DOCUMENT RESUME

ED 085 932 EC 060 714

AUTHOR	Brothers, Roy J.; Huff, Roger A.
TITLE	Manual of Suggested Activities for the Development of Sound Localization Skills.
INSTITUTION	American Printing House for the Blind, Louisville, Ky. Instructional Materials Reference Center.
SPONS AGENCY	Bureau of Education for the Handicapped (DHEW/OE), Washington, D.C.
PUB DATE	Aug 72
GRANT	OEG-2-6-062289-1582-72
NOTE	20p.
EDRS PRICE	MF-$0.65 HC-$3.29
DESCRIPTORS	*Blind; *Class Activities; *Exceptional Child Education; *Individual Activities; Listening Skills; Teaching Guides; Visually Handicapped; *Visually Handicapped Orientation
IDENTIFIERS	Sound Localization

ABSTRACT

The manual is intended to provide teachers of young blind children with activities to develop sound localization skills. Both group and individual activities are suggested for the following four categories: activities in which both child and sound are stationary, activities in which the child is stationary but the sound is moving, activities in which the child is moving and sound is stationary, and activities in which both child and sound source are moving. It is explained that the manual is the result of a survey of orientation and mobility specialists and classroom teachers which found a paucity of relevant information on localization training. Recommended is the use of the Portable Audible Goal Locator (PAGL) as a controllable sound source for training activities. Preliminary activities deal with familiarization with the PAGL device such as locating parts of the device. Examples of group activities include determining whether the speaker is facing away from or toward the listener, pointing to the sound source, and utilizing the sound source to demonstrate the movement of the moon (sound source) around the earth (student). Provided for the student with observable needs in the area of sound localization are individualized activities such as determining relative distance of sound source, localizing sound in relation to sides of the body, facing the sound source, and tracking a sound source by moving the entire body. (DB)

SOUND LOCALIZATION

Suggested Activities for the Development of Sound Localization Skills

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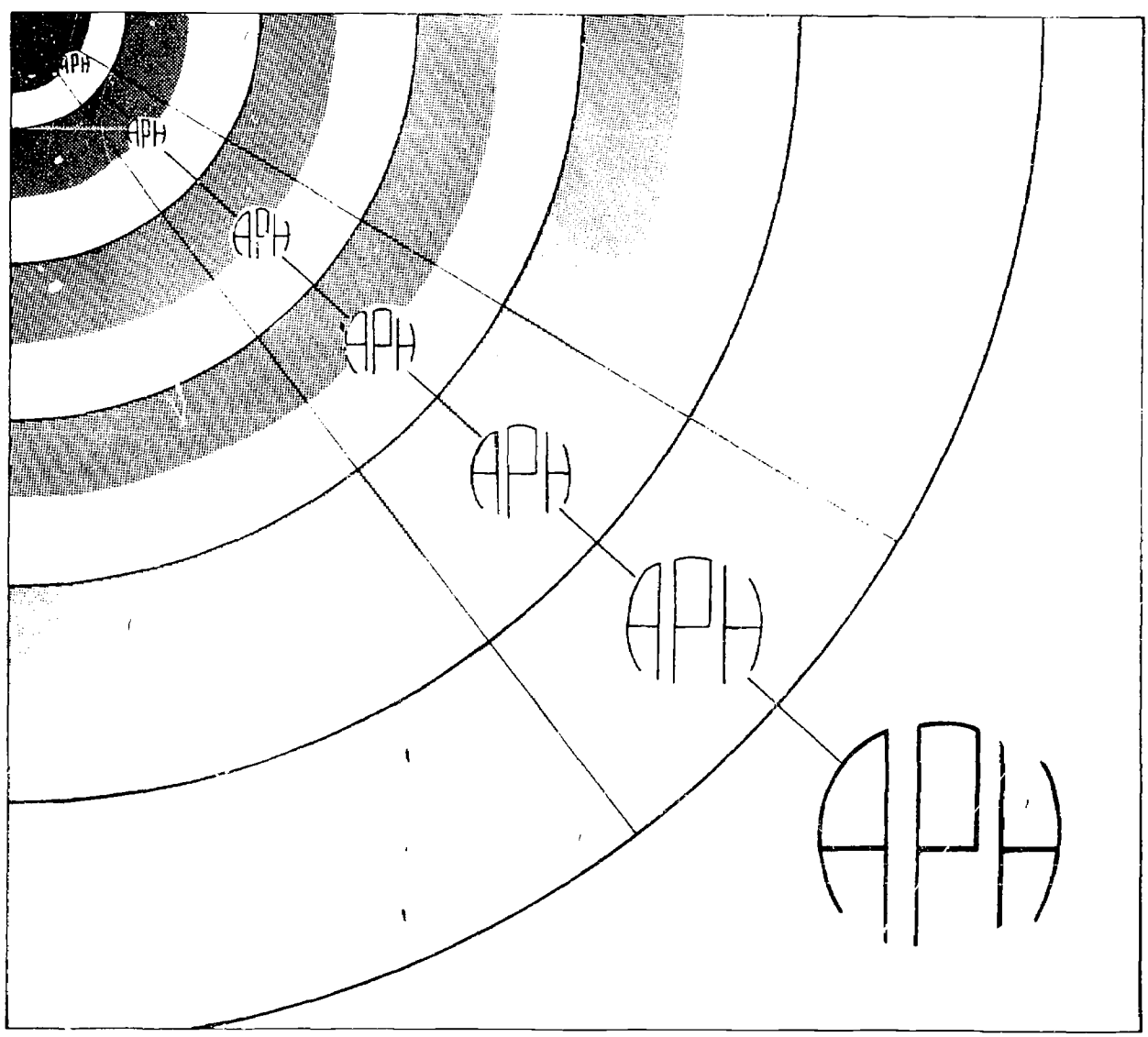

MANUAL
of
SUGGESTED ACTIVITIES
for the Development of Sound Localization Skills

By

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This research was performed pursuant to a grant with the Bureau of Education for the Handicapped, U.S. Office of Education, Department of Health, Education, and Welfare. Grant #OEG-2-6-062289-1582-720E7163.

