instruction: ________
   Level Number at field-test deadline: ________

3. Total amount of hours spent teaching skill to child: ________

4. Will you continue using this curriculum to teach this skill? YES____ NO____

5. Additional Comments:

---

1. Name (Area/Component) of Skill: ____________________

2. Level Number of Skill Hierarchy which you began instruction: ________
   Level Number at field-test deadline: ________

3. Total amount of hours spent teaching skill to child: ________

4. Will you continue using this curriculum to teach this skill? YES____ NO____

5. Additional Comments:

---

1. Name (Area/Component) of Skill: ____________________

2. Level Number of Skill Hierarchy which you began instruction: ________
   Level Number at field-test deadline: ________

3. Total amount of hours spent teaching skill to child: ________

4. Will you continue using this curriculum to teach this skill? YES____ NO____

5. Additional Comments:

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CURRICULUM FEEDBACK SHEET - MOBILITY

Name of Skill: _____

Total number of children to whom you taught skill: _____

How many of the above children were:

___ 0-1 years ___ 3-4 years
___ 1-2 years ___ 4-5 years
___ 2-3 years ___ 5-6 years

How many of the above children were:

___ Visually impaired only
___ Visually impaired with additional impairments

1. Do you feel suggested Age Range is appropriate? YES NO

2. Do you feel the Rationale is appropriate? YES NO

3. Was the section Skill Hierarchy Levels useful in programming for your students? Circle best answer.

Very Useful	Somewhat Useful	Not Useful	Inappropriate
1	2	3	4

4. Are the levels in Skill Hierarchy in the correct order? YES NO
If no, please explain why.

5. Please add any comments or suggestions regarding Skill Hierarchy Levels. We are particularly interested in knowing if we missed any levels.

6. Was the Terminal Objective useful in programming?

Very Useful	Somewhat Useful	Not Useful	Inappropriate
1	2	3	4

7. Was the section Skill Analysis & Sequence (Level #) useful in programming for your students?

Very Useful	Somewhat Useful	Not Useful	Inappropriate
1	2	3	4

8. Do you have any additions or suggestions regarding Skill Analysis & Sequence (Level #)? If so, please comment.

9. Do you teach any other Modifications not listed on skill? YES NO
If yes, briefly list modifications you teach and why.

Please comment on appropriateness/usefulness of information in each category. Please list other strategies and applications for skill. Your ideas may be added to our curriculum.

Teaching Strategies

Very Useful	Somewhat Useful	Not Useful	Inappropriate
1	2	3	4

Please add other strategies you use to teach this skill.

Classroom/Home Applications

Very Useful	Somewhat Useful	Not Useful	Inappropriate
1	2	3	4

Please list other applications:

Related O&M Skills:

Very Useful	Somewhat Useful	Not Useful	Inappropriate
1	2	3	4

THANK YOU VERY MUCH FOR YOUR ASSISTANCE WITH OUR CURRICULUM!

Please return by: DEC 10 1986 to Dr. Everett Hill

George Peabody College for Teachers

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CURRICULUM FEEDBACK SHEET (ORIENTATION)

Name of Skill: _____

Total number of children to whom you taught skill: _____

1. How many of the above children were:

___ 0-1 years	___ 3-4 years
___ 1-2 years	___ 4-5 years
___ 2-3 years	___ 5-6 years

How many of the above children were:

___ Visually impaired only
___ Visually impaired with additional impairments

2. Do you feel the Rationale is appropriate? YES___ NO___

3. Was the section Skill Hierarchy Levels useful in programming for your students? (Circle best answer).

1	2	3	4
Very Useful	Somewhat Useful	Not Useful	Inappropriate

4. Are the levels in Skill Hierarchy in the correct order? YES___ NO___
If no, please explain why:

5. Please add any comments or suggestions regarding Skill Hierarchy Levels. We are particularly interested in knowing if we missed any levels.

6. Was the Terminal Objective useful in programming?

1	2	3	4
Very Useful	Somewhat Useful	Not Useful	Inappropriate

7. Was the section Skill Analysis & Sequence (Level #) useful in programming for your students?

1	2	3	4
Very Useful	Somewhat Useful	Not Useful	Inappropriate

8. Do you have any additions or suggestions regarding Skill Analysis & Sequence (Level #)? If so, please comment.

9. Do you teach any other Modifications not listed on skill? YES___ NO___
If yes, briefly list modifications you teach and why.

