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Instructional Considerations for Students With Dyslexia

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Introduction

Dyslexia is one of the most common specific learning disabilities. Even by conservative prevalence estimates, general educators will encounter on average at least one student with dyslexia in their classrooms every year, and special educators will encounter many more students with dyslexia. Effective interventions to help meet the needs of these students are well known. Dyslexia involves core difficulties in learning to decode and spell printed words, and students with these problems generally require highly explicit, systematic synthetic-phonics instruction (i.e., teaching word part decoding skills) accompanied by ample application of these skills to meaningful reading of text. Explicit spelling instruction, including instruction in common spelling generalizations and morphemic analysis, should also be part of these interventions. Although typical students as well as those with dyslexia benefit from this kind of instruction, those with dyslexia may need much more intensity—more instructional time, a smaller group size, and greater explicitness and scaffolding from the teacher—than typical readers in order to progress.

This brief will (1) describe the types of interventions that benefit students with dyslexia; (2) discuss what the interventions look like, including some examples of useful instructional activities; (3) highlight key research findings on best practices for students with dyslexia; and (4) summarize implications of this information for practitioners.

What It Is

Explicit, systematic synthetic-phonics instruction involves direct, well-sequenced teaching of important letter-sound relationships and phonics generalizations. Direct teaching means that educators do not assume that students will infer important phonics skills simply from exposure; rather, teachers clearly present, explain, and model those skills. Systematic and sequential mean that skills are taught in a logical, step-by-step manner, with important prerequisite skills taught first. For example, students are not expected to read unfamiliar words if they have not been taught the letter sounds or phonics generalizations for those words; they are not expected to read two-syllable or multisyllabic words containing certain patterns (e.g., a series of consonant-vowel-consonant syllables as in *magnet* or *fantastic*) until they can read one-syllable words with those patterns (e.g., *bag*, *fan*, and *pet*). In addition to learning to decode unfamiliar words in isolation, students also need considerable practice applying those skills in reading texts at an appropriate level of difficulty (e.g., texts in which they can read about 95% of words accurately; Kilpatrick, 2015).

What It Looks Like

Explicit, systematic synthetic phonics instruction involves teaching sounds for individual letters as well as common letter patterns (e.g., *sh, ch, ow, ay, igh*) with practice reading unfamiliar words that fit the patterns taught. Educators also directly teach and model how to blend individual sounds to form the correct word (in decoding) as well as how to segment words into individual sounds (in spelling). Phonics generalizations such as common syllable types that help students determine the vowel sound of unfamiliar words (e.g., closed syllables have a short vowel sound, silent *e* syllables have a long vowel sound) are often part of this type of instruction. At more advanced levels of word reading, students are taught syllabication strategies for breaking up multisyllabic words into manageable parts, as well as how to read common prefixes, roots, and suffixes. Engaging, hands-on activities such as word-building with letter tiles and sorting word cards with varied word patterns can and should be part of this instruction.

Benefits

- Enables students to decode unfamiliar, phonetically regular words

- Improves students' spelling ability

- Provides a foundation for accurate word reading that is essential to the development of both reading fluency and reading comprehension

What the Research Says

1. Students with dyslexia benefit from highly systematic, explicit synthetic-phonics instruction, including integration of instruction in phonemic awareness (Brady, 2011; Christenson & Bowey, 2005; Kilpatrick, 2015).

2. Application of decoding skills to meaningful text reading, including in oral text reading with a teacher, is important to build automatic word recognition and fluency (Kilpatrick, 2015; Vadasy, Sanders, & Peyton, 2005).

3. Some students with dyslexia will need considerable intensity of instruction (e.g., supplemental, very small group or 1:1 instruction for 30–60 minutes daily) to progress in word reading (Elbaum, Vaughn, Hughes, & Moody, 1999; Torgesen, 2004).

4. At more advanced levels of word reading and spelling, interventions should also explicitly and systematically teach structural and morphemic analysis (e.g., recognition of common prefixes, roots, and suffixes), as well as useful spelling generalizations (Lovett, Lacenzera, DePalma, & Frijters, 2012; Masterson & Apel, 2010).

5. In combination with appropriate intervention, many students with dyslexia benefit from assistive technology supports (e.g., audio books and text to speech software) to help them meet demands for large amounts of independent reading and writing, especially beyond the elementary grades (Hecker & Engstrom, 2011).

