Phonemic Awareness in *Reading Mastery*

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The identification of phonological awareness or phonemic awareness is generally treated as a recent breakthrough in identifying metacognitive underpinnings that enable children to relate sounds to the symbols that compose words. The current interpretation is that if children lack skills needed to process spoken sounds and words in different ways, they would be at a serious disadvantage when working with symbols and words that represent spoken sounds and words.

Activities that constitute phonemic awareness include word segmentation, word blending , rhyming, and alliteration. For segmentation, children listen to a word and identify the component sounds. For blending, children listen to a series of sounds that compose a word and identify the word. For rhyming and alliteration, children do a variety of activities but usually identify words that rhyme or alliterate with a word or word part that is presented.

Although these activities are considered a reading preskill for beginning readers, the relationship between word decoding and specific phonological activities or skills that underpin it is not perfectly clear in the current framing of phonological awareness. A more precise interpretation of these verbal preskills appears in the early works of Siegfried (Ziggy) Engelmann and his development of Direct Instruction in the 1960s. The current literature acknowledges neither his contribution nor his analysis of the purpose of these activities, their relationship to reading, nor the structure of tasks that are effective. Instead, the literature gives the impression that understanding and identification of this reading skill emerged in the 80s (cited in *Becoming a Nation of Readers* in 1985). Some of these citations referred to reading programs that Engelmann designed (*DISTAR Reading Mastery*); however, these programs were not named in the text.

DISTAR Reading Mastery has been reviled by traditional educators (having been labeled by both David Weikart and Kenneth Goodman as the thalidomide of reading programs) even though this program has more experimental data to confirm its effectiveness than possibly all other reading programs combined.(See Adams, *Research on Direct Instruction*, 1997).

The beginning level of the 1969 edition of the DISTAR reading program had over 300 activities that involve phonological awareness; the teachers' guide described the various phonological sequences and why the activities were included in the program (what they taught the children about decoding and about the relationship between spoken sounds and symbols). Although the labels DISTAR used for the various activities were not the same as those that are currently in vogue, the labels gave a good indication of what the children were to do—"say it fast" (blending), "say the sounds" (segmentation), and rhyming. A further explanation of DISTAR's orientation to phonological awareness appeared in a 1969 book written by Engelmann, *Preventing Failure in the Primary Grades* (reprinted by ADI, see page 96), which described the need for these tasks and how they fit with alliteration to form a systematic phonological base for a beginning reading program. In 1976, Carnine and Silbert further specified "formats" similar to those in DISTAR in the text, *Direct Instruction Reading*.

The difference between the Direct Instruction orientation to phonological skills and that of other early programs that presented children with phonological manipulations is the precise articulation of how the various skills served as necessary preskills for a beginning reading program in which children were to sound out and blend words. For Direct Instruction the needs were very precise and were based on analyses of the various reading tasks presented to the beginning reader. It was unlike Lindamood, and some of the Peabody applications that were related to reading in gross and often unspecified ways. The single purpose of these tasks for DISTAR was to prepare children for specific decoding tasks they would soon encounter.

The basic argument that Engelmann used for the necessity of phonological manipulations was that they were components of corresponding decoding manipulations. Component tasks are analytically "easier" to learn than tasks that incorporate the component (because these tasks involve the components plus additional components that must be coordinated). Therefore the components should be mastered before the more complex operations are introduced. The components involve less learning and less coordination. A similar argument would

hold that the child should learn the "sounds" for the various letters that appear in the word to be decoded before being required to decode the word. Decoding each individual sound is a component of decoding the entire word. Therefore, the sounds for the various letters should be pretaught.

Another way of viewing the instructional-design question is to consider the possible causes of failure. When a child attempts to decode a word like ran (by sounding it out and then identifying it) the child could fail if the child did not know the sound for any component letter; similarly, if the child could not blend the various sounds, the child could fail. If the child has been pretaught various components (verbal blending, the sounds for the various letters, the orientation of ordering the sounds from left to right) the likelihood of failure is greatly reduced. Also, the ease of correcting the child who makes a mistake is greatly increased.

The demonstration that phonological manipulations are precise components of a beginning word-reading operation can be seen by constructing a task that is as similar as possible to a beginning decoding task but that does not refer to any symbols. It is a verbal skeleton of the task.

