

Nonverbal Reading Approach

When a student with a physical disability has a severe speech impairment, it can be difficult to teach phonics or determine if the student is actually reading a word(s). One method used to teach students to sound out words and to determine if they are actually reading the word correctly is the Nonverbal Reading Approach (Heller, Fredrick, & Diggs, 1999; Heller, Fredrick, Tumlin, & Brineman, 2002).

The Nonverbal Reading Approach is a reading strategy designed for students with severe speech and physical impairments. It provides nonverbal students a strategy to sound out words. It also provides a way for teachers to assess if students can read targeted words. To accomplish this, the Nonverbal Reading Approach utilizes internal speech, diagnostic distraction arrays, and error analysis in conjunction with specific adaptations and assistive technology to promote reading skills. This approach can be used along with any desired reading curriculum to make it accessible for students with severe speech and physical impairments.

Nonverbal Reading Approach: Guided Practice [See CD, clip 1 Guided Practice]. When students are not physically able to verbalize phonemes for sounding out words, they need to be taught a strategy to help them decode words. The Nonverbal Reading Approach teaches students to systematically use internal speech. **Internal speech** is the process of silently speaking to oneself or saying something “in your head”. Since there has been research demonstrating the development of sound-blending skills in the absence of speech production abilities (Smith, 1989), internal speech is a useful strategy to teach students to say the sound “in their head” or “to themselves” as they are sounding out words. It is important that when the student says a word using internal speech, that they do not verbalize, but concentrate on saying it in the head to “hear” the sounds internally the way they should be pronounced. To promote active participation, the student may be encouraged to say the sounds aloud to the best of his ability prior to sounding the word out “in his head” or he may sound out each sound “in his head” and then say the sound aloud as best as he can.

Students are initially guided through the process of using internal speech (See Figure 1). The teacher starts by showing the word. At this point, the student may sound out each letter aloud to promote active participation. Next, the student is shown the first letter (by covering the rest of the word with paper or pointing to the first letter) and is told to “Say in your head this sound”. When guiding the student, the teacher says the sound aloud while the student is saying it to himself. The next letter is shown and the student is instructed to “Say in your head this sound” as the teacher says it aloud. This continues until the word is completely sounded out. The student is then told to “Say it in your head, all together” while the teacher sounds it all out together. Last, the student is told to “Say it in your head fast” as the teacher says the word.

Additional instruction may be given after the student sounds out the word using internal speech. This may include comparing this word to a previously learned word, pointing out prefixes or suffixes, explaining a rule or way to think of the word, giving a definition, and/or using the word in a sentence, as well as writing and spelling activities. Since the emphasis on reading should be reading more than single words, using the words within sentences becomes important. Teaching comprehension of each word or sentence will also be important.

Figure 1. Use of Nonverbal Reading Approach: Guided Practice

GUIDED PRACTICE	
Process	Example Script
<p>Active participation</p> <p>Internal speech: letter sounds</p> <p>Internal speech: blending slow</p> <p>Internal speech: blending fast</p> <p>Additional instruction</p>	<ol style="list-style-type: none"> 1. T: "Lets look at some new words together" 2. T: "Look at this word." (T. shows student entire word.) <i>Example: man</i> 3. T: "Lets sound it outloud together" T. points to each letter saying the letter sound outloud, along with the student making the sounds, approximations, or noises. 4. T: Teacher shows only the first letter of the word (by covering other letters with a piece of paper) and says, "Say in your head this sound", Teacher says the sound outloud, and student looks at letter without making any sound. (Note- if the word has a blend (st, sh, etc), these are shown together and pronounced as one sound) 5. <i>Example: m</i> 6. <i>Teacher says "mmm" Students says "mmm" in his head</i> 7. T: Shows the next letter of the word by moving the paper, and repeats step 4 for each letter (phoneme) for the entire word. 8. <i>Example: ma (Teacher uncovers next letter)</i> 9. <i>Teacher says "aaa" Student says "aaa" in his head</i> 10. <i>Example: man (Teacher uncovers next letter)</i> 11. <i>Teacher says "nnn" Student says "nnn" in his head</i> 12. T: "Now, in your head, say it all together. Don't stop between sounds." 13. T.- Point to each sound and slowly sounds out the word outloud as S. sounds out word using internal speech. 14. <i>Example: man</i> 15. <i>Teacher says "mmaaannn" as pointing to each letter sound and students says "mmaaannn" in his head.</i> 16. T: "Now, say it in your head fast". T. says the entire word out loud. 17. <i>Example: Teacher says "ham" as student says "ham" in his head.</i> 18. Teacher may do additional instruction here. Comparing the word to 19. other learned words, pointing out certain sounds, showing picture of what a ham is, etc. 20. <i>Example: Student had learned the word "mat" and teacher shows how the words begin in a similar fashion and how the ending sound makes it different. (Heller, 2001)</i>

