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## A program to teach awareness of stress

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A PROGRAM TO TEACH AWARENESS OF STRESS

by

CATHERINE COLLINS LU

*Marge*  
*From Bob Carter*

A substantial paper submitted in partial fulfillment  
of the requirements for the degree of

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Portland State University  
1975

APPROVAL PAGE

This substantial paper by CATHERINE COLLINS LU was presented  
on March 7, 1975 and was approved by

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Joan McMahon

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## CHAPTER I

### INTRODUCTION

As a project for a behavior modification class, an auditory training program of sentence stress instruction was designed for the purpose of eliciting responses to sound from a hearing impaired child. According to past experience, it was found that amplification alone was not sufficient to enable the child to use appropriate stress in connected speech; therefore, a drum beat, as an additional cue, paired with stressed syllables, was utilized. The current program is an outgrowth from a pilot study which will be briefly described as follows:

The subject of the pilot study was a seven year old hearing impaired child. Her audiogram indicated that she had not responded to pure tones above 1000 Hz. The first task was to make the child aware of the presence or absence of sound and a drum was used for this purpose. She was to state if the drum had been hit or not, and if so, how many times. She did not succeed in this task so another child was brought in as a model for vicarious learning. By watching the model, she quickly understood what responses were required and her responses became consistent and accurate. Two sentences were introduced, both of which contained words of equal stress value. The drum was struck and was accompanied by the vocalization of one sentence. Her response was the statement of how many syllables were present in the sentence and an indication of which sentence had been presented by pointing to the correct one. The drum beat was faded and verbalization of the sentences was the only stimulus, when her

responses were consistent and 80 percent accurate. Her responses remained consistent and accurate until sentences of five syllables were presented and varied stress patterns became an important factor.

The results were most encouraging but modifications were needed in the program. It was felt that by revising the program it would be more useful in helping hearing impaired children to become aware of stress in connected speech so they could eventually be able to use appropriate stress spontaneously in their own speech.

The purpose of this paper was to design a strategy for teaching stress to children with severe to profound hearing losses to progress from the simple detection of the presence or absence of a drum beat to the identification of the number of stressed syllables in spoken sentences with out the aid of the drum beat. Emphasis was focused upon the simplicity of programming structure and minimum of equipment.

## CHAPTER II

### A BRIEF DESCRIPTION OF HISTORICAL DEVELOPMENT AND TECHNIQUES IN TEACHING STRESS

Auditory training for the hearing impaired child has changed greatly through the years due to the progress in amplification equipment and changing concepts in the teaching of this particular aspect to the hearing impaired child. In the past, it was believed that the most important aspect of speech was the production of the phonemes. However, it has been found that other factors such as duration of vowels and consonants, amount of breath, rate variation, incomplete mastery of time-based accentuation and monotonous speech patterns, negatively influence the intelligibility of the speech of the hearing impaired individual (Calvert, 1962, and Jones, 1967). Jones (1967) stated:

Such attributes as characteristic monotone, lack of accent and rhythm, poor resonance and poor carrying power and unnatural qualities have been ascribed to "deaf voice."

Stress appears to have become increasingly important in recent literature on linguistics and speech. Pike (1945) stated that the organizing principle for rhythm and intonation was stress. Woodward (1967) said that speech patterns which are normally carried by inflection and stress are needed to relate particular linguistic meanings. Unfamiliarity with these patterns may adversely affect the intelligibility and comprehension.

Moulton (1970) said stress is very important in the English language because it is used extensively as part of the structure of words and sentences. Woodward (1967), Tash (1974) and Simmons-



Martin (1972) maintained that the English language was a time-stress language, i.e., that stressed syllables tended to occur at regular intervals and tended to determine the basic rate of speech, and unstressed syllables were crowded into the basic rate. Simmons-Martin (1972) further suggested that the perception of stress patterns could help the child acquire a more natural rhythm in his speech and in his voice quality due to less tension of the vocal mechanisms.

In the literature, stress appears to have been a poorly defined component of prosody until recently. Prior to then, the literature dealt solely with the analysis of acoustic characteristics of phonemes, descriptions of how they were formed and techniques and exercises for their instruction. Stress was referred to but rarely defined and when a definition was used, it was often given in connection with intonation, emphasis, accent or inflection. These definitions sometimes conflicted with one another and tended to be confusing. The following are some of the definitions found in the literature:

Thomas (1947) defined stress as the relative increase in the force of utterance of a sound or syllable.

Aurbach, et al.(1963) stated that the three aspects of stress were loudness, duration and pitch. For instance, the stressed syllables were louder, their vowel sounds were longer and the pitch of the voice was higher.

Moulton (1970) stated that stress denoted those syllables which received relative prominence within a word or sentence. He continued to differentiate between word stress and sentence stress. He defined pitch separately but maintained that pitch and stress jointly played an important role in timing and rhythm of the English language.