In the following example, the teacher will say the word ran slowly, holding each sound for about 2 or 3 seconds and not pausing between the sounds.

> **Listen.** Hold up a finger for each sound.
> **Say** (pause) **rrraaannn. Get ready.** Hold up a finger for each sound. *Rrraaannn.*
> **Again. Get ready.** Hold up a finger for each sound. *Rrraaannn.*
> **Say it fast.** (Signal.) *Ran.*
> **Yes, ran.**

The responses the children make (saying the segmented word and then saying it fast) are the same responses the children make when decoding the word ran. The only difference is that when they decode the word, they refer to written symbols to initiate the segmented word.

The principal goal of the pre-decoding activities in *DISTAR Reading Mastery* is make children sufficiently facile with the verbal components of decoding that they will successfully coordinate these with the symbol-identification component during the introduction of the first decoding words. Even with this practice, children sometimes make mistakes because they become overwhelmed with the coordination of saying the sounds, remembering the sequence, and trying to concentrate on the symbols so they identify them appropriately.

Because children are facile with the verbal components, however, the teacher has a very effective correction procedure that does not involve telling children the word, but that shows them how to use what they already know to figure out the word. The correction procedure simply removes the symbol component of the task, presenting only the skeleton of the task that involves sounds.

Here's an example of the word-reading procedure the teacher script specifies, a typical error and the correction. Note that this example comes from very early in the program, after children have been decoding written words only a few lessons.

TASK 7 Children say the sounds, then sound out the word

a. Point to the first ball of the arrow for **mē.** **This is the word** (pause) **me. What word?**
Touch the first ball. *Me.*
Yes, me.

b. Point to the ball for **m. When you sound out** (pause) **mē, what sound do you say first?** Touch the ball for **m.** *mmm.* **Yes, mmm.**
Point to the ball for **ē. What sound do you say next?** Touch the ball for **ē.** *ēēē.*
Yes, ēēē.

c. Repeat *b* until firm.

d. **You're going to sound it out, then say it fast.** Return to the first ball. **Everybody, sound it out. Get ready.** Move under each sound. Hold under each sound for two seconds. *Mmmēēē.*

One or two children say nothing or say *eee.*
The correction: The teacher immediately puts down the display book and says, Listen: mmmeee. Say it with me. mmmeee.
All by yourself:
Children: *mmmeee.*
Teacher: Say it fast.
Children: *me.*
Teacher quickly holds up display book and touches ball of the arrow for *me.*
Teacher: Now do it here. Say the sounds. Get ready.
Teacher touches under me as children say *mmmeee.*
Teacher: Say it fast.
Children: *me.*

The correction is effective because the teacher doesn't have to tell the children the word. The cor-

rection also implies what children are required to be proficient in before they are introduced to the decoding of written words. If they do not have the basic verbal skills that are required to respond to the skeleton example presented in the correction, they lack skills needed to decode words. Conversely, if they have the verbal skills, they have at least part of what they need to be successful.

Blending

The sequence of pre-reading skills begins with say-it-fast on lesson 1 in DISTAR and continues in progressively more difficult formats through lesson 40. The sequence starts with simple examples and moves to more difficult ones. The simple examples, those that quite low-performing children are capable of processing on lesson 1, present familiar multisyllabic words or word pairs that are separated into two parts.

> **Let's play Say It Fast again.**
> Hold out your hand. **Listen. Snow** (pause) **flake.** (Pause.) **Say it fast!** Drop your hand. *Snowflake.* **Yes, snowflake.**

Very quickly, these examples become interspersed with examples that are a bit more difficult—familiar two-sound words composed of voiced sounds that are presented continuously, presented with no pauses between the sounds: mmmeee. Say it fast. (These examples are more difficult because there is less sound information for the child . When blending ham (pause) burger, the child could miss some of the middle sounds and still be able to identify the word: ha-..b—gur. will be identified as hamburger. If either sound in mmmeee is not registered, the word will not be identified.)