Examples

Word Building Activities

Word building activities with letter tiles or letter cards involve creating a series of patterned words for students to decode, with single-phoneme changes in unpredictable places, not just the first letter of the word (McCandliss, Beck, Sandak, & Perfetti, 2003). In these activities, teachers should use only letter sounds and word patterns that students have been taught. Letter tiles (or cards) should represent phonemes, not just the 26 letters. For example, the *sh* in *ship* would be shown on one tile, because it represents one phoneme (sound), whereas the *sl* in *slip* would be represented by two letter tiles, *s* and *l*, reflecting two separate phonemes (i.e., the smallest unit

of sound). Besides building words for students to read, the teacher can also dictate a series of patterned words for students to spell with the tiles in order to develop their spelling skills. Word-building activities are especially useful in the early stages of decoding, when students are learning to read one-syllable words at around a first grade level for typical readers.

Figure 1 below shows an example of a sequence of words to build for students who know sounds for all single consonants and the digraph *sh*, as well as the short vowel sounds for *a* and *i*.

Figure 1. Sample word-building sequence for students at the early stages of decoding

s	a	p
s	i	p
sh	i	p

s	l	i	p
s	l	a	p
s	l	a	sh
f	l	a	sh
f	l	a	t

The sequence shown in Figure 1 can be continued with more examples, as instructional time permits. As long as they are able to be successful, a brisk pace helps to engage students and provide them with opportunities to decode many words. Also, in word building activities, as in all phonics activities, word choice is important. Teachers need to avoid phonetically irregular words and letter patterns that students have not yet learned. For example, in the activity shown in Figure 1, teachers would not want to use a word such as *what*, which is irregular, or one such as *far*, which contains a vowel-*r* pattern and does not have a short vowel sound. Teachers also should avoid using a lot of common words, even ones that are phonetically regular, because students may already know these words by sight. Instead, include ample numbers of lower-frequency words that require students to apply decoding skills (e.g., *sap* instead of *cat*; *sip* instead of *him*).

Word Sorts

Especially if coupled with explicit teaching of important phonics generalizations, word sorting activities are useful for developing students' attention to important patterns in words, in both decoding and spelling. Students' attention to these patterns is essential because most English words cannot be decoded letter-by-letter, and English spelling is complex, with many sounds being represented by more than one possible letter or letter pattern (e.g., /k/ can be spelled *c* as in *cup*, *k* as in *kit*, or –*ck* as in *duck*).

Figure 2 shows an example of a syllable types sorting activity for students who have learned the first two commonly taught syllable types: closed and silent *e*. The activity would be most useful after the teacher has already explicitly taught the following rules for these syllable types, including showing students multiple examples of words:

- Closed syllables have just one vowel and they end in a consonant. The vowel sound will be short.
- Silent *e* syllables end in a VC*e* pattern (one vowel, followed by one consonant, followed by an *e*). The first vowel is long and the *e* is silent.

The sorting activity should use one-syllable word cards with words that are closed and have a silent *e*, as well as some words that do not fit either pattern, mixed together. The use of a "neither" category helps to ensure that students are looking carefully at the patterns in words, as opposed to, for instance, just looking for an *e* at the end. Words that are phonetically irregular or that students will not yet be ready to sort correctly (e.g., words with vowel patterns such as *ow*, all, or *igh*, usually taught as a different syllable type) should not be included. The students sort the words under three separate headings: Closed, Silent *e*, and Neither. As the students are sorting, the teacher can ask cuing questions as needed (e.g., "Does the word have a pattern of one vowel followed by one consonant followed by an *e* at the end? So can it be a silent *e* word?") When the words have been sorted correctly, the teacher asks the students to give the vowel sound of each word in the closed pile and the silent *e* pile. Students can then follow up with decoding the word. If some words are too difficult for students to decode because of consonant clusters and blending demands (e.g., *splash*), those can be skipped until students are ready for them; students just give the vowel sound for these words.

### Figure 2. Sample word sorting activity for teaching syllable types

CLOSED	SILENT e	NEITHER
crop	ape	eat
hen	strike	be
splash	robe	spoon
inch	these	prince
dust	cube	

Figure 3 shows a sample sorting activity for spelling, which involves the generalization for when to use the pattern –*ck* to spell the sound /k/. The teacher gives the students word cards that contain one-syllable words, mixed together, in which /k/ is spelled with either *c* or –*ck*. (Later, the teacher can introduce generalizations for when to use *k*, such as to spell /k/ before the letters *e*, *i*, and *y*, as well as at the end of short vowel words in which the /k/ does not immediately follow the short vowel—*task*, *desk*). The students sort the words under the correct heading, *c* or *ck*. The teacher then follows up with questions that help the students grasp the pattern (e.g., "Where is *ck* always found? Right, at the end of the word, right after a short vowel sound.")