Lehman (1971) suggested that the supra-segmental phonemes (elements of prosody) were stress, pitch and juncture. She said the primary stressed syllable was the loudest syllable relative to the others. She also stated that every syllable in the English language was said with some degree of stress, pitch and terminal juncture and that the meaning of a sentence was changed merely by changing the supra-segmental phonemes.

For the purpose of this paper, stress is meant to denote the prominence given to a syllable or a word by increasing the intensity.

Stress has been taught in various ways. The following are some examples of methods which have been used.

Geary, et al. (1959) used a horizontal line under the word which received the stress in a phrase or sentence. She recommended the use of poems, songs and oral reading of selections which had been appropriately marked for stress by the teacher.

Woodward (1967) and Tash (1974) suggested that stress should be taught by drills in which syllables with various stress patterns were indicated for the child. A slash (/) used above stressed syllables appeared as "boo boo boo boo." After the child had mastered the syllabic stress task, they then used phrases and/or sentences which had the same stress pattern as that with the syllables, i.e., "Get the paper."

Once the child had learned the use of stress, the idea of intonation was initiated, i.e., "I think it's/John's/book," where the position of the line indicated the relative intonation of the words in the sentence.

Birkenshaw (1967) used musical instruments, particularly a drum,

to teach stress. She said the rhythm of the sentences could be shown with a drum and stressed words or syllables could be indicated simply by beating the drum more loudly for them. She said that no mistake could arise concerning which syllable was stressed.

Brick (1973) recommended Eurhythmics to teach stress. Eurhythmics as defined, is the "art of harmonious and expressive" body movements. She maintained that Eurhythmics and audition made the child more aware of the pleasurable aspects of sound. She said that to learn stress the children were taught to move from a crouching position to an expansive one to indicate crescendo (increasing intensity) and moving back to a crouching position to indicate a decrescendo (decreasing intensity) while listening to a melody. She claimed that stress and accent to a Eurhythmics teacher were instrumental in making a hearing impaired child's speech intelligible to hearing people, and that transfer did take place from musical interpretation to the speech of the child.

Magner (1973) recommended clapping out rhythms with the children. She said that the procedure helped some children improve the rate of utterance, the duration of syllables, intensity and even pitch of unaccented syllables. She also used nonsense syllables to indicate stress patterns. Words, phrases and sentences were then used in these same patterns. She said the children soon learned to fit their own words and phrases to the various patterns.

The Multi-Sensory Speech Trainer (MSST) was developed to stimulate and develop speech sounds and patterns. Part of the system included a VU meter to be used for volume control and an oscilloscope for matching patterns. The amplification system, naturally, provided auditory stimulation. All three devices could be used to teach stress.

## CHAPTER III

### STRUCTURE AND RATIONALE FOR THE PROGRAM

#### Structure

The program is divided into seven stages and each stage is separated into tasks. At the beginning of each stage is a brief description of the stage and the behavioral objectives to be attained by the child. There are branching tasks to utilize in the event criterion is not met by the child. Some stages are divided into two parts due to response changes expected of the child.

Stage I, Part A, involves the identification of sound presence and counting the number of beats present. It is for the mostpart a listening task. Part B involves the repetition of a syllable pattern, so although it is a listening task it also becomes a verbal response task. The stimulus is a drumbeat. It is here that the drum is paired with a syllable for the first time. Cards are used as visual cues to aid the child in both parts of this stage.

Stage II, Part A, is a listening task in which the child is to identify the presence of sound and count the number of syllables. The stimulus changes from a drum beat to the voice. Part B is presented with the voice as the stimulus and a verbal response indicating the correct number of syllables is required.

Stage III, Part A, requires finer auditory discrimination of loud versus softer sounds. The child must identify the number of beats present and the stress patterns. The drum is the stimulus for this part and cards with the syllables written on them are used as

visual cues. A slash mark (/) above the syllable is used to indicate stress. In Part B the stimulus is the voice. The response is the vocal reproduction of the correct number of syllables and the stress pattern.

Stage IV duplicates Stage III except the stimulus cards are eliminated.

Stage V requires the same auditory discrimination as Stage IV but is incorporated into sentences. Cards are again used as visual cues and stressed syllables are indicated, as before, by slash marks.

In Stage VI the slash marks are eliminated.

In Stage VII the child faces the teacher as sentences are presented to him. No cards are used as visual cues. The response required is the repetition of the sentence with the appropriate stress.

### Rationale

In all stages of the program, the emphasis is on loudness instead of pitch or duration, because in working with children it has been observed that a higher pitch and longer duration usually accompany an increase in loudness. Zemlin (1968) explained the pitch change as follows:

The increase of pitch that usually accompany increases in intensity (loudness) of phonation can be accounted for by the greater tension of the vocal folds.

He said that the increased glottic tension was brought about by the contraction of the thyroarytenoid muscles and/or the cricothyroid.

It is felt that the auditory stimulus, particularly the voice,

## CHAPTER IV

### A PROGRAM TO TEACH AWARENESS OF STRESS

#### Stage I

#### Part A

##### Description of stage:

Part A is the identification of sound presence and counting the number of syllables present.