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1839 Frankfort Avenue
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August, 1972

PREFACE

The specific objective of this manual is to meet sound localization needs of young blind children. The activities presented are suited to a variety of situations and children. Every effort has been made to provide the classroom teacher, aide, physical education instructor, and mobility specialist with a basic inventory of activities to use in the development of sound localization skills. The activities outlined also include ones permitting participation of individual or small groups of blind children with sighted youngsters.

The present manual is a product of the Sound Localization Institute held in April, 1972 at the American Printing House for the Blind, Louisville, Kentucky. Drawn from the extensive experience of the participants, the activities and learning situations represent a variety of successful approaches to teaching sound localization. Undoubtedly other activities and approaches are also effective. The reader is invited and encouraged to send to the authors additional activities or simple procedures which foster sound localization skills. Suggestions for revising or editing activities that have been presented as well as new activities or approaches will be included or appended to a revised edition of the manual.

The authors wish to express their sincere appreciation to members of the Sound Localization Institute:

M. Bernadette Alber, Resource Teacher of Visually Handicapped
Evanston Township High School, Evanston, Illinois

Ralph Brewer, Pre-School Counselor
Tennessee School for the Blind, Nashville, Tennessee

Gary Coker, Principal
Tennessee School for the Blind, Nashville, Tennessee

Will Evans, Dean of Students
Kentucky School for the Blind, Louisville, Kentucky

Robert Gockman, Orientation and Mobility Instructor, Rehabilitation Section for Visually Impaired and Blinded Veterans
Edward Hines Junior Hospital, Hines, Illinois

Ned Jackson, Orientation and Mobility Insructor
Illinois Braille and Sight Saving School, Jacksonville, Illinois

We also wish to Recognize the Editorial Assistance of Gloria J. Roddey, Ph.D.

INTRODUCTION

In most instances the success of the educational process depends on the effectiveness of the communication system. It is recognized that the use of the auditory channel contributes to learning experiences; this is especially true for the learner who is visually handicapped. This student, striving to function in a sighted environment, places great reliance upon the auditory modality for gaining information. As a result, educators of visually handicapped children began to construct procedures to encourage effective listening behavior. In preparing this manual, the authors have proceeded on the principle that any skill can be enhanced through a program of sequential developmental activities.

Basically there are four levels of learning which characterize the effective use of sounds in the environment: (1) awareness, (2) interpretation, (3) localization, and (4) conversion. *Awareness* is the recognition of sound in the environment. The child should realize that sounds are all around him. The use of sounds around him requires an *interpretation* which is the association of a sound with the object producing it. Ideally the child will want to know more about the source of a sound and will display inquisitive behavior. *Localization* is the identification of the exact source of the sound. The sound may be located in reference to the child's position or some other referent being used. *Conversion* is the utilization of the sound as an aid to the child's interaction with the environment. The conversion of a sound requires awareness, as well as interpretation and localization. While all of the above levels should be included in a comprehensive listening program for visually handicapped students, the activities in this manual are primarily concerned with the enhancement of localization skills.

The plan for the study was to conduct a survey which would solicit information from orientation and mobility specialists and classroom teachers relative to the development of sound localization skills. The results of the survey were then to be used by the Institute in formulating the manual. The survey revealed a paucity of applicable information, thus placing upon the Institute the responsibility for developing virtually a whole new curricular approach to teaching sound localization skills. In regard to current practices the survey revealed the following: the visually handicapped child is instructed to rely extensively upon environmental sounds. Generally these are sounds in the natural environment but ones which can be partially controlled by an instructor. The assumption that the student's use of a familiar voice, the sound of a distinctive motor, or wind chimes, enhances localization skills may be questioned. Such use of environmental sounds may in fact be a discrimination task or an association with a particular location and is not a situation that emphasizes or requires a specific localization.

The reader should recognize that localization skills are developmental in nature and accuracy requires practice. In the interest of efficient instruction of young children the Sound Localization Institute recommended the use of a highly controllable sound source. On such artificial sound source is the Portable Audible Goal Locator (PAGL).

Characteristics of the PAGL lend themselves readily to the development of sound localization skills. Its size and weight permit easy manipulation and direction of the sound It may be moved in a horizontal plane to any point around the students, and within a vertical plane raised to head level and above or placed on the ground. Because of its unique sound, variable pitch, volume, and signal frequency the students are aware of its presence. The use of a highly discriminable sound source helps to alleviate problems associated with awareness and identification, and allows the student to devote full attention to the development of sound localization skills.

Purpose

The purpose of the manual is to provide teachers of young visually handicapped students with a few selected activities which may be used to develop sound localization skills.

Program

Basically there are four situations which can be used to describe the interaction of the student with the sound source. For purposes of description the situations are presented as Categories I through IV. Category I refers to activities in which the child is stationary and the sound source is stationary. Category II describes the activities in which the child is stationary and the sound source is moving. Category III describes situations in which the child is moving and the sound source is stationary. Category IV refers to activities in which the child is moving and the sound source is also moving. Part I (Group Activities) of the manual is more flexible than Part II (Individualized Activities) in specifying which activities are included in a particular category.

Implicit in the category sequence are situations which increase in complexity. Each category represents a different set of factors based on the stationary and changing relationship of the child to the sound source. Activities within a single category also represent the sequential development of skills. This provision for category and activity sequence offers flexibility for the instructor in the arrangement of experiences that are provided. Remember that it is not necessary to attain skill or even attempt all activities in one category before moving to the next.