Word sorts in spelling are often implemented as more inductive types of activities, in which the teacher tries to get students to induce the spelling rules or patterns themselves. Structuring activities in this way can be engaging to the students, and it is always desirable for teachers to encourage a disposition in their students to look

for patterns in words. However, if some students have trouble inducing the rule, the teacher should follow up by explicitly teaching it.

Figure 3. Sample word sorting activity in spelling

c	ck
cup	duck
clip	snack
scrub	brick
cake	rock
crab	deck
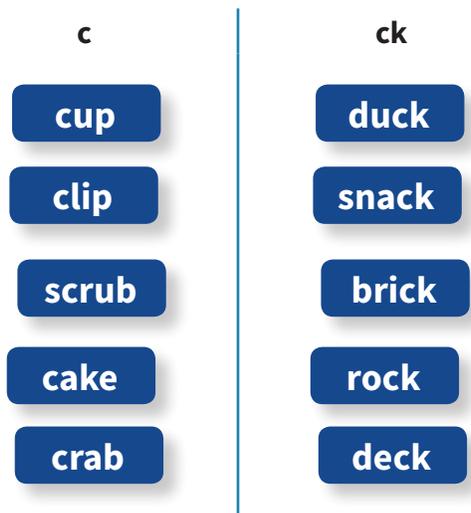
Structural Analysis of Long Words

For more advanced stages of decoding, students must learn how to break up long words into manageable parts, including learning syllabication rules as well as how to decode common roots, prefixes, and suffixes. They must then be able to blend the parts back together to produce the correct word. Students also must learn sounds for certain letter patterns that are common in long words. For example, in a one-syllable word, *ch* usually says /ch/ as in *chip*; however, in a long word, it may say /k/ as in *chemistry* or *psychology* or /sh/ as in *machinery*. These varying pronunciations usually reflect the origin of the word (e.g., Anglo-Saxon vs. Greek vs. French). Typical readers will begin to need teaching of structural analysis (i.e., morphology) around the second half of grade 2 or in grade 3, but students with dyslexia may require it well into the later grades, including at the middle or secondary levels.

Common roots and affixes involve morphemes that carry meaning. If educators explicitly teach the meanings of these word parts, instruction in structural analysis can aid students' vocabulary development as well as their decoding (especially if this instruction is combined with opportunities to see how the words are used in context). In addition, despite some spelling changes when affixes are added, the spellings of these word parts are relatively stable across words, which will improve students' spelling. For example, the root *geo* is spelled the same across a variety of related words, such as *geology*, *geologist*, *geography*, *geode*, and so forth. Figure 4 shows several examples of specific multisyllabic words and how students could be taught to approach them, first by marking any prefixes or suffixes, then by analyzing what remains (i.e., the base part of the word). Prefixes and suffixes are underlined; the base is emboldened.

Figure 4. Examples of strategies for analyzing and decoding long words

1. transportation

trans port ation

Trans- is a prefix that means "across"; *-ation* (or *-tion*) is a suffix that changes the base word to a noun and usually means "the act of." The base part of the word is *port*, a root that means "to carry." The word means the act of transporting or carrying something across a space or distance.

2. photographer

photo / graph er

Here the *-er* suffix means someone who does something—takes photographs. The base part of the word has two important roots, *photo*, which means "light," and *graph*, which means "to write or record." Although most students learning to read this word probably will know what a photograph is, knowing the meanings of the roots will still help them with decoding and determining the meanings of unfamiliar related words (e.g., *photo / sensitive* = sensitive to light).

3. unseasonable

un sea / son able

The prefix *un-* means "not," and the suffix *–able* changes the base word to an adjective and usually means "characteristic of." The word means "not characteristic of the season".

4. psychologist

psych olog ist

This word has two suffixes, *-ology*, meaning "the study of," and *–ist*, meaning "a person who …" The base word, *psych*, means "mind." A psychologist is someone who studies the mind. There is a spelling change when *psychology* is combined with the suffix *–ist*; the *–y* on *psychology* is dropped.

Syllabication of long words can be somewhat fluid, and more than one way of dividing a word may be possible. For example, if students divide *unseasonable* as *un/seas/on/able* rather than *un/sea/son/able*, that can still yield the correct reading of the word and should be accepted. Also, students' abilities to read these long words will be greatly enhanced if they have the words in their oral vocabularies, which will help them match the correct pronunciation of the word to the word on the page. For instance, there is a shift in accent from *photograph* (accent on the first syllable) to *photographer* (accent on the second syllable), which could be potentially confusing in decoding these words. However, most students, including most with dyslexia, will have these words in their oral vocabularies, which can help them to come up with the correct pronunciation. If students have not heard of these or other words, the teacher can just teach their pronunciations and meanings directly.