##### Behavioral objectives:

The child can identify the number of beats heard by pointing to the correct card 90 percent of the time.

The child can identify sound presence by pointing to the appropriate card 90 percent of the time.

---

##### Demonstration of task:

Place two cards on table in front of child. One card should be blank and one card should have a large "X" on it. Touch child on shoulder immediately following each stimulus as a signal for response.

| Stimulus                                    | Teacher Response           |
|---|----------------------------|
| 1. Face child, strike drum once.            | 1. Pointing to "X" card.   |
| 2. Face child, do not strike drum.          | 2. Pointing to blank card. |
| 3. Have child close eyes, strike drum once. | 3. Pointing to "X" card.   |
| 4. Have child close                         | 4. Pointing to blank card. |

eyes, do not strike  
drum.

Repeat steps 3 and 4 three times, helping child point to correct card.

---

### Task I

Instructions for task:

The blank card and the card with the "X" are placed in front of the child. Give the following directions:

I want you to listen for the drum. If I do not strike it point to the blank card (point to card) when I touch your shoulder. If I strike it, point to the card with the "X" (point to card) when I touch your shoulder.

#### Stimulus

Have child close eyes,  
random choice of striking  
or not striking the drum.

#### Child Response

Pointing to correct card  
following signal for  
response.

Pass criteria: Go to Task II.

Fail criteria: Go to Branching Task I.

### Task II

Additional materials: Card with two "X"s printed on it.

Instructions for task:

Repeat instructions for Task I with the addition of:

If I strike it two times, point to the card with the two  
"X"s (point to card) when I touch your shoulder.

#### Stimulus

Have child close eyes,  
random choice of not  
striking the drum or  
striking it one or two  
times.

#### Child Response

Pointing to correct card fol-  
lowing signal for response.

Pass criteria: Go to Task III.

Fail criteria: Go to Branching Task II.

### Task III

Additional materials: Card with three "X"s.

Instructions for task:

Repeat instructions for Task I with the addition of:

If I strike it two times, point to the card with the two "X"s on it (point to card) when I touch your shoulder. If I strike it three times, point to the card with the three "X"s on it (point to card) when I touch your shoulder.

#### Stimulus

Have child close eyes,  
random choice of striking  
the drum one, two or three times  
or not striking it.

#### Child Response

Point to correct card  
following signal for  
response.

Pass criteria: Go to task IV.

Fail criteria: go to Branching task III.

### Task IV

Additional materials: Card with four "X"s.

Instructions for task:

Repeat instructions for Task I with the addition of:

If I strike it two times, point to the card with two "X"s on it (point to card) when I touch your shoulder. If I strike it three times, point to the card with three "X"s on it when I touch your shoulder. If I strike it four times, point to the card with the four "X"s on it when I touch your shoulder.

#### Stimulus

Have the child close eyes,  
random choice of not striking

#### Child Response

Pointing to the correct card  
following signal for response.



it or striking it one,  
two, three or four times.

Pass criteria: Go to demonstration of modified tasks (Part B)

Fail criteria: Go to Branching Task IV.

### Part B

#### Description of stage:

Part B involves the repetition of a syllable pattern as the child's response.

#### Behavioral objectives:

The child can repeat the syllable pattern heard 90 percent of the time.

Child can identify the number of beats heard by pointing to the correct card 90 percent of the time.

#### Demonstration of the task:

Place two cards on table in front of child. One card should be blank and one card should have the syllable (b^). Touch the child on the shoulder immediately following each stimulus as a signal for response.

| Stimulus                                      | Teacher Response                             |
|---|--|
| 1. Face the child, strike drum once.          | 1. Point to card and say the syllable.       |
| 2. Face child, do not strike drum.            | 2. Point to blank card, do not say anything. |
| 3. Have child close eyes, strike drum once.   | 3. Point to card, say the syllable.          |
| 4. Have child close eyes, do not strike drum. | 4. Point to blank card, do not say anything. |

Repeat steps 3 and 4 three times, helping the child to point to correct card.

## Task I

Materials: One blank card and one card with a large "X" on it.

## Instructions:

The blank card and the card with the "X" are placed in front of the child. Give the following directions:

I want you to listen for the drum. If I do not strike it, point to the blank card (point to the card) when I touch your shoulder and do not say anything. If I strike it one time, point to the card with the "X" on it (point to card) when I touch your shoulder.

## Stimulus

Have child close eyes,  
random choice of striking or  
not striking the drum.

## Child Response

Pointing to correct card  
following signal for re-  
sponse, verbalization of  
the syllable if the drum is  
struck.

Pass criteria: Go to Task II.

Fail criteria: Go to Branching Task V.

## Task II

Additional materials: Card with two "X"s.

## Instructions:

Repeat instructions for Task I with the addition of:

If I strike it two times, point to the card with the two "X"s  
(point to card) and say (bΛ) two times.

## Stimulus

Have child close eyes, random  
choice of not striking the drum  
or striking it one or two times.

## Child Response

Pointing to correct card  
following signal for response,  
verbalization of the syllable  
depending on stimulus.