Nonverbal Reading Approach: Evaluating Student Knowledge [See CD, clip 2: **Evaluation**] When evaluating the student, the above sequence is used, but the teacher does not provide the sounds or say the word. The teacher instead encourages the student to say the letter sounds using internal speech. To evaluate whether the student is learning the words, he or she is given an array of spoken choices from which to select the answers to the teacher's questions during reading activities. For example on the CD, the teacher has the student sound out in his head the word "them" without providing any of the sounds. She then provides a strip of paper with the letters "a," "b," "c," "d." She provides four word choices and points to each letter (e.g., "a") as she says "a is then," "b is hem," "c is them," and "d is there." The student then points to the letter "c" to indicate his answer. It should be noted that some students may be unable to do this extra step of pointing to a letter or it may be confusing to the student. In many instances, it is better to just have the student listen to the choices and indicate (by nodding the head, making a vocalization, making a body movement, etc.) when he hears the answer he wants to select, rather than using the "a," "b," "c," "d" format.

It is important that the teacher use a **diagnostic distractor array** when selecting the choices the student is to choose from. A diagnostic distractor array is a list of alternative choices provided to the student, either orally or written, which are designed to evaluate the student's acquisition of the targeted material (i.e., targeted words). The student's selected choice from the array should indicate that the student does or does not know the answer. In addition, if the student does not know the answer, the selection from the diagnostic distractor array should indicate the student's error patterns.

Diagnostic distractor arrays typically consist of the correct answer and two or more additional items that have been explicitly selected to determine that the student knows the target word. For example, if the student was learning the word, "ball" and the choices in the array were "cat", "ball", "dog", and "tree", the selection of the word "ball" only tells us that the student can accurately select the correct first letter (b) of the word, but may not know the word "ball" from the word "big". If the distractor array was "bill", "ball", "bell", and "bail", the correct selection would only tell us that the student could select the correct vowel sound of the word.

Diagnostic distractor arrays should then be carefully chosen to assure the teacher that the student knows the word. Initially, a diagnostic distractor array may begin by including a very similar word, a word with a different ending, and a word with just the vowel sound different. For example, if the target word was "ball", the distractor array could consist of "bill", "ball", "doll", and "bat". The distractor array would later be changed based upon the types of errors the student is making. One study (Heller, Fredrick, and Diggs, 1999) demonstrated the dramatic differences in words the students chose to select, based upon indiscriminate, dissimilar distractor arrays and diagnostic distractor arrays. This study showed that inadequate distractor arrays can leave the false impression that the student knows the word, when he may only know the first letter or some other aspect of it. Figure 2 provides an example script of evaluating a student using the Nonverbal Reading Approach, including the use of a diagnostic distractor array.