It is possible for the teacher to make continuous observations of the child's skill level in the group activities and if necessary then follow-up with individualized activities which appear in Part II of the manual.

The activities are intended as a guide for the teacher. The reader should become thoroughly familiar with the types of activities presented, try them out with students, and then make some preliminary decisions regarding the sequence, level of difficulty, and their appropriateness for his situation and students.

While the development of sound localization skills is the continuing and dominant objective, the games and activities presented may be useful in the accomplishment of several objectives. Many of the games and activities introduce an element of competition either with members of the group or with oneself. Since the ability to localize is related to successful performance, the activity approach is highly motivating. Of course, in a class of sighted and blind students, all derive educational benefits from participation.

Once the focus of the activity is clearly on the development of sound localization skills, teachers can effectively apply their own distinctive styles of teaching with no fear of obscuring the basic objectives.

FAMILIARIZATION

Before the introduction of formalized activities the student must be familiarized with the device. Since variation in the device's pitch, volume, and signal frequency are possible the student should first become familiar with these characteristics. Complete familiarization includes the operation of all controls and recognition of the resulting effect. In any case the familiarization should eliminate any possibility of fear or negative feelings. It should also act to reinforce the student's level of awareness and identification. The familiarization underlies many of the preliminary activities that have been suggested but there are also specific topics and situations which will aid in the overall process.

Learning situation in which familiarization could occur:

1. Introduce the sounds of the device when conducting sound discrimination activities such as listening to recorded environmental sounds. These are quite different from ordinary sounds the children might hear.

2. Introduce the sound of the device when discussing loudness and softness. Demonstrate a loud signal and a soft signal.

3. Introduce the sound of the device in the course of discussing high and low sounds (pitch). Ask the children to discriminate between a high sounding signal and a lower sounding signal.

4. Introduce the sound of the device during or following a discussion of rhythm. Use the device to demonstrate three different speeds of signal frequency.

Physical activities readily lend themselves to demonstrating and emphasizing the foregoing suggestions.

1. Ask the children to spread their arms wide apart when the sound is loudest and bring their hands together when it is softest.

2. Ask the children to stand as tall as they can when the sound is high and to squat down as the sound becomes lower in pitch. By varying the pitch and volume the result can be a series of deep knee bends or arm and shoulder extensions.

3. Ask the children to hop on one foot in the same rhythm as the signal—the activity may be varied by jumping or raising up to tip toe in time with the signal. The children may be asked to clap in rhythm.

4. Require the students to respond to the absence of sound. A variation of *Musical Chairs* may be used in which the students squat down when the signal is discontinued. The last one responding is eliminated.

The teacher may wish to use some discretion in allowing students to manipulate the controls. For those who are given the opportunity, the following suggestions are made.

1. Encourage the students to examine the shape of the device. Point out the bell-shaped-horn or speaker, the carrying handle, the three control knobs, and the wire that leads from the battery in the case to the speaker.

It is important that the wire not be pulled out and that the knobs be used appropriately. The device should be placed in front of the student with the speaker directed away from him. In this position the controls are on the top of the case in an area closest to the child.

The middle control activates the device—turning it to the right in a clockwise direction increases the volume of the signal.

The control to the right of center changes the signal frequency. There are three possible positions for this control. Moving the knob in a clockwise manner increases the signal frequency. Caution: when the control is set for the fastest signal, do not attempt to turn it further to the right. The control to the left of center changes the pitch. Caution: do not attempt to force control beyond point where highest pitch occurs.

2. Suggest activities for students to refine abilities in following directions. One, two, or a series of directions

may be used. Games such as *Simon Says*, *Mother May I*, or *Do as I Say* may provide structure for the students' responses, and insure that they are attending to the task. Directions such as the following would be appropriate in the familiarization process.

a. Locate the handle.

b. Carry the device by the handle.

c. Carry it by placing your hands under it on the base.

d. Touch the speaker.

e. Place the speaker toward you.

f. Turn the speaker away from you.

g. Locate the middle control knob.

h. Turn the center control to the right.

i. Make the sound louder—make it softer.

Part I

Group Activities for the Development of Sound Localization Skills

Category I

Child Stationary: Sound Source Stationary

The general purpose of activities in Category I is to provide further familiarization to the device and to introduce beginning localization skills.

Stationary refers to the spatial position assumed by the child or sound source. Movement is possible in either a horizontal or vertical plane (i.e. the child may turn in place; stand and squat down). Similarly, the device would be regarded as stationary although it would be directed toward or away from the student and be raised or lowered within the vertical plane.

FAMILIARIZATION ACTIVITIES. The activities may be conducted in the classroom. The purpose is to incorporate the use of the sound source into regular classwork. For example, in the area of arithmetic *say to the students:*

1. "Count the number of signals you hear." Obtain a response.
2. "Count the signals, and add ." Provide additional number and obtain student response.
3. "Count the signals, and subtract ." Provide additional number and obtain student responses.

Several variations are possible, but the general process is a good way to reinforce basic number combinations with different and novel media.