Pass criteria: Go to Task III

Fail criteria: Go to Branching Task VII.

#### Task IV

Additional materials: Card with three "X"s.

#### Instructions:

Repeat instructions for Task I with the addition of:

If I strike it two times, point to the card with the two "X"s (point to card) and say (bΛ) two times. If I strike it three times, point to the card with the three "X"s (point to card) and say (bΛ) three times.

| Stimulus   | Child Response   |
|--|--|
| Have child close eyes, random choice of striking or not striking the drum. | Pointing to correct card following signal for response, verbalization of (bΛ) one, two or three times depending on stimulus. |

Pass criteria: Go to Stage II.

Fail criteria: Go to Branching Task VIII.

#### Branching Task I

Materials: One blank card, one with an "X" and a drum.

| Stimulus  | Child Response   |
|---|--|
| 1. Face child, put child's hand on drum, strike drum once.          | 1. Pointing to "X" card following signal for response.   |
| 2. Face child, do not strike drum, child's hand is on drum.         | 2. Pointing to blank card following signal for response. |
| 3. Have child close eyes, put child's hand on drum, strike it once. | 3. Pointing to "X" card following signal for response.   |
| 4. Have child close eyes, put child's hand on drum, do              | 4. Pointing to blank card following signal for           |

not strike drum.

response.

Repeat steps 3 and 4 randomly ten times with child responding by himself.

Go back to Task I.

### Branching Task II

Materials: One blank card, one with two "X"s, and a drum.

| Stimulus   | Child and Teacher Response                                 |
|--|--|
| 1. Face child, put child's hand on drum, strike drum two times.            | 1. Pointing to correct card following signal for response. |
| 2. Face child, put child's hand on drum, do not strike drum.               | 2. Pointing to blank card following signal for response.   |
| 3. Have child close eyes, put child's hand on drum, strike drum two times. | 3. Pointing to correct card following signal for response. |
| 4. Have child close eyes, put child's hand on drum, do not strike drum.    | 4. Pointing to blank card following signal for response.   |

Repeat steps 3 and 4 randomly ten times with child responding by himself.

Go back to Task II.

### Task III

Materials: One card with one "X", one with three "X"s and a drum.

| Stimulus   | Child and Teacher Response                                 |
|--|--|
| 1. Face child, put child's hand on drum, strike drum three times.            | 1. Pointing to correct card following signal for response. |
| 2. Face child, put child's hand on drum, strike drum one time.               | 2. Pointing to correct card following signal for response. |
| 3. Have child close eyes, put child's hand on drum, strike drum three times. | 3. Pointing to correct card following signal for response. |

4. Have child close eyes, put child's hand on drum, strike drum one time.

4. Pointing to correct card following signal for response.

Repeat steps 3 and 4 randomly ten times with child responding by himself.

Go back to Task III

#### Branching Task IV

Materials: One card with two "X"s, one with four "X"s and a drum.

| Stimulus  | Child and Teacher Response                                 |
|---|--|
| 1. Face child, put child's hand on drum, strike drum four times.            | 1. Pointing to correct card following signal for response. |
| 2. Face child, put child's hand on drum, strike drum two times.             | 2. Pointing to correct card following signal for response. |
| 3. Have child close eyes, put child's hand on drum, strike drum four times. | 3. Pointing to correct card following signal for response. |
| 4. Have child close eyes, put child's hand on drum, strike drum two times.  | 4. Pointing to correct card following signal for response. |

Repeat steps 3 and 4 randomly ten times with child responding by himself.

Go to Task IV.

#### Branching Task V

Materials: One blank card and one with an "X" on it.

| Stimulus   | Child and Teacher Response  |
|--|---|
| 1. Face child, put child's hand on drum, strike drum once.   | 1. Pointing to "X" card following signal for response, say (bu) once. |
| 2. Face child, put child's hand on drum, do not strike drum. | 2. Pointing to blank card following signal for response.              |

- |   |   |
|---|---|
| 3. Have child close eyes, put his hand on drum, strike drum once.   | 3. Pointing to "X" card following signal for response, say (bΛ) once. |
| 4. Have child close eyes, put his hand on drum, do not strike drum. | 4. Pointing to blank card following signal for response.              |

Repeat steps 3 and 4 randomly ten times with child responding by himself.

Go back to Task I, Part B.

#### Branching Task VI

Follow Branching Task II. Add child saying the syllable (bΛ) the correct number of times as part of the response. Go back to Task II, Part B.

#### Branching Task VII

Follow Branching Task III. Add child saying the syllable (bΛ) the correct number of times as part of the response. Go back to Task III, Part B.

#### Branching Task VIII

Follow Branching Task IV. Add child saying the syllable (bΛ) the correct number of times as part of the response. Go back to Task IV, Part B.

### Stage II

#### Part A

##### Description of stage:

Part A involves the identification of sound presence and counting the number of syllables present.

Part B deals with the repetition of syllable patterns.

##### Behavioral objectives:

## Part A

Child can identify the number of beats heard by pointing to the correct card 90 percent of the time.