By presenting the word with no pause between the sounds, and by assuring that the word begins with a continuous sound (not a stop sound like b,d, or g) the example assures that the "segmented" word the teacher presents is very "similar" to the same word spoken at a normal speaking rate. Many lower-performing children who succeed in blending mmmeee would have difficulty blending mmm(pause) eee. This teaching strategy has proven helpful (Weisberg & Savard, 1993).

Words of intermediate difficulty, and that appear next in the sequence, are those that have an unvoiced sound, and those that have more than three sounds. A two-sound word with an unvoiced sound (if, so, see) is relatively harder than those that have voiced sounds, simply because the voiced sounds have greater salience.

Examples that are of the next order of difficulty are those that begin with a continuous sound but that have three sounds. These examples would include mat, man, sit, run.

The most difficult words presented in the sequence are those that have more than three sounds (sailor, open, picnic), words that have difficult consonant blends (snap, rings), and those that have pauses between the sounds: fff iiishshsh. Words with pauses are very important for setting up rhyming, which means that rhyming is sequenced to begin after children have mastered variations of say-it-fast.

In the later variations of say-it-fast, the teacher says the sounds; the children then repeat those sounds before saying them fast.

Throughout the sequence, children receive demonstrations that the words they say have meaning. As part of each lesson from 1 through 23, children first identify a word by saying it fast, then see a picture that illustrates the word. Note that they do a verbal decoding of the word first and use this decoded word to predict what the picture will show. This task is a strong precursor of reading comprehension tasks. It shows that the words refer to familiar things in the environment.

Here's an example from lesson 4.

> **If you can say this word fast, I'll show you a picture.**
> Hold out your hand. **Listen. Ham** (pause) **burger.** (Pause.) **Say it fast!** Drop your hand. *Hamburger.*
> **What word?** (Signal.) *Hamburger.*
> **Yes, what is the picture going to show?** (Signal.) *Hamburger.* **Yes, hamburger.**

The word predicts the picture, which is what occurs in real reading. This is the opposite from the illogical tactic used in many beginning reading programs of presenting the picture to predict or infer the word. The traditional tactic would be appropriate for teaching picture interpretation or suggestions. The word-first approach is appropriate for reading comprehension, which requires children to go from the words to the meaning of the words or to the pictures that show the word. Note that the word is of the easiest type. By lesson 15, children identify a more difficult word before they see the picture of it on their worksheet.

TASK 6 Children say it fast, then see a picture

a. Do not show the picture until step *g*.
b. **Say it fast and I'll show you a picture.**
c. **Listen. Sssâăăiiiiior.** (Pause.) **Say it fast!** (Signal.) *Sailor.*
What word? (Signal.) *Sailor.*
d. **Yes, what is the picture going to show?** (Signal.) *Sailor.*
e. **The man you will see in the picture is a** .... (Pause.) **Sssâăăiiiiior.** (Pause.) **Say it fast!** (Signal.) *Sailor.*
f. Repeat *e* until firm.
g. **Here's the picture.**

Another element of the say-it-fast track in *Reading Mastery* involves applying say it fast to symbols. Children first say the sound for a continuous letter (f, l, m, e) slowly and then say it fast. For example, in lesson 13, children see the letters

Touch the first ball of the arrow for m. Your turn. Say the sound slowly. Get ready. Move quickly to the second ball. Hold for two seconds. *mmmmmm.*
Return to the first ball. **Say it fast.** Slash to the end of the arrow. *m.* **Yes, m.**

The program presents verbal tasks that involve single sounds. For example, on lesson 16, one of the tasks the teacher presents is, listen: rrrr. Say it fast. These manipulations are important because they demonstrate to the children that sounds as well as words can be said slowly and said fast, which is what children will do when they decode words.

After children have mastered the various sound manipulations, word decoding is introduced. At this time, the children have learned the other components (aside from phonological manipulations) that are logically implied for initial decoding. Children learn to identify sounds for the various symbols that will appear in the words they will decode. (In *Reading Mastery*, children do not learn letter names until much later in the program. The reason is that they don't need letter names to read.) Children also learn to "follow the arrow," which appears under every symbol or group of symbols, and which is used in different picture tasks to teach children to temporally sequence events that are displayed in a left-to-right arrangement.