ACTIVITIES REQUIRING A PHYSICAL RESPONSE. The activities are not dependent on a large area for instruction. The purpose is to develop pointing and body directional skills. For example, the student might be asked to:

1. Point to the sound source using the hand or index finger
2. Turn to face the sound (i.e., toes and nose directed toward the sound)
3. Turn in place to position the sound behind one's self
4. Turn in a place to position the sound to one's right or left (i.e., three o'clock or nine o'clock positions)
5. When the sound source is being held by the teacher, squat down until it is above head level
6. Clap in rhythm to the sound

ACTIVITIES REQUIRING A VERBAL RESPONSE. The activities may be conducted in the classroom. The purpose is to discriminate when changes in direction of sound occur and respond verbally. For example, a procedure should provide opportunities for the student to react to changes in directional sounds and receive feedback concerning his accuracy. Situational questions follow:

1. Is the speaker directed toward you?
2. Is the speaker directed away from you?

Place the sound source on a desk or hold it above the head of the child and ask:

3. Is it above your head?—below your ear level?

Vary the volume of the sound source and ask:

4. Is the sound source moving toward you (increasing volume)?
5. Is the sound source moving away from you (decreasing volume)?

The activities will undoubtedly stimulate further discussion and depending upon the skills and ability of the students, individualized activities in Part II of the manual may be used.

ACTIVITIES REQUIRING COMPLEX RESPONSES. A larger area is required for the suggested activities. The purpose is to provide group activities which require localization skills. For example, procedures might be:

1. Place the sound source in the bottom of a large box and toss bean bags or small playground balls toward and into the box. In the beginning toss from a position relatively close to the box. When retrieving the bean bag or ball indicate the distance from the sound source to the throwing line.

2. Place the sound source directionally behind a bowling pin or indian club to play *Hit the Pin, Channel Ball*, or similar types of games which require tossing, rolling, or throwing a ball in a specific direction.

Category II

Child Stationary: Sound Source Moving

The activities in Category II focus on levels of student functioning and the development of basic localization skills. It is recognized that the games and activities may be played without the introduction of a sound source; however, the additional emphasis on sound localization skills provide many additional opportunities to develop this highly desirable skill.

ACTIVITIES REQUIRING A TRACKING RESPONSE. Auditory tracking occurs when the student follows a sound through head or body movement while maintaining a spatially stationary position. The area needed may be relatively small for circle games, or in some instances, the movements may require a large open area. The purposes of the suggested activities are to track a moving sound and to make game decisions based on information obtained auditorily and requiring sound localization. For example, procedures might be:

1. Incorporate the use of the sound source in primary level circle games.

METHOD: In games such as "*Ring around the Rosey, Farmer in the Dell*, etc., children in the circle may carry the sound source and the visually handicapped child can track the sound, turning in place. When choosing is involved the child should also be informed as to who is carrying the device and who are the classmates to "its" right and left.

2. Use a sound source in tag or "it" games. Children should be made aware of the location of person or persons who are "it".

METHOD: In games such as *Ocean Is Stormy* or *Pussy Wants a Corner* the visually handicapped child can track those who are "it" within the play area and make independent decisions about when to move.

In games such as *Prison Ball* or *Dodge Ball* the ball should be thrown from the sound source location. In this manner the visually handicapped child has an opportunity to move to a point farthest away from the sound source and thrower.

ACTIVITIES REQUIRING A VERBAL RESPONSE. The activities should be conducted in the classroom. The purpose of the activities is to localize a sound and associate it with a specific point within the known environment. For example, procedures might be:

1. Play an adapted version of *Seven-Up* in which all children have their heads on their desks. "It" places the sound source on a classmate's desk and then from the front of the room asks, "Who has the Sound Source?" Children localize the sound before raising their hands to reply.

2. Give the sound source a name and place at any point within the room. The question then becomes *Where Am I?* It may be by the locker, drinking fountain, sink, pencil sharpener, or any other landmark within the room.

ACTIVITIES REQUIRING CLASSROOM APPLICATIONS. The activities should be conducted in conjunction with science instruction. The purpose is to demonstrate the concept of planetary movements. For example, procedures might be:

1. Demonstrate the movement of the moon (sound source) around the earth (student).

2. Demonstrate the movement of the earth (sound source) around the sun (student).

Category III

Child Moving: Sound Source Stationary

The activities in Category III emphasize skills which require accurate localizations over greater distances. In general, a more open and unrestrictive space is required.

Since expectations regarding student movement have been made, close attention must be paid to an underlying principle in all physical activities for visually handicapped children. The work space must be so structured as to insure that the child moves safely and still experiences freedom of movement. Quite often the student must be taught protective techniques and be given sufficient time to explore the area. It is also important that supervision be maintained over the space and/or the activity.

ACTIVITIES REQUIRING LOCALIZATION OF A STATIONARY SOUND. The purpose of the activities is to use a sound cue as a goal or directional aid which assists movement. For example, procedures might be:

1. Use game approach.

a. Incorporate the sound into primary level games.

METHOD: In games such as *Lame Fox and Chickens, Squirrels and Trees, Animal Chase*, or *Midnight*, the sound source represents a base, rest, or safety area. The child runs toward the sound. Rapid movement is necessary and the child is encouraged to avoid being caught. The sound source may be placed at ground level, but in order to avoid the possibility of tripping over it, it may be held or suspended from the wall.

b. Use games which focus on listening acuity as well as localization skills.

METHOD: In games such as *Treasure Hunt, Sardines*, and *Minnows in the Net*, the students search quietly and independently for a hidden sound source. The difficulty of the task can be increased substantially by controlling the volume of the device.

c. Use circle games. When the visually handicapped child is in the outer circle the sound source should be centered. The procedure should encourage the student to maintain an equal distance from the sound source.

2. Use self-testing stunts. In activities classified as self-testing stunts, the level of student performance can be influenced by his ability to localize sounds and the availability of useful sound cues.

METHOD: In relays direction of movement is especially important where time is a factor and veering tendencies must be overcome. In a tug of war a sound source may be used in at least two ways to structure the environment: either place the sound source at the dividing line to indicate the successfulness of the team effort, or place the device directly behind the team with the instruction that they pull toward the sound. Placement at the end of a trampoline, facing the performer, may assist in maintaining a proper and safe position on the bed of the trampoline. A sound source is definitely an aid to developing freedom of movement and locomotor skills in an open space. It may also be used to provide additional cues to the various couple locations in square dancing.