10. Please comment on appropriateness/usefulness of information in each category. Please list other strategies and applications for skill. Your ideas may be added to our curriculum.

Teaching Strategies

1	2	3	4
Very Useful	Somewhat Useful	Not Useful	Inappropriate

Please add other strategies you use to teach this skill.

11. Classroom/Home Applications

1	2	3	4
Very Useful	Somewhat Useful	Not Useful	Inappropriate

Please list other applications:

Related O&M Skills

1	2	3	4
Very Useful	Somewhat Useful	Not Useful	Inappropriate

Please feel free to make any wording changes or other corrections directly on the skill sheet and return a copy to use for analysis.

THANK YOU VERY MUCH FOR FOR ASSISTANCE WITH OUR CURRICULUM.

PRESCHOOL O&M PROJECT CURRICULUM FEEDBACK SHEET

Name of Skill_____

Total number of children to whom you taught skill_____

How many of the above children were:

_____ 0-6 months
_____ 6-12 months
_____ 12-18 months
_____ 18-24 months
_____ 24-36 months
_____ Older than 36 months

How many of the above children were:

_____Visually impaired only
_____Visually impaired with additional handicaps

1. Do you feel suggested Age_Range is appropriate? YES NO

2. Was the Terminal_Objective useful in programming?

Very Useful 1 | Somewhat Useful 2 | Not Useful 3 | Inappropriate 4

3. Do you feel the Rationale is appropriate? YES NO

4. Was the section Skill_Hierarchy_Levels useful in programming for your students? Circle best answer.

Very Useful 1 | Somewhat Useful 2 | Not Useful 3 | Inappropriate 4

5. Are the levels in Skill_Hierarchy in the correct order? YES NO
If no, please explain why.

6. Please add any comments or suggestions regarding Skill_Hierarchy_Levels. We are particularly interested in knowing if we missed any levels.

7. Was the sections Skill_Analysis_and_Sequence useful in programming for your students?

Very Useful 1 | Somewhat Useful 2 | Not Useful 3 | Inappropriate 4

8. Did you find the levels in the Skill_Analysis_and_Sequence corresponded accurately with the levels as delineated in the Skill_Hierarchy_Levels?

Very Closely 1 | Somewhat Closely 2 | Not Closely 3 | Inappropriate 4

9. Do you have any additions or suggestions regarding Skill Analysis and Sequence ? If so, please comment.

10. Did you use any other modifications not on the skill? YES NO
If yes, briefly list them below and why you use them.

11. Were the illustrations that were included helpful?

Very Useful 1 | Somewhat Useful 2 | Not Useful 3 | Inappropriate 4

Please comment on appropriateness/usefulness of information in each category listed below. Please list any additions, strategies or applications you feel need to be included in our curriculum.

Introduction -Was the introductory section on motor development and problems of the visually impaired child helpful in providing additional background information.

Very Useful 1 | Somewhat Useful 2 | Not Useful 3 | Inappropriate 4

Please add any other information you think needs to be included:

Glossary

Very Useful 1 | Somewhat Useful 2 | Not Useful 3 | Inappropriate 4

Please add other terms you think need to be defined:

Teaching Strategies

Very Useful 1 | Somewhat Useful 2 | Not Useful 3 | Inappropriate 4

Please add any other strategies to [illegible] this skill:

Classroom/Home Applications

Very Useful 1 Somewhat Useful 2 Not Useful 3 Inappropriate 4

Please list other applications:

Related O&M Skills

Very Useful 1 Somewhat Useful 2 Not Useful 3 Inappropriate 4

THANK YOU VERY MUCH FOR YOUR ASSISTANCE WITH OUR CURRICULUM!

Please return by:_____to Dr. Everett Hill.