In the first "routine" for directing decoding of words, children identify words that are first sounded out by the teacher. Then children sound out and identify these words. For example, the teacher displays the word am.

e. **Touch the first ball of the arrow for am. My turn. I'll show you how to say these sounds without stopping between the sounds.** Move under each sound. Hold. Say **aaammm.**
b. **Return to the first ball of the arrow for am. Your turn. Say the sounds as I touch under them. Don't stop between the sounds. Get ready.** Move under each sound. Hold. *Aaammm.*
Return to the first ball of the arrow. Again. Get ready. Move under each sound. Hold. *Aaammm.*
Good saying aaammm.

The last step in the sequence requires the children to do all the steps, say the sounds without pausing between them, then saying the word fast. The entire sequence involves a smooth gradation of tasks to assure if the teacher presents the material as specified and teaches to mastery, all the children will learn to decode, including those with low IQs and who would generally be labeled not ready (Becker & Engelmann,1996).

Rhyming

When children decode words, they follow the convention of not pausing between the sounds. The no-pause convention suggests the need for another type of preteaching—rhyming of a particular type. This format for rhyming would give information about the ending and would require children to attach the beginning sound to the specified ending.

Rhyming has two primary functions as a preskill in a beginning reading program. The first is to show patterns within word families. If words have endings that are spelled the same, the endings are probably pronounced the same, which means that the words rhyme. The other function is to "sound out" words that begin with a stop sound. It is possible to hold continuous sounds (those for letters e, f, r, s, z, etc.) for as long as the person has a breath; however, stop sounds are produced quickly (sounds for b, c, d, g, h, j, k, p, t, x). It has been argued by linguists and whole-word advocates that stop sounds document the impracticability of "sounding out" words. They

argue that if a stop sound occurs as the beginning sound, there are many possible variations of the sound, all governed by the sound that follows. They further argue that this phenomenon proves that stop sound cannot be produced in isolation without serious distortion.

They are wrong on both counts. The simplest contention to refute is that stop sounds cannot be produced in isolation. If the stop sound occurs at the end of word there is always a pause before it. Pronunciation of the sound demands a pause—a momentary suspension of all vocalization—immediately before the sound. By slowly saying a word that ends in a stop sound, one can exaggerate the pause quite naturally. Say the word rub very slowly and try to do without suspending your voice completely before the b sound. It can't be done. Therefore, you are producing the b sound *in isolation*.

Furthermore, the difference in the b sound that you produce for the words rab, reb, rib, rob, robe and rube are almost indistinguishably different. Therefore, it is possible to produce these sounds in isolation without serious distortion. Just practice saying the last sound of words that end in a stop sound. The teaching of stop-sounds in isolation would be very efficient for words that end in stop sounds.

Stop sounds at the beginning of the word present a different problem because the transition sound, which is minimal when the stop sound is at the end of the word, is greatly influenced by the following sound. The b sound at the beginning of the word bite is slightly different from that at the beginning of bute, bet, boat, and bait. The conclusion that it is therefore impractical to teach these sounds in isolation doesn't follow because the first part of the sound is the same for all these variations. What many children need to process these sounds is knowledge of rhyming. Here's a task: rhyme with ite and start with the sound for b. You cannot perform on this task unless you select the transition sound that leads from b to ite. If you start with b and rhyme with oat, ut, or ait, you cannot select the transition for ite, but the transition for the sound that follows. Therefore if children receive rhyming practice in verbal contexts, they will learn the skills that readily transfer to reading words that begin with stop sounds.

Reading mastery introduces the sounds for stop-sound letters as "quick sounds." The teacher does not hold the point under these letters. Rather, the teacher moves along the arrow without even stopping under the letter. Children produce the sound when the teacher's finger moves directly under the letter.

The teacher and the children also pronounce these sounds correctly (which is often not done in phonics programs). Some sounds are unvoiced, which means that they are whispered. There is no vocalization and no voiced sound on the end of them. The sounds for c, k, p, t and x are unvoiced. The sounds for b, d, g, and j, are voiced, but they do not end in an uh sound. They end as they do at the end of the words like rob, sad, and fig.

Preskills for rhyming begins on lesson 16. The first preskill requires children to blend a word that is presented in two parts, the beginning sound and the ending. There is a pause between the sounds, so the task is different from those that children have worked on when they sound out words. Here's the part of the exercise that follows the teacher modeling the task.