3. Use track and field activities. In running dashes, jumping, or throwing, the sound source is the best method of maintaining a direction and orientation to the task.

ACTIVITIES REQUIRING CLASSROOM LEARNING APPLICATIONS. The activities may be conducted in conjunction with social studies, geography, or subjects related to cardinal directions. The purpose is to structure the environment in order to recognize the spatial relationship of the four cardinal directions. Suggested situations:

1. Place the sound source at a point designated as North. Relative positions of students or objects within the area may be described using cardinal directions in relation to a stationary northern position. Discuss the many spatial relationships possible within this framework.

2. Incorporate the use of a sound source in any appropriate work experience. The sound source may be used as a directional guide when mowing grass or other work oriented situations in which the student must cope with large open areas.

Category IV

Child Moving: Sound Source Moving

The task of localization is highly complex when both the listener and the sound source are moving. However, in many of the activities already discussed the situation does arise, but may not have been emphasized. The reader should carefully consider activities already suggested as possible vehicles for developing these higher level skills.

ACTIVITIES REQUIRING A TRACKING RESPONSE.

1. Games such as *Chain Tag, Animal Chase, Ocean Is Stormy*, etc. may be structured so the the sound source is carried by "it" or the instructor who is close by. The visually handicapped student able to localize is in a better position to avoid being caught. Similarly, he may avoid being hit in *Prison Ball, Dodge Ball*, or other throwing games.

2. A different type of tracking is required in games such as *Follow the Leader* and *Blue Bird through the Window* which require the student to follow the sound. Types of self-testing activity that require following a sound are riding a bicycle, following an outdoor trail, or completing an obstacle course.

ACTIVITIES REQUIRING CLASSROOM LEARNING APPLICATION. The activities should be conducted in conjunction with science instruction. The purpose is to develop the concept of planetary movement. The activity has already been discussed as part of Category II, but, with both elements allowed to move, a higher conceptual level may be obtained.

INDIVIDUALIZED LOCALIZATION TASKS.

1. The student should develop the ability to maintain a constant distance from the sound source. The skill becomes one of moving in a congruent pattern with the sound source.

2. The student should also be able to intersect the sound source at a point directly in front of him by estimating distance and the speed at which he approaches the intersection.

Part II of the manual contains activities of an individual nature for those students needing additional practice in the localization task. As the tasks become more complex, as in Category IV, the need for individualized instruction increases. The more complex tasks often require numerous practice trials to attain satisfactory levels of performance. The reader should note the more precise definition of conditions as described in Part II of the manual.

Part II

Individualized Activities for the Development of Sound Localization Skills

The activities and localization tasks described in Part II of the manual are specifically designed for the blind student who has observable needs in the area of sound localization. The general purpose of the section is to provide a series of skill related activities which are fundamental to localization situations or tasks. It is a relatively simple task to make direct applications of the activities listed to situations commonly encountered in orientation and mobility instruction. However, in an effort to achieve wider acceptance and usage of the fundamentals in the classroom the opportunity to make specific applications to formal O & M instruction has been deferred. The approach used is essentially individualized instruction for development of sound localization skills.

The categories used in Part II are essentially the same as those in Part I. Several conditions are noted for each activity listed. The conditions may vary as to the placement of the sound source spatially and the characteristics of the sound (volume, signal frequency, pitch). In the initial phases of instruction an effort should be made to select a sound characteristic and instructional area which will facilitate a positive attitude on the part of the student.

Again, it should be remembered that activities are intended as a guide for the teacher. The situations are instructional in nature and dialogue between teacher and student are given only to facilitate an accurate description of the situation and potential interaction between the student and the teacher. Diagrams are provided for several conditions to illustrate the logistics involved in performing a demonstration.

Category I

Child Stationary: Sound Source Stationary

Each activity within this category is performed with the child and the sound source in a stationary position *at the time* the sound is being emitted. After each condition is performed the sound source is *turned off* and then moved to another position when necessary. The next condition is explained to the child and then the sound source is *turned on*. The purpose is to increase the student's ability to recognize and describe accurately the location of a sound.

Activity One: Introducing the sound characteristics of the sound source

1. Assume initial position: Sound Source is placed directly in front of the student at head height and at a distance of 4 to 10 feet.

Instructional *note*: Describe each sound characteristic prior to the demonstration. Demonstrate:

a. loud sound

b. soft sound

c. high pitch

d. medium pitch

e. low pitch

f. slow pulse-rate frequency

g. fast pulse-rate frequency

2. Repeat all conditions and allow the student to identify the sound characteristics *after* hearing each sound.

Instructor: "Describe the sound you are hearing."

3. Have student give other examples of auditory sounds that he has heard in the school or home environment and describe their characteristics.

Activity Two: Locating height of sound source

1. Assume initial position: Sound source is placed directly in front of the student at a distance of 4 to 10 feet.

Instructional *note*: Describe the sound in terms of its height. The sound characteristics should remain the same for the complete range of height position (e.g., soft sound, medium pitch, slow pulse-rate). Demonstrate:

a. sound source at floor level

b. sound source at student's waist level

c. sound source at student's head level

d. sound source above student's head level

2. Repeat condition one and allow the child to identify the height location of the sound *after* hearing each sound.

Instructor: "How high is the sound?"

3. Repeat previous conditions by varying volume, pitch, and pulse-rate.

Activity Three: Locating the sound source in relation to the body

1. Assume initial position. Sound source is placed at head height at a distance of 4 to 10 feet from the student. Place the sound source as follows:

a. in front of student

b. behind student

c. left of student

d. right of student

Instructional *note*: Body relationships should be understood by the child prior to the demonstration.