Child can identify sound presence by pointing to the correct card 90 percent of the time.

## Part B

Child can repeat the syllable pattern 90 percent of the time.

Child can identify the number of beats heard by pointing to the correct card 90 percent of the time.

Instructions:

Follow the procedure for Stage I but substitute saying the syllable (bΛ) for the drum. In the branching tasks instead of putting the child's hand on the drum put it on the teacher's throat.

## Stage III

## Part A

Description of stage:

Part A involves the identification of differences in intensity of sounds. It requires the child to identify stress patterns. It also counts the number of syllables present.

Behavioral objectives:

Child can identify the number of beats heard by pointing to the appropriate card and imitating what he heard 90 percent of the time.

Child can identify the appropriate stress pattern by pointing to the appropriate card and imitating what he heard 90 percent of the time.

---

Demonstration of the task:

Place two cards on the table in front of the child. One card should have (b<sup>Λ</sup>b<sup>Λ</sup>), and the other should have (b<sup>Λ</sup>) printed on it. Touch child on shoulder immediately following each stimulus as signal for response.

| Stimulus   | Teacher Response                                 |
|--|--|
| 1. Face child, strike drum once.                   | 1. Point to correct card, say the syllable.      |
| 2. Face child, strike drum twice as shown on card. | 2. Point to correct card, say the two syllables. |
| 3. Have child close eyes, strike drum once.        | 3. Point to the correct card, say the syllable.  |
| 4. Have child close eyes, strike drum twice.       | 4. Point to correct card, say the two syllables. |

Repeat steps 3 and 4, helping child point to correct card.

#### Task I

##### Instructions for Task:

The cards used in the demonstration task are placed in front of the child. Give the following directions:

I want you to listen for the drum. Some of the beats will be louder than others. If it is louder there will be a slash mark above the syllable. If I strike the drum one time, point to the card with one syllable (point to card) when I touch your shoulder. Then say the syllable the same way you heard it. If I strike it two times, point to the card with two syllables (point to card). Then say the syllables the same way you heard them. Remember some will be louder.

| Stimulus                      | Child Response                |
|-------------------------------|-------------------------------|
| Have child close eyes, random | Pointing to correct card fol- |



choice of striking the drum once or twice following stress patterns marked on cards.

Pointing to correct card following signal for response and saying the syllable once or twice following stress pattern on card.

Pass criteria: Go to Task II.

Fail criteria: Go to Branching Task I.

### Task II

Additional materials: Card with three syllables on it (bAbAbA).

#### Instructions:

Repeat instructions for Task I with the addition of:

If I strike it two times, point to the card with the two syllables (point to card). Then say them the same way you heard them. If I strike it three times, point to the card with three syllables (point to card) and say the syllables the same way you heard them.

#### Stimulus

Have child close eyes, random choice of striking the drum one, two, three times, following the stress patterns marked on cards.

#### Child Response

Pointing to correct card following signal for response and saying the syllables the correct number of times, following the stress pattern on the card

Pass criteria: Go to Task III.

Fail criteria: Go to Branching Task II.

### Task III

Additional materials: Card with four syllables (bAbAbAbA).

#### Instructions:

Repeat instructions for Task I with the addition of:

If I strike it two times, point to the card with the two syllables (point to card). If I strike it three times, point to the card with the three syllables (point to card). Then say the syllables the same way you heard them, If I strike it

four times, point to the card with four syllables (point to card) and then say them the same way you heard them.

| Stimulus  | Child Response  |
|---|---|
| Have child close eyes, random choice of striking the drum one, two, three or four times following the stress patterns on cards. | Pointing to correct card following signal for response and saying syllables the correct number of times following the stress pattern on card. |

Pass criteria: Go to Part B

Fail criteria: Go to Branching Task III.

### Part B

#### Description of stage:

This part of the stage involves the repetition of the syllable pattern and of the stress pattern.

#### Behavioral objectives:

Child can vocally reproduce the correct number of syllables 90 percent of the time.

Child can vocally reproduce the appropriate stress pattern 90 percent of the time.

---

#### Demonstration of the task:

Place two cards on the table in front of the child. One card should have two syllables (bAbΛ) and one card should have one syllable (bΛ) printed on it. Touch child immediately on shoulder to signal for a response.

| Stimulus   | Child Response                        |
|--|---------------------------------------|
| 1. Face child, say syllable once as shown on card. | 1. Point to card with (bΛ), say (bΛ). |

- |  |  |
|--|--|
| <p>2. Face child, say syllable twice as shown on card.</p> <p>3. Have child close eyes, say syllable once.</p> <p>4. Have child close eyes, say syllable twice as shown on card.</p> | <p>2. Point to card with two syllables, say them.</p> <p>3. Point to card with (bA), say it.</p> <p>4. Point to card with two syllables, say them.</p> |
|--|--|

Repeat steps 3 and 4 , helping child point to correct card.