George Peabody College for Teachers

VANDERBILT UNIVERSITY

NASHVILLE, TENNESSEE 37203 TELEPHONE (615) 322-7311

Preschool Orientation & Mobility Project • Box 328, Peabody College • Direct phone 322-8182

Dear Parent:

This is a two page questionnaire designed to help us learn about your visit to the resource center last month. This survey is given now since you have had some time to reflect on our services, and since you can review our written reports of the screenings your child attended. This questionnaire is numbered to keep your answers confidential. The numbers are used only to verify receipt of your survey. Please do not put your name on this survey sheet.

Your answers to the survey will not be seen by the resource center staff, but only by the program evaluator. Your responses will be combined with all the other parents who have attended a resource center, so we will learn what parents in general need and want from the center. This information will be used to improve services, and to make a report to the government about our program. This survey will take about ten to fifteen minutes to complete.

After completing this survey, please mail in the stamped, pre-addressed envelope. Thank you for your time.

1. Were you provided adequate information about scheduling, services, or parking prior to coming to the Resource Center? ___YES ___NO

   If you answered NO, could you tell us what information would have been helpful to you?

   _____

   _____

2. Were you able to meet with all the specialists whom you had requested to meet? ___YES ___NO

3. After attending the Center, did you feel there were additional specialists you would like to have seen? ___YES ___NO

   If you answered YES, could you tell us which specialist(s)?_____

   _____

4. Would you be interested in attending future Resource Centers (at intervals recommended for your child?) ___YES ___NO

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The next series of questions ask about each screening your child attended. The various screenings are listed under the title "Resource Center Screenings," and questions are located to the left of the page. Please circle your response under each heading: YES NO. Space is provided under each heading if you wish to write in comments. The screenings you attended are underlined in red.

Resource Center Screenings

Questions	Orientation and Mobility	Physical Therapy	Occupational Therapy	Functional Vision	Developmental	Speech Pathology
5. Did you feel you had enough time with each specialist?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO
6. Did you get answers to any questions you may have had regarding your child's level of functioning, ideas for facilitating further development, or resources?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO
7. Did you find suggested programs or activities helpful?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO
8. Did you have any questions that were not adequately addressed by the specialists?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO

APPENDIX J

PARENT TELEPHONE INTERVIEW QUESTIONNAIRE

1. Do you feel the placement of your child (in classroom, home-based, resource) is meeting his/her needs?

2. Do you feel the amount of service your child is receiving is appropriate?

3. Are there services you would like to receive that you are not currently receiving?

4. Have you had the opportunity to become involved in your child's program either at home or in the classroom?

5. Have you had the opportunity to ask questions and get answers about your child's service and progress?

6. Does your child use O&M skills learned as part of the curriculum at home? (Example: basic sighted guide, lower hand and forearm)

7. Do you have any comments you would like to make?

APPENDIX K

SONICGUIDE INTERVENTIONS

Baseline - taken exactly as written in program except 1 day only (officially taken only on skill of turning head to face sound).

Intervention A: Child will sit quietly and listen to sound of person moving toward and away from him at midline.

Intervention B: Child will listen to and sound of person moving toward and away from him at midline showing some kind of anticipatory response.

Intervention C: Child will reach out and touch person moving toward and away him at midline when person stops at critical distance.

Intervention D: This included many levels of intervention working on the skill of scanning or turning head to directly face a sound held at 90 degrees to his left or right head level.

a) While sitting, child will turn his head to face the sound of a bell which is held at head level at 90 degrees to his left or right without Sonicguide.

b) While sitting, child will turn his head to face sound of a cup with treat inside which is held at 90 degrees to his left or right at head level in order to get signal of cup from Sonicguide.

c) While sitting, child will turn his head to search for cup, find sound, and directly face sound of cup Sonicguide signal. Same cup placement as above.

d) While standing, child will turn his head to search for cup, find sound, and turn his entire body to directly face sound of cup Sonicguide signal. Same cup placement as above.

Intervention E: While standing, child will turn his head to search for and locate a pole, turn his entire body to face pole, and walk toward pole stopping before contacting it.