Instructor: "The sound you hear will be in front of you."

2. Repeat all conditions and allow the student to identify the body relationship *after* hearing the sound.

Instructor: "Where is the sound?"

3. Repeat the conditions, varying the volume, pitch, pulse-rate, and height.

Activity Four: Determining relative distince of sound source

1. Assume initial position: Sound source is placed directly in front of the child at head height in a near position. Near is defined as the space around the student within reaching/touching distance; approximately one to three feet.

Instructor: "Is the sound near you?" Provide feedback to the student by allowing him to touch sound source.

2. Take subsequent position: Sound source is placed directly in front of the child at head height in a far position. Far is defined as space around the student beyond touching distance; approximately four feet and beyond.

Instructional *note*: The sound characteristic used in condition one should be the same for this condition.

Instructor: "Is the sound near you or far from you?" (Let the student know if he responds accurately).

3. Introduce remaining body relationships.

Instructional *note*: After an understanding has been established of near and far with reference to the frontal position, the remaining body relationships (behind, left, right) should be introduced. Volume, pitch, and pulse-rate may be varied when presenting the remaining relationships. Help the child understand that "softness" does not always directly relate to distance. Sound may be near and soft or far and loud.

Category II

Child Stationary: Sound Source Moving

Each of the following activities should be demonstrated at distances *near* and *far* from the child (Approximately: near—one to three feet; far—four to 15 feet). Aim sound source directly toward child at all times.

Activity One: Localizing sound in relation to each side of the body

1. Assume initial position: Instructor stands a specific distance in front of child with sound source aimed at child's head level.

Instructor: "Where is the sound?"

Child: "In front of me."

Continue moving around the child stopping on the right side, behind, and left side of the child.

Instructor: "Where is the sound in relation to your body?"

If the child is familiar with telling time and understands the relationship of the situation, describe the localizations in terms of clock positions (i.e., three, six, nine o'clock).

2. Repeat condition one but vary the height of the sound source.

Instructor: "How high is the sound and where is the sound in relation to your body?"

Activity Two: Localizing a moving sound in relation to each side of the body

This activity provides practice in localizing sound which is moving away from the child.

1. Assume initial position: Instructor stands directly in front of child with sound source aimed at head level. Instructor backs up specified distances from the child. A continuing sound should be emitted while it is being moved.

Instructor: "Listen to the sound as it moves away from you."

2. Repeat the previous condition by placing the sound source on the right, behind, and left side of the child.

3. Demonstrate each condition with the sound source aimed at head level. After each demonstration, vary the height of the sound and ask if it is above, below, or at head level.

Instructional *note*: Supply information regarding distances of child from sound source as this will provide additional informational input to the student. For example, tell the student when the sound is three, four, eight, or ten feet from him.

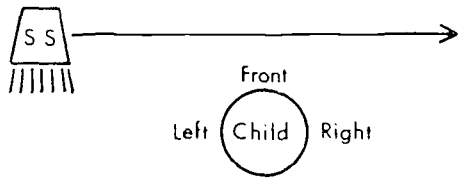
4. Experiment with the child's ability to estimate his distance from the sound source in feet and/or yards.

Activity Three: Localizing a sound moving parallel to the child

This activity introduces sound moving in a straight line of direction parallel to each side of the child's body.

1. Assume initial position: Instructor stands in front and to the left of child with sound source aimed at head level. Instructor walks from the child's left to right side parallel to the child's front side.

Instructor: "Listen to the sound as it moves from your left to your right."

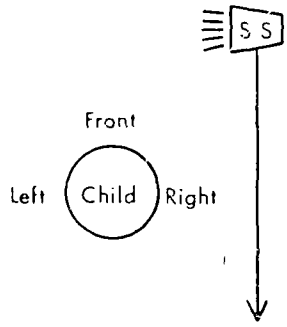


2. Repeat condition one by moving the sound from the right to the left.

3. Repeat condition one and two behind the child.

4. Take second position: Instructor stands in front and to the right of child with sound source aimed at head level. Instructor walks past child, parallel to the child's right side.

Instructor: "Listen to the sound as it moves from in front of you to behind you."



5. Repeat condition four on the left side of the child.

6. Repeat condition four and five by walking from behind to in front of the child.

Activity Four: Responding to a moving sound

Repeat the previous activity but have the child tell the instructor to stop when the moving sound is directly opposite each side of his body.

Instructor: "Tell me to stop when the sound is directly in front of you . . . . in back of you . . . . directly on your right . . . . directly on your left."

Category III

Child Moving: Sound Source Stationary

Each activity within this category is performed with the child moving his head or the entire body *at the time* the sound is being emitted. The sound source remains in a stationary position. After each condition is performed the sound source is *turned off*. When necessary the instructor will specifically position the child to perform a task before *turning on* the sound source. The first three activities should be demonstrated at *near* range initially. All conditions should be explained to the child before the demonstration.

Activity One: Introducing facing movement by only moving the head

Instructional *note:* Explain to the student that the tasks to be performed involve positioning the head so that the nose is pointed directly at the sound source. The sound source should be placed at head level for the initial demonstration of the first three conditions. After each condition the instructor should position the child to facilitate the next facing movement (conditions two and three).

1. Assume initial position: Child stands directly in front of sound source.

Instructor: "Where is the sound?"

Child: "In front of me."

2. Place sound source on child's left side.

Instructor: "Where is the sound?"

Child: "On my left."

Instructor: "Turn only your head and face the sound."

3. Place sound source on child's right side.

Instructor: "Where is the sound?"

Child: "On my right."