### Task I

#### Instructions for task:

The cards used in the demonstration task are placed in front of the child. Give the following directions:

I want you to listen to my voice. Some of the syllables will be louder than others. If it is louder there will be a slash mark above the syllable. If I say (bA) point to the card with one syllable (point to card) when I touch your shoulder. Then say the syllable the same way you heard it. If I say it two times, point to the card with two syllables (point to card). Then say them the same way you heard them.

#### Stimulus

Have child close eyes, random choice of saying the syllable once or twice following stress patterns as marked on cards.

#### Child Response

Pointing to correct card following signal for response and saying the syllable once or twice following stress patterns on cards.

Pass criteria: Go to Task II.

Fail criteria: Go to Branching Task IV.

### Task II

Additional materials: Card with three syllables (bAb<sup>/</sup>AbA).

Instructions for task:

Repeat instructions for Task I with the addition of:

If I say the syllable two times, point to the card with two syllables (point to card) and then say them the same way you heard them. If I say the syllable three times, point to the card with the three syllables (point to card). Then say them the same way you heard them.

#### Stimulus

#### Child Response

Have child close eyes, random choice of saying the syllable one, two or three times following stress patterns marked on cards.

Pointing to correct card following signal for response and saying the syllable the correct number of times following the stress pattern on the card.

Pass criteria: Go to Task III.

Fail criteria: Go to Branching Task V.

### Task III

Additional materials: Card with four syllables on it (b<sup>1</sup>a<sup>2</sup>b<sup>3</sup>a<sup>4</sup>).

Instructions for task:

Repeat instructions for Task I with the additions of:

If I say the syllable two times, point to the card with the two syllables (point to card). Then say them the same way you heard them. If I say them three times, point to the card with three syllables (point to card) and say them the same way you heard them. If I say them four times, point to the card with four syllables (point to card) and say them the same way you heard them.

#### Stimulus

#### Child Response

Have child close eyes, random choice of saying the syllable one, two, three or four times following the stress patterns

Pointing to correct card following signal for response and saying the syllables the correct number of times following the stress pattern on the card.

marked on cards.

Pass criteria: Go to Stage IV.

Fail criteria: Go to Branching Task VI.

### Branching Task I

Materials: One card with one syllable and one with two (bAbA), and a drum.

| Stimulus   | Child and Teacher Response   |
|--|--|
| 1. Face child, put child's hand on drum, strike drum once.                                   | 1. Pointing to correct card following signal for response, saying syllable once.                                     |
| 2. Face child, put child's hand on drum, strike drum twice following stress pattern on card. | 2. Pointing to correct card following signal for response, saying syllables as stress pattern indicates.             |
| 3. Have child close eyes, put child's hand on drum, strike drum once.                        | 3. Pointing to correct card following signal for response, saying syllable once.                                     |
| 4. Have child close eyes, put child's hand on drum, strike drum twice.                       | 4. Pointing to correct card following signal for response, saying syllables as the stress pattern on card indicates. |

Repeat steps 3 and 4 randomly ten times with child responding by himself.

Go back to Task I, Part A.

### Branching Task II

Materials: Card with one syllable, card with three syllables (bAbAbA), drum.

| Stimulus   | Child and Teacher Response  |
|--|---|
| 1. Face child, put child's hand on drum, strike drum once. | 1. Pointing to the correct card following signal for response saying syllable once. |
| 2. Face child, put child's                                 | 2. Pointing to correct card fol-  |

- |  |   |
|--|---|
| <p>hand on drum, strike drum three times following stress pattern on card.</p>                                       | <p>lowing signal for response, saying syllables as stress pattern indicates.</p>                                    |
| <p>3. Have child close eyes, put child's hand on drum, strike drum once.</p>   | <p>3. Pointing to correct card following signal for response, saying syllable once.</p>                             |
| <p>4. Have child close eyes, put child's hand on drum, strike drum three times following stress pattern on card.</p> | <p>4. Pointing to correct card following signal for response, saying syllables as the stress pattern indicates.</p> |

Repeat steps 3 and 4 randomly ten times with child responding by himself.

Go back to Task II.

#### Branching Task III

Materials: Card with two syllables (bABA), card with four syllables (bA**A**bA**A**), drum.

- | Stimulus   | Child and Teacher Response  |
|--|---|
| <p>1. Face child, put child's hand on drum, strike drum twice.</p>   | <p>1. Pointing to correct card following signal for response, saying syllables as pattern shows.</p>                |
| <p>2. Face child, put child's hand on drum, strike drum four times following stress pattern on card.</p>           | <p>2. Pointing to correct card following signal for response, saying syllables as stress pattern indicates.</p>     |
| <p>3. Have child close eyes, put child's hand on drum, strike drum twice.</p>                                      | <p>3. Pointing to correct card following signal for response, saying syllables as pattern shows.</p>                |
| <p>4. Have child close eyes, put child's hand on drum strike drum four times following stress pattern on card.</p> | <p>4. Pointing to correct card following signal for response, saying syllables as the stress pattern indicates.</p> |

Repeat steps 3 and 4 randomly ten times with child responding by himself.