APPENDIX L

STAFF INSERVICE QUESTIONNAIRE

1. Have inservices been on topics you felt relevant and important to your needs?

2. Have inservices been presented in a timely manner?

3. Are there inservice topics you would like to have presented in the future?

4. Suggestions?

APPENDIX M

PARENT TELEPHONE INTERVIEW QUESTIONNAIRE

1. Do you feel the placement of your child (in classroom, home-based, resource) is meeting his/her needs?

2. Do you feel the amount of service your child is receiving is appropriate?

3. Are there services you would like to receive that you are not currently receiving?

4. Have you had the opportunity to become involved in your child's program either at home or in the classroom?

5. Have you had the opportunity to ask questions and get answers about your child's service and progress?

6. Do you have any comments you would like to make?

APPENDIX N

STAFF SATISFACTION QUESTIONNAIRE

1. Do you feel your role and job responsibilities are clearly defined so that you know what is expected of you?

2. Do you feel you have sufficient time to teach students, plan lessons, and required duties?

3. Are there aspects of your role you would like to change?

4. Do you feel that child progress is as fast or the quality as you would like to see?

5. Do you feel parents are participating in the program to the extent or in the way you would like to see them?

The Preschool Orientation and Mobility Project for Visually Impaired Children is a model demonstration program. The program is designed to identify and integrate orientation and mobility skills with early intervention services. This approach is designed to initiate orientation and mobility training with infants and preschoolers to reduce the developmental delay that is often associated with visual impairment. The project provides the following components:

- Identification and referral
- Developmental and orientation and mobility assessment
- Assessment and arrangement of the classroom and home environment
- Needs assessment, training, and support for parents
- Home-based and classroom services
- Use of technology in instruction
- Regional resource information center
- Staff training and development
- Program evaluation

Preschool Orientation & Mobility Project
John F. Kennedy Center
Box 328 Peabody College
Vanderbilt University
Nashville, TN 37203

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PRESCHOOL ORIENTATION & MOBILITY PROJECT

APPENDIX O

for

Visually Impaired Children

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Kennedy Center Experimental School
Peabody College • Vanderbilt University

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Why is orientation and mobility training needed?

Because of their handicap, visually impaired children are restricted in freely exploring their surroundings. In turn, this restriction is often responsible for developmental delays in several important areas. Parents often lack information on how to encourage their visually impaired child to explore the environment safely.

The goal of orientation and mobility services is for a visually impaired child to move safely, efficiently, gracefully, and independently in any environment. The freedom and independence afforded will help children make a smooth transition when they enter school and may help prevent special education placement.

Who does the project serve?

Children between birth and 5 years of age who are visually impaired, or visually impaired and multiply handicapped. Referrals will be taken from parents or local professionals. There will be no fee for services. Since visual impairment is difficult to diagnose in very young children, the project also will serve children suspected of having severe visual problems.

What services are provided?

Assessment. Children referred to the program will receive a developmental assessment and an orientation and mobility assessment, as well as a functional vision assessment to determine their specific needs.

Curriculum. Activities will help children develop cognitive (problem-solving), language, motor, social, and self-help skills. At the same time, we will help children learn orientation and mobility skills related to posture, movement, concept of space, and the use of their senses (for example, hearing and touch) in guiding movement. Technological aids such as the Sonicguide™ and the microcomputer may also be used to enhance learning.

Classroom Services. A classroom program will be provided 4 days per week, 3 1/2 hours per day, for children 2 to 5 years of age. Home visits will be made twice a month with parents and children.

Home-Based Services. Home-based parent training will be available for children birth to 5 years of age. Each parent and child will receive a weekly home visit of 1 1/2 hours. Group experiences will be provided twice a month.

Parent Training and Support. Each parent will develop a Parent Education Plan to meet their individual needs. On the basis of these plans, staff will plan individual and group training sessions, will facilitate the development of parent support groups, and will assist parents in obtaining related support services.

Where is the project located?

The project is part of the Experimental School of the John F. Kennedy Center for Research on Education and Human Development (on the corner of 21st Avenue South and Edgehill, across from Vanderbilt Medical Center Clinics).

* * *

For more information contact:

Everett Hill, Principal Investigator
Deborah Cochran, Project Coordinator
Box 328 Peabody College
Vanderbilt University
Nashville, Tennessee 37203
(615) 322-8155 or 322-8182

The Preschool Orientation and Mobility Project is supported by a grant from The Handicapped Children's Early Education Program, U. S. Department of Education.