> **All by yourself.** Hold up one finger. **First you'll say** (pause) **mmm.** Hold up second finger. **Then you'll say** (pause) **at. Get ready.** Hold up one finger, then second finger as the children say *mmmat*.

Although it is not immediately apparent, this task is very close to a task that requires children to rhyme. The rhyming variation is introduced through a series of progressive variations in teacher wording. For all variations, the beginning sound is written, and the ending part is indicated by the teacher. For example the teacher displays:

a. Touch the first ball of the arrow for **m. My turn.** Move quickly to the second ball. **First I'll say this sound. Then I'll say** (pause) **eat.**
Listen again. First I'll say this sound. Then I'll say (pause) **eat.**
b. Return to the first ball of the arrow. **Here I go.** Move quickly to the second ball and say **mmm.** Slash to the end of the arrow and say **(mmm)eat.**
c. Return to the first ball of the arrow for **m. Do it with me. First you'll say this sound.** Quickly move to the second ball. **Then you'll say** (pause) **eat.** Slash to the end of the arrow.

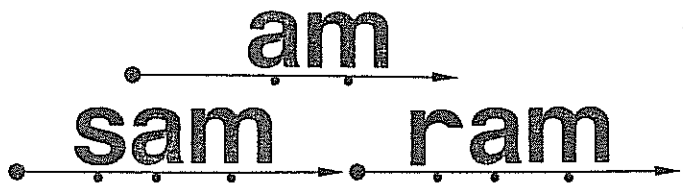
d. Return to the first ball. **Get ready.** Move quickly to the second ball. **mmm.** Slash to the end of the arrow. **(mmm)eat.**
e. Repeat c and *d* until firm.
f. Return to the first ball. **Say it fast.** Slash. *Meat.*
g. **Yes, meat. Good saying it fast.**

On lesson 30, after children have processed dozens of words through the formats described above , the teacher refers to rhyming.

a. Touch the first ball of the arrow for **s.** Move quickly to the second ball. **You're going to start with this sound and rhyme with** (pause) **at.**
b. Return to the first ball of the arrow. **Tell me the sound you're going to say first.** Move quickly to the second ball. *sss.*
Then what will you say? Slash to the end of the arrow. *at.*

By doing the same steps with **m** and **r**, children are introduced to the rhyming relationship between words. All have the same ending sound. Each has a different beginning sound.

On lesson 37, children do the same basic steps with written words.



a. Point to the red part of the words. **The red part of these words is the same. So these words rhyme.**
b. Touch the first ball of the arrow for **am.** (Pause.) **Sound it out. Get ready.** Move quickly under each sound. *Aaammm.*
c. Return to the first ball. **Again, sound it out. Get ready.** Move quickly under each sound. *Aaammm.*
d. Return to the first ball. **Say it fast.** Slash. *Am.* **Yes, am.**
e. Touch the first ball of the arrow for **sam. What sound are you going to say first?** Tap the ball. *sss.* **Yes, sss.**
Then you're going to say (pause) **am.**
Remember, first you'll say (pause) **sss.**
Then you'll say (pause) **am. Get ready.**
Move quickly to the second ball. Hold for two seconds. *sss.* Slash. *Sssam.*
Return to the first ball. **Say it fast.** Slash. *Sam.*
Yes, (pause) **sam rhymes with** (pause) **am.**

The teacher follows the same steps for ram.

On lesson 40, the teacher presents a variation of the task that refers to rhyming. The words are eed, seed, feed.

a. Point to **ēēd, sēēd,** and **fēēd. These words rhyme.**
b. Touch the first ball of the arrow for **ēēd.** (Pause.) **Sound it out. Get ready.** Move quickly under each sound. *ēēēd.*
c. Return to the first ball. **Again, sound it out. Get ready.** Move quickly under each sound. *Eēēd.*
d. Return to the first ball. **Say it fast.** Slash. *Eēd.* **Yes, ēēd.**
e. Touch the first ball of the arrow for **sēēd.**
The red part of this word is (pause) **ēēd.**
So what does this word rhyme with? Tap the ball. *Eēd.* **Yes, ēēd.**
Rhyme with (pause) **ēēd. Get ready.**
Move quickly to the second ball. Hold. *sss.* Slash. *Sssēēd.*
Return to the first ball. **What word?** Slash. *Seed.* **Yes, seed.**

The teacher follows the same steps for feed.