Go back to Task III.

#### Branching Task IV

Follow Branching Task I, changing stimulus to saying the syllables.

Child can place hand on teacher's throat. Go back to Task IV.

#### Branching Task V

Follow procedure for Branching Task II, changing the stimulus

to saying the syllables. Child can place hand on teacher's

throat. Go back to Task V.

#### Branching Task VI

Follow Branching Task III, changing the stimulus to saying the

syllables. Child can place hand on teacher's throat. Go back

to Task VI.

### Stage IV

#### Description of stage:

Part A of this stage involves the counting of the number of syllables. It also involves the identification of differences in intensity of sounds and the identification of stress patterns.

The stimulus is a drum.

In Part B the child is required to repeat a syllable pattern and a stress pattern. The stimulus is the voice.

#### Behavioral objectives:

##### Part A

Child can vocally reproduce the correct number of syllables 90 percent of the time.

Child can vocally reproduce the appropriate stress pattern 90 percent of the time.

Part B

Child can vocally reproduce the correct number of syllables  
90 percent of the time.

Child can vocally reproduce the appropriate stress pattern  
90 percent of the time.

Instructions:

Follow the same procedure used in Stage III but eliminate the  
cards.

Stage V

Part A

Description of stage:

In this stage the same auditory discrimination is required but  
sentences are used rather than the syllable (bA).

Behavioral objectives:

Child can point to the correct sentence 90 percent of the time.  
Child can vocally reproduce it 90 percent of the time.

Child can imitate the stress pattern of the sentence 90 percent  
of the time.

---

Demonstration of task:

Place two sentences written on cards on table in front of child.  
One card should have a one syllable sentence printed on it and one  
should have a two syllable sentence printed on it with a slash mark  
above the stressed syllable.



| Stimulus  | Teacher Response   |
|---|--|
| 1. Face child, strike drum once.                              | 1. Point to card with one syllable sentence, say it.                         |
| 2. Face child, strike drum twice as shown on card.            | 2. Point to card with two syllable sentence, say it as shown on card.        |
| 3. Have child close eyes, strike drum once.                   | 3. Point to card with one syllable, say it.                                  |
| 4. Have child close eyes, strike drum twice as shown on card. | 4. Point to card with two syllable sentence, say it with appropriate stress. |

Repeat steps 3 and 4, helping child to point to correct card.

#### Task I

##### Instructions for task:

The cards with the two sentences are placed in front of the child. Give the following directions:

I want you to listen for the drum. Some of the beats will be louder than the others. If it is louder there will be a slash mark above the syllable. If I strike the drum one time, point to the card with one syllable (point to card) when I touch your shoulder. Then say it the same way you heard it. If I strike it two times, point to the card with the two syllable sentence (point to card). Then say it the same way you heard it.

| Stimulus   | Child Response   |
|--|--|
| Have child close eyes, random choice of striking the drum once or twice following the stress pattern marked on card. | Pointing to correct card following signal for response and saying the sentence following the stress pattern on card. |

Pass criteria: Go to Task II.

Fail criteria: Go to Branching Task I.

## Task II

Additional materials: Card with three syllable sentence.

Instructions for task:

Repeat instructions for Task I with the addition of:

If I strike the drum three times, point to the card with the three syllable sentence (point to card) when I touch your shoulder. Then say it the same way you heard it.

Stimulus

Child Response

Have child close eyes, random choice of striking the drum one, two or three times.

Pointing to correct card following signal for response and saying the sentence following the stress pattern on the card.

Pass criteria: Go to Task III.

Fail criteria: Go to Branching Task II.

## Task III

Additional materials: Card with four syllable sentence.

Instructions for task:

Repeat instructions for Task I with the addition of:

If I strike it three times, point to the card with the three syllable sentence (point to card). Then say the sentence the same way you heard it. If I strike the drum four times, point to the card with the four syllable sentence (point to card). Then say the sentence the same way you heard it.

Stimulus

Child Response

Have child close eyes, random choice of striking the drum one, two, three or four times following stress patterns on cards.

Pointing to correct card following signal for response and saying the sentences following the stress pattern on the card.

Pass criteria: Go to Task IV.

Fail criteria: Go to Branching Task III.

## Part B

Description of stage:

In part B the stimulus changes from a drumbeat to voice but the response required from the child is the same.

Behavioral objectives:

Child can point to the correct sentence 90 percent of the time.

Child can vocally reproduce the sentence 90 percent of the time.

Child can imitate the stress pattern of the sentence 90 percent of the time.

Demonstration of task:

Place two sentences on table in front of child. One card should have a one syllable sentence printed on it and one should have a two syllable sentence on it with a slash mark above the stressed syllable.

| Stimulus   | Teacher Response                            |
|--|---|
| 1. Face child, say one syllable sentence.            | 1. Pointing to correct sentence, saying it. |
| 2. Face child, say two syllable sentence.            | 2. Pointing to correct sentence, saying it. |
| 3. Have child close eyes, say one syllable sentence. | 3. Pointing to correct sentence, saying it. |
| 4. Have child close eyes, say two syllable sentence. | 4. Pointing to correct sentence, saying it. |

Repeat steps 3 and 4, helping child point to the correct card.