Figure 2. Use of the Nonverbal Reading Approach: Evaluation

EVALUATING STUDENT KNOWLEDGE	
Process	Example Script
Active participation	1. T: "I'm going to give you some words to read. First, you will sound out the word, then I'll give you some spoken choices and you tell me which is correct. OK? Here we go."
	2. T: "Look at this word." (T. shows student entire word.)
	3. T: "Sound it outloud" (T. points to each letter as student makes, sounds, approximations, or noises.)
Internal speech	4. T: Teacher shows only the first letter of the word (by covering other letters with a piece of paper) and says, "Say in your head this sound."
	5. T: Shows the next letter of the word by moving the paper and repeats steps for each letter (or phoneme) of the entire word.
	6. T: "Now, in your head, say it all together. Don't stop between sounds." (T.- Point to each sound)
	7 T: "Now, say it in your head fast".
Diagnostic Distractor Array	8 T: "I'll give you four choices. Listen to your choices. Your choices are: [choice 1], [choice2], [choice 3], [choice4]. Is it [choice 1]? (wait for S. response). Is it [choice 2]? , etc.)."
Data	Student indicates his/her answer and teacher writes student's selection on the data sheet.
Error Analysis & Correction	9. T: If student gives correct answer, confirm correct selection. If student gives incorrect answer, reteach using guided practice to sound out the word together and reteach any specific area missed based on the word selected from the distractor array. (Ex. Teacher would use guided practice in Table 9-6 and then examine what the student incorrectly selected. (For example, if S. selected "hat" for "ham", teacher would reteach "m" and "t" and emphasize looking at the last part of the word. Next time this word is evaluated, the distractor array will contain "mat" as a distractor, as well as other words with "t" and different ending sounds.
	10. Look across data for any error patterns and reteach problem areas. (Heller, 2001)

Diagnostic distractor arrays are typically provided verbally as illustrated in the CD and in the procedure given in this monograph. That is because this more closely approximates reading. However, this process can also work by the teacher saying a word, and the student being provided four written choices. If this approach is used, the student is encouraged to use internal speech to sound out the four choices to determine the correct word.

A third aspect of the Nonverbal Reading Approach is the use of error analysis. An **error analysis** is a careful examination of the type of errors the student is making when being instructed, as well as the presence of any error patterns occurring across time. Detection of errors and error patterns, will help guide the teacher to select correction strategies and reevaluate the student's knowledge by changing the diagnostic distractor array. In the previous example, the student selects "bat" instead of "ball". The student is either confusing "t" and "l" sounds, not sounding out the entire word and blending it, or not attending. Correction may take the form of providing more instruction with the "l" and "t" sounds, reinforcing blending skills, and/or teaching the student to attend to all of the sounds in the word. When reevaluating the student, the distractor array should be changed to include more differences in the last sound, such as "ball", "ban", "bat", "back".

The final aspect of the Nonverbal Reading Approach is the use of assistive technology to assure proper assessment, instruction, comprehension [See CD clip 3: Comprehension], and practice of target reading material.

Assistive technology to promote reading may include the use of augmentative communication devices, devices to allow access to choices, and computer adaptations to facilitate responses. Each of these must be individually selected and assessed as to its accuracy and effectiveness in facilitating the reading process.

As the student learns to sound out words on his own using the Nonverbal Reading Approach and learns the words being taught, he will gradually need to expand from words to sentences. The following sequence may be used to help expand from learning unknown words to reading a line of print with comprehension.

1. *Sounding out words using the Nonverbal Reading Approach.* It is important that students learn the process of using internal speech and sounding out the letters and blending them together. Eventually students should be able to apply this strategy to unknown words.
2. *Recognizing words without sounding out (automaticity).* As the student learns a word, he or she will eventually recognize the word without sounding it out. The student may be shown a word and be asked, "Do you know what this word is?" If no, the teacher may say, "What do we need to do? We need to sound it out." As the teacher guides the student through the above protocol for guided practice with the Nonverbal Reading Approach. If the student indicates that he or she knows the word, the teacher may assess if the student actually does and follow the protocol for evaluating student knowledge.
3. *Reading a line of print & stopping at unknown words.* Words that the student has mastered (with automaticity) will be placed into sentences. The student needs to be

taught to read each word using internal speech and stop at unknown words. The student should try to sound out any unknown words using the Nonverbal Reading Approach. If student is unable to figure out what the word is, the student should be taught to ask for assistance. (Some teachers practice this skill by intentionally putting in a couple of difficult words to teach the student to try to sound it out and ask for assistance)

4. *Checking for accuracy & comprehension.* When a student is reading a sentence using internal speech, it is important to verify that the student is actually reading the words correctly. When the student is unable to speak, this can be assessed several different ways. Some of these are:
 - a) Point to ____ word
 - b) What word is this (cat, can, con, kit)? (Uses a diagnostic distractor array).
 - c) Where did the boy go? (Question for comprehension.)
 - d) Point to picture describes what this means.

5. *Spell & write target words.* (This is done along with 1, 2, & 3) (See writing section for more information).