Instructor: "Turn only your head and face the sound."

Activity Two: Moving the entire body to face the sound source

Instructional *note:* This activity repeats conditions presented in the previous activity; however, the child must move his entire body when facing the sound source. Each condition should be explained to the student prior to the demonstration. Show the child how to correctly align his head with his body when facing the sound source. Place the sound source at head height for the initial demonstration of the first four conditions. When necessary the instructor should position the child to perform facing movements (conditions two, three, and four).

1. Assume initial position: Child stands directly in front of sound source.

Instructor: "Where is the sound?"

Child: "In front of me."

Instructor: "Are you facing the sound?"

Child: "Yes."

2. Have child stand with sound source on left side.

Instructor: "Where is the sound?"

Child: "On my left."

Instructor: "Turn and face the sound."

3. Have child stand with sound source on right side

Instructor: "Where is the sound?"

Child: "On my right."

Instructor: "Turn and face the sound."

4. Have child stand with sound source behind him.

Instructor: "Where is the sound?"

Child: "Behind me."

Instructor: "Turn and face the sound."

5. Repeat the previous conditions; vary height of sound source.

Instructor: "How high is the sound? Turn and face the sound."

Activity Three: Pointing and facing

Instructional *note:* This activity introduces pointing with facing movements. Pointing behavior is intended to further assist the child in localizing sound. As with previous activities the instructor should position the child to perform the conditions which follow.

1. Assume initial position: Child stands directly in front of sound source.

Instructor: "Where is the sound?"

Child: "In front of me."

Instructor: "Are you facing the sound?"

Child: "Yes."

Instructor: "Use either hand and point at the sound."

2. Have child stand with sound source on his left side.

Instructor: "Where is the sound?"

Child: "On my left."

Instructor: "Turn only your head and face the sound. Use your left hand and point toward the sound."

3. Have child stand with sound source on right side.

Instructor: "Where is the sound?"

Child: "On my right."

Instructor: "Turn only your head and face the sound. Use your right hand to point to the sound."

4. Have child stand with sound source on left side.

Instructor: "Where is the sound?"

Child: "On my left."

Instructor: "Turn your body to face the sound source. Point at the sound source using either hand."

5. Have child stand with sound source on right side.

Instructor: "Where is the sound?"

Child: "On my right."

Instructor: "Turn your body to face the sound. Point at the sound using either hand."

Activity Four: Walking toward a sound source

Instructional *note:* The following conditions involve localizing a sound by walking an arbitrary distance to locate the position of the sound source. The distance a child must walk to locate the sound source is left up to the instructor's judgment. If a child has had little experience with this activity, starting at a distance of five feet and working up to distances of 30 feet may be a successful approach. Skill in localizing sound will increase with practice; therefore, the following conditions may be performed as many times as needed.

1. Assume initial position: Child stands facing sound source, a specific distance from sound source.

Instructor: "Walk to the sound."

2. Have child stand with sound source behind him, a specific distance from sound source.

Instructor: "Make a half-turn to the left/right; walk to the sound."

3. Have child stand in front and equidistant from two sound sources (i.e., Place one sound source on the right and one sound source on the left).

Instructor: "Walk straight ahead until you are directly between the two sounds, then stop. Turn right and face that sound. Point at the sound, then walk to the sound."

4. Repeat condition three by having child turn left when he reaches the midpoint between the two sound sources.

5. Repeat condition three and four but eliminate the sound source opposite the direction in which the child is turning.

Activity Five: Walking away from a sound source

Repeat each of the conditions in the previous activity by reversing each walking pattern.

1. Assume initial position: Child stands with sound source behind him, a specific distance away from sound source.

Instructor: (Standing behind the child and the sound source) "Walk straight away from the sound. Stop walking when I turn off the sound."

2. Have child stand facing sound source, a specific distance away from the sound source.

Instructor: "Turn around so that your back is facing the sound. Walk away from the sound. Stop walking when I turn off the sound."

3. Have child stand with his back next to one sound source. Place another sound source directly in front of him, a specific distance away.

Instructor: "Walk toward the sound in front of you. When you are directly between (middle) the two sounds, stop. Turn right and walk until I turn off the sound."

4. Repeat condition three by having child turn to the left.

5. Repeat condition three and four but eliminate the sound source in front of the child.

Activity Six: Walking around a sound source

Instructional *note:* This activity provides practice in localizing sound while walking in a circle. Providing the child contact with a pole or rope connected to the center of the circle will assure that an accurate circular pattern is walked.

1. Assume initial position: Child stands with his right side facing and a specific distance away from sound source. Instructor will stand behind source sound with rope/pole in his hand. Child will grasp the other end of the rope/pole with his right hand.

Instructor: "Hold on to the rope/pole and walk around the sound. Stop when your right ear is again in line with the sound."

2. Repeat condition one by having child stand with his left side facing sound source.

3. Repeat previous conditions by varying the distance the child stands away from sound source. Experiment with eliminating the rope/pole after several practice trials.

Category IV

Child Moving: Sound Source Moving

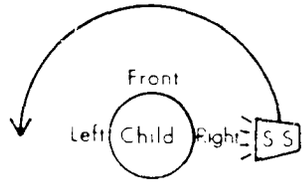
Instructional *note:* Each activity within the category is performed with the student moving his head or entire body at the same time the sound source is being moved by the instructor. All conditions of an activity should be explained to the student before turning on the sound source. Provide feedback relative to movement performance and distance judgements.

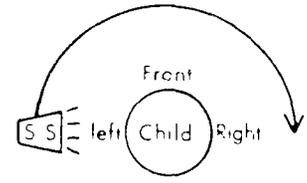
Activity One: Tracking a sound source by moving only the head

1. Initial position: Instructor faces child's right side aiming sound source at child's head. Instructor walks in half circle (180° sweep) from the child's right side to the child's left side. Sound is constantly aimed at child's head.