Task IInstruction for task:

The cards with the two sentences are placed in front of the child. Give the following directions:

I want you to listen. Some of the syllables will be louder than others. If it is louder there will be a slash mark above the syllable. If I say the one syllable sentence, point to the card with it (point to card). Then say it as you heard it. If I say the two syllable sentence, point to the card with that sentence on it (point to card) when I touch your shoulder. Then say it as you heard it.

## Stimulus

Have child close eyes, random choice of saying one or two syllable sentence following the stress pattern marked on the cards.

## Child Response

Pointing to correct card following signal for response and saying the sentence following the stress pattern on the card.

Pass criteria: Go to Task II, Part B.

Fail criteria: Go to Branching Task IV.

## Task II

Additional materials: Card with three syllable sentence.

Instruction for task:

Repeat instructions for Task IV with the addition of:

If I say the three syllable sentence, point to the card with the three syllable sentence (point to card). Then say the sentence the same way you heard it.

## Stimulus

Have child close eyes, random choice of saying one, two or three syllable sentence following the stress patterns marked on cards.

## Child Response

Pointing to correct card following signal for response and saying the sentence following the stress patterns on cards.

Pass criteria: Go to Task III, Part B.

Fail criteria: Go to Branching Task V.

## Task III

Additional materials: Card with four syllable sentence.

Instructions for task:

Repeat instructions for Task V with the addition of:

If I say the three syllable sentence, point to the card with that sentence (point to card). Then say it the same way you heard it. If I say the four syllable sentence, point to that sentence (point to card). Then say the sentence the same way you heard it.

## Stimulus

Have child close eyes, random choice of one, two, three or four syllable sentence following the stress patterns marked on the cards.

## Child Response

Pointing to correct sentence following signal for response, saying the sentence following the stress patterns marked on the cards.

Pass criteria: Go to Stage VI.

Fail criteria: Go to Branching Task VI.

## Branching Tasks

Follow the Branching Tasks for Stage III substituting the sentences for the syllables.

## Stage VI

Description of stage:

## Part A

In the first part of this stage it requires the identification of differences in intensity of sounds and the identification of stress patterns. It also requires the identification of sentences.

## Part B

Part B involves the repetition of sentences and stress patterns. The stress patterns are not marked on the cards.

Behavioral objectives:

Child can point to correct sentence 90 percent of the time. Child can vocally reproduce it 90 percent of the time.

Child can imitate the stress pattern of the sentence 90 percent of the time.

Instructions:

Follow the same procedure as Stage V but eliminate the stress patterns on the cards.

## Stage VII

Description of the stage:

In this stage the child can watch the teacher. It involves the imitation of sentences, randomly chosen, and of stress patterns.

The sentences are not presented on cards.

Behavioral objectives:

Child can repeat sentences presented to him using the correct stress patterns 90 percent of the time.

Child can repeat sentences of more than four syllables with the appropriate stress pattern 90 percent of the time.

Instructions:

I want you to listen. I am going to say a sentence and then I want you to say it the same way.

## Task I

| Stimulus  | Child Response                                      |
|---|---|
| Randomly present sentences of up to four syllables with the child watching. | Repeating the sentence with the appropriate stress. |

Pass criteria: Go to Task II.

Fail criteria: Go to Branching Task I.

## Task II

### Instructions:

I am going to say a sentence. I want you to listen and then say it the same way.

| Stimulus   | Child Responses                                     |
|--|---|
| Present sentences, gradually increase the number of syllables. | Repeating the sentence with the appropriate stress. |

Pass criteria: Conclude program

Fail criteria: Go to Branching Task II.

## Branching Task I

Follow Task I but add visual cues of the sentences written on cards and placed in front of the child on a table.

## Branching Task II

Follow Task II but use visual cues in the form of sentences written on cards which are placed on a table in front of the child.

## CHAPTER V

### SUMMARY

Stress, as previously discussed in Chapter II, is felt to be of great importance in carrying meaning. A hearing impaired child needs to be aware of stress and needs to know what to do to produce it in his own speech.

The program has been revised greatly from the original. It is designed to eliminate some of the traditional steps, such as, first teaching intensity and then teaching pitch changes. It is hoped that stress can be taught more quickly and simply by presenting it as a listening task combined with verbal responses.

The use of equipment has been kept to a minimum to make the program easy to implement. The materials are teacher-made and can be laminated for more durability. The hearing aid or aids used must be in excellent working order to get maximum benefit from the program.

The program as written may not work for all children, but might need to be adapted to fit the needs of individual children. This can be done easily by changing the materials slightly. For example, color coding could be used for stressed syllables. The manner of presentation could be changed to make the program more beneficial for the child. This could be done by having the children clap their hands instead of using a drum or by touching the child on the arm to indicate stress. The program is meant to be a guide and not an inflexible technique.



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