On lesson 44, children rhyme with a word that begins with a stop sound. The words are ear and dear. Children first identify ear and follow the same procedure used for words that begin with continuous sounds for identifying dear.

a. Point to **ēar** and **dēar. These words rhyme.**
b. Touch the first ball of the arrow for **ēar.** (Pause.) **Sound it out. Get ready.** Move quickly under each sound. *Eēērrr.*
c. Return to the first ball. **Again, sound it out. Get ready.** Move quickly under each sound. *Eēērrr.*
d. Return to the first ball. **Say it fast.** Slash. *Ear.* **Yes, ear.**
e. Touch the first ball of the arrow for **dēar.**
What sound are you going to say first? Tap the ball. *d.* **Yes, d.**
The red part of this word is (pause) **ēar.**
So what does this word rhyme with? Tap the ball. *Ear.* **Yes, ear.**
Remember, first you'll say (pause) **d.**
Then you'll say (pause) **ēar. Get ready.**
Slash. *Dear.* Return to the first ball.
What word? Slash. *Dear.* **Yes, dear.**
f. Return to the first ball for **dēar. Again, first you'll say** (pause) **d. Then you'll say** (pause) **ēar. Get ready.** Slash. *Dear.*
Yes, dear. How are you (pause) **dear** (pause) **friend?**

Various words that begin with stop sounds are processed through this format on the following lessons. In a later variation, children do the second word in an abbreviated fashion. After they sound out and identify the first word (in), the teacher points to the second word and says, (tin) this word rhymes with in.

Say it fast and rhyme with (pause) **in.**
(Pause.) **Get ready.** Slash. *Tin.* **Yes, tin.**

On lesson 63, a variation is introduced. The teacher presents two words: not, hot.

a. **Point to the first sound of not. What sound?** (Signal.) *nnn.*
Point to the first sound of hot. What sound? (Signal.) *h.*
b. **These words rhyme with** (pause) **ot.**
What do they rhyme with? (Signal.) *Ot.*
Yes, rhyme with (pause) **ot.**
c. **Touch the ball for not. Get ready.** Touch **n.** *nnn.*
Move your finger quickly along the arrow. *Not.*
d. **What word?** (Signal.) *Not.* **Yes, not.**
e. **Touch the ball for hot. This word rhymes with** (pause) **ot.**
What does it rhyme with? (Signal.) *Ot.*
f. **Get ready.** Move your finger quickly along the arrow. *Hot.*
g. **What word?** (Signal.) *Hot.* **Yes, hot.**

Note that the sound for h is not strictly a stop, but it is a sound that must be produced quickly (like stop sounds) and it has various transition sounds that are determined by the following sound (like stop sounds.)

The children also do a variation in which they analyze a single word (he). The children first identify the ending (ee). The teacher then tells them that this word rhymes with ee.

The procedure implies a correction for children who have trouble with words that begin with a stop sound. The teacher directs the children to identify the ending, then point to the beginning sound and ask the children, "What does this word rhyme with?" The children are then able to look at the first letter of the word and identify the word.

Another variation is to cover up all but the first two letters of the word. Point to the second letter and have the children identify the sound. Then tell them to rhyme with that sound.

The careful progression of the instructional design of *Reading Mastery* attends to the complete integration of those key phonological skills that children need to master beginning reading. This progression is coordinated with other strands, such as left-to-right sequencing, comprehension, and careful integration of various subtypes of words children decode.

There may be several reasons the traditional reading establishment so vigorously ignores *Reading Mastery*. One may be that they don't actually examine the program or see how it works with children. Another may be that it seems to be simple and could not therefore be sophisticated. Perhaps the most prominent feature of an elegant program, however, would be that it is simple and could be used effectively by a very wide range of teachers. Well-designed automobiles are relatively easy to use and trouble free, even though the engineering is very intricate. In any case, the more the traditional reading establishment discovers about effective components, the closer they move toward the theories, details, and practices that have been incorporated in *DISTAR Reading Mastery* since the 60s. ◆

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