Teacher Feedback During Students' Oral Reading in Text

Many students with dyslexia do not automatically apply learned decoding skills to text reading without instruction. To help students apply their phonics skills and develop text reading accuracy and fluency, teachers should listen to students read orally and provide appropriate scaffolding and cues to their word reading errors. Teacher feedback must encourage close attention to the print and application of decoding skills, not guessing based on pictures or sentence context. Students should be expected to read every word correctly (e.g., contextually appropriate errors such as *Mom* for *Mother*, *a* for *the*, or *torment* for *torture* should be corrected even if they do not greatly alter meaning). Students also must be placed for instruction in the kinds of texts that they can read successfully (instructional level, about 92% to 95% word accuracy) and that provide opportunities to apply

developing phonics skills. If students must frequently read texts that are too difficult for them, they will have few options besides guessing words, which will make it even harder to build accuracy and fluency of text reading.

Figure 5 displays a suggested sequence of feedback for teachers to use when students make a decoding error in oral reading of a text.

Figure 5. Sequence of teacher feedback to students' decoding errors in text reading

Allow a little bit of wait time to see whether the student will try to self-correct the error. Attempts to self-correct are important and should be encouraged even when the student is not successful because they usually indicate that the student is monitoring meaning while reading and is looking carefully at words.

Use pointing cues, such as pointing to the part of the word a student has read incorrectly, if a student fails to self-correct. Pointing cues focus the students' attention on the print and tend to be less distracting to comprehension than verbal cues.

Follow up with verbal cues. If pointing cues do not enable the student to decode the word, it is fine to follow up with a verbal cue, such as, "Remember, *sh* says /sh/."

Model decoding the word, or tell the student the word, if necessary. This should be a last resort unless the word is an unfamiliar irregular word or a regular word that is beyond the students' current decoding skills. Few words should fit these categories if students are placed in appropriate texts for reading instruction.

Ask the student to reread the sentence to establish fluency and comprehension.

Here is an example of how the sequence of feedback would be applied to a specific text and word reading error. Suppose a student is reading a short passage such as the following:

It was late. Ben's mother tucked him into bed. She pulled the quilt up and turned out the light. "Sleep well," she said.

The student struggles to read the word *quilt*; he glances at a picture that accompanies the text, and guesses *blanket* instead. Then he just keeps reading. First, the teacher tries pointing to the word *quilt* to draw the students' attention back to that word. Now the student tries to decode, and he remembers the sound for the *qu* pattern, but he overlooks the letter *l*, reading *quit* for *quilt*. The teacher points to the *l*, but the child still cannot get the word; he looks puzzled because he knows that *quit* does not make sense in context, but he cannot fix it. The teacher then provides verbal feedback, saying, "Don't forget the /l/," and if necessary, she models how to blend *ilt*. This time the child successfully reads *quilt*, and the teacher says, "Good! Now just reread the sentence."

Implications for Practice

- In kindergarten to grade 3, provide explicit, systematic synthetic-phonics instruction as part of the core general education curriculum in reading.

- Organize small, flexible groups to differentiate instruction and provide greater intensity of instruction in decoding; spelling; and accurate, fluent oral text reading for students who require it.

- Provide struggling decoders with texts that are not too difficult for them to read (e.g., books for instruction in which they can read with about 92% to 95% word accuracy and greater than 95% word accuracy for their independent reading).

- If students do not progress sufficiently with differentiated instruction, provide tiered interventions of greater

intensity in smaller, homogeneous groups or 1:1, including special education for students who continue to struggle.

- To ensure that students identified with dyslexia have access to the general education curriculum in content areas, provide assistive technology supports and accommodations as needed (e.g., extended time for assignments and tests, oral instead of written tasks when necessary) along with explicit, systematic decoding and spelling interventions.

Conclusion

Explicit, systematic, synthetic-phonics instruction that includes instruction in phonemic awareness benefits most students, especially in the early grades. However, for students with dyslexia, this type of instruction is crucial. Furthermore, students with dyslexia may require considerable intensity of phonics instruction to progress in decoding and spelling. Ensuring that students have sufficient opportunities to apply their decoding skills in reading instructionally appropriate, meaningful books is also essential. If provided with research-based interventions, as well as appropriate accommodations and support from assistive technology, many students with dyslexia can function well at advanced levels of education, including high school and college.

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