Instructor: "Move only your head and follow the sound as it moves from your right to your left."

2. Repeat condition one by moving the sound from left to right.





Activity Two: Tracking a sound source moving the entire body

1. Repeat conditions one and two in the previous activity by having child move his entire body when tracking the sound: half circle (180° sweep).

Instructor: "Move your whole body and follow the sound as it moves from your right to your left; from your left to your right."

2. Repeat the previous conditions by having the child point at the moving sound.

3. Repeat condition one and two moving in a 360° circle.

Instructor: "Move your whole body and follow the sound as it moves in a circle around you."

4. Repeat condition three by having the child point at the moving sound.

Activity Three: Following a moving sound source

1. Initial position: Instructor and child face each other. Instructor aims sound source at child's head. Instructor will back up in straight line, then a random pattern. Child follows instructor. Sound remains constant.

Instructor: "Follow the sound as it moves away from you."

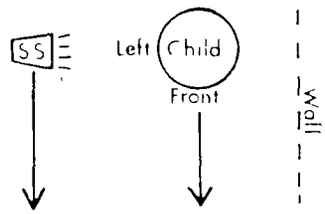
2. Repeat condition one and have child stop and start as sound is turned off and on.

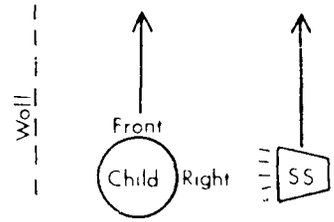
3. Repeat condition one by having child stop and start when instructor stops and starts. Sound remains constant.

Activity Four: Walking parallel to a moving sound

1. Initial position: Child stands next to a wall or a guideline wire which he trails. Instructor stands next to child aiming sound source at child's head. Instructor and child walk side by side in a parallel line of direction.

Instructor: "Trail the wall and follow the sound."





2. Repeat condition one by having the child walk in tandem with the instructor. Eliminate trailing the wall. Experiment with increasing distance between instructor and child using sighted guide technique, extended arms, and pole or rope of various lengths.

3. Repeat condition two with no physical contact between the child and the instructor.

4. Repeat condition three by having child stop when sound source is turned off and start when sound is turned on.

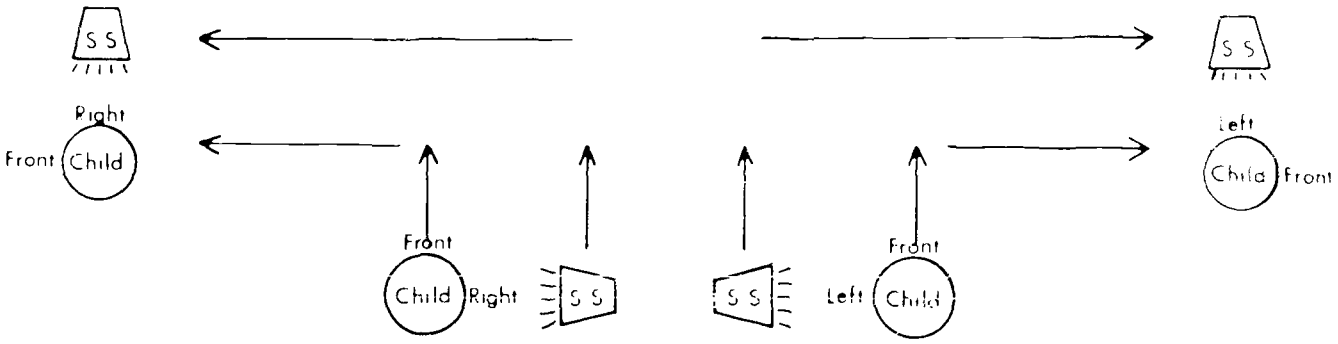
Activity Five: Walking parallel to a sound while walking a 90° angle

1. Assume initial position. Instructor and child stand side by side a specific distance apart. Sound source is aimed at child's head. Instructor and child walk in a parallel direction side by side.

Instructor: "Walk beside the sound. We will turn right after we have walked several steps; then we will continue walking."

2. Repeat condition one by turning left.

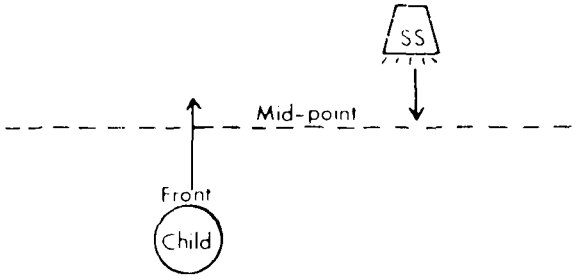
3. Repeat condition one and two by placing sound on opposite side of child.



Activity Six: Localizing sound when moving in opposition to the sound source

1. Assume initial position: Instructor stands in front and to the child's right at a specific distance away. When sound source is turned on, instructor and child start walking toward each other in a parallel line of direction. Instructor stops before he reaches child. Child continues walking in a parallel line and stops beside the sound source. The difficulty in performing this condition is in maintaining the parallel position; tendency of student will be to veer toward or away from the sound.

Instructor: "Walk straight ahead until you hear the sound directly on your right side; then stop."



2. Repeat condition one by reducing the distance the instructor walks and increasing the distance the child walks. Alternate sides.

3. Repeat condition one by having the child stop and start several times as he approaches the sound. When the sound is turned off the child will stop; when sound is turned on the child will start.

THANK YOU

for reading and using this manual. We welcome and encourage suggestions for revisions or for additions to the activities included in this edition.