

WE'RE NOT IN KANSAS ANYMORE

The TOTO Strategy for Decoding Vowel Pairs

Ruth Lyn Meese

When children encounter unknown words while reading, they can readily become confused. A word doesn't make sense and now the whole sentence lacks meaning. Like Dorothy in *The Wizard of Oz*, students must recognize that they are in unfamiliar territory and—as Dorothy told her dog, Toto—realize they're “not in Kansas anymore!” Fortunately for Dorothy, the residents of Oz provided her with a strategy (i.e., “Follow the yellow brick road”) to make sense of her situation. Struggling readers also need an obvious strategy for decoding words that are unfamiliar to them.

One argument leveled against teaching phonics as a decoding strategy is that phonics rules lack generalization (Clymer, 1963, 1996). For example, Clymer concluded that only 18 of 45 rules met his criteria of accuracy 75% of the time and that many phonics generalizations taught by teachers were of “limited value” for decoding unknown words (Clymer, 1963, p. 255). In particular, Clymer found that the generalization for words following the digraph CVVC pattern (i.e., “When two vowels go walking, the first one does the talking and the second one is silent”) held only 45% of the time in the words he sampled.

On the other hand, Bailey (1967, 1968) asserted that children in grades 1 through 6 should understand that when certain vowels are together (e.g., *ai* and *oa*), only one vowel sound is *usually* heard. More recently, researchers have reanalyzed Clymer's conclusions. Johnston (2001), for example, analyzed

3,000 high-frequency words for grades 3 through 9 and concluded that some vowel pairs are highly regular. *Ay*, *oa*, *ee*, *ai*, and *ey* followed the “two vowels go walking” rule in 75% or more of the words she sampled. Similarly, Gates and Yale (2011) examined 16,928 words from children's literature and concluded that vowel digraphs usually have either one sound or one of two sounds. This understanding can serve as a beginning strategy empowering children to decode unfamiliar words.

Others have taken a frequency approach to phonics generalizations. In an early analysis, Hanna, Hanna, Hodges, and Rudorf (1966) used 22 vowel classifications in 17,310 words from the Thorndike and Lorge (1944) word list to determine how well they could predict the correct pronunciation of words, attaining only 50% accuracy. In a reanalysis, Fry (2004) simplified the Hanna et al. vowel classifications and suggested that teachers might use information regarding the *most frequent* phoneme-grapheme correspondences to make instructional decisions.

When children recognize vowel pairs as well as the most frequent sounds for these pairs, they can make better predictions about the pronunciation of unknown words. Gunning (2013) suggests children should be taught a “try another sound” strategy when

Ruth Lyn Meese is a professor of special education at Longwood University, Farmville, Virginia, USA; e-mail meeserl@longwood.edu.

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the long sound of the first vowel in a vowel digraph doesn't make a real word. Others, such as Fox (2012), encourage teachers to have readers try the long-vowel sound first and then, if the word doesn't make sense, try the short-vowel sound next. Such strategies may be successful for most children; however, children who struggle to read may need a more systematic strategy for attacking unknown vowel digraphs.

Try One Try the Other (TOTO) Strategy

Once children reliably know consonant sounds, consonant blends, the long and short sounds of the vowels, and common vowel patterns, teachers can introduce the TOTO strategy for attacking vowel digraphs. The TOTO strategy instructs children systematically to *try one* (i.e., the first) vowel long and then, if that doesn't make sense, try the first vowel with its *other*, short, sound. If trying the first vowel long and then short still fails to produce a word that makes sense, the student is to *try the other* vowel (i.e., the second vowel) long and then short. In this way, children have a process prompting them to try one vowel sound and then the other for the first vowel in the pair, then to move to the other vowel in the pair and try its long sound and short sound until a word makes sense in the context of the sentence.

The TOTO Strategy in the Classroom

Imagine, for example, a teacher modeling the TOTO strategy for children

using CVVC words *not* following the first-vowel-long generalization. Mrs. May might present a word such as *field* and think aloud as follows:

Mrs. May In *The Wizard of Oz*, remember Dorothy had a dog named Toto? We can use the name Toto to help us remember a way to figure out vowel pairs. [pointing to the word *field*] Hmm... I don't know this word, but I see two vowels together in the middle of the word [pointing to *i* and *e*], so I can TOTO: [pointing to letters] I will Try One and then Try the Other. I will try one vowel long and then short. Let's see... The first vowel is *i* and its long sound is /ī/, so I will say fīld. The baseball fīld... That doesn't make sense! Let me try the first vowel short, /i/. The baseball fild.

Children [laughing] No!

Mrs. May [laughing] You're right. That makes no sense. So, let me try the other vowel [pointing to *e*]. I'll try it long first. Let's see, long *e* says /ē/, so fēld. The baseball fēld. That makes sense... a baseball field! Let's try it again. [Pointing to *friend*, Mrs. May leads the children through guided practice using TOTO.] You help me this time...

Once children learn the TOTO strategy, Mrs. May can prompt children to apply the strategy when needed in context. For example, suppose Jamari, a struggling reader, reads a sentence in a story as follows: "He didn't mean to *breek* the glass." Mrs. May can help Jamari revisit the miscued word, *break*:

Mrs. May "He didn't mean to *breek* the glass." Does that make sense? Let's look back at the word beginning with *b* and TOTO. The first vowel is *e* [pointing], and you gave the long *e* sound, /ē/. What sound could we try next, Jamari?

Jamari The short sound... /ĕ/?

Mrs. May Yes, good job. Try it.

Jamari Brĕk.

Mrs. May "He didn't mean to brĕk the glass." Does that make sense?

Jamari No... So I try the *a*?

Mrs. May Yep! Try that *a* long or short?

Jamari Long... /ā/... break. Break the glass!

Of course, TOTO is simply one strategy among others children might use to decode unknown words. In the second example, Jamari applied the most common sound, /ĕ/, for the *ea* digraph, most likely because another word in the sentence (i.e., *mean*) contained that digraph with its most common sound. Jamari may have recognized the vowel pattern in the word *mean* and used it again for the unknown word. Mrs. May could have simply provided the word to Jamari to keep him reading; however, prompting him to TOTO provided Jamari with a flexible strategy he can use in the future to systematically tackle CVVC words such as *great* or *touch*. (See

Table Sounds for Vowel Teams in Order of Frequency for Use With TOTO

Vowel Team	First	Second	Third	Other
ai	/ā/ sail	/ē/ said*		
au	/aw/ autumn			
aw	/aw/ jaw			
ay	/ā/ day	/ē/ says*		
ea	/ē/ seat	/ē/ thread	/ā/ great	
ee	/ē/ green	/ī/ been*		
ei	/ā/ weigh (try /ā/ then TOTO)	/ē/ seize	/ē/ heifer	/ī/ feisty /ī/ forfeit
eu	/ōō/ sleuth			
ew	/ōō/ new	/yōō/ few	/ō/ sew	
ey	/ē/ key	/ā/ they*		
ie	/ē/ field	/ī/ pie	/ē/ friend	
oa	/ō/ coat	/aw/ broad		
oe	/ō/ toe	/ōō/ shoe	/ū/ does*	
oi	/oi/ oil	/ī/ tortoise		
oo	/ōō/ moon	/oo/ book	/ū/ flood	
ou	/ou/ out	/ū/ touch	/ō/ soul	/ōō/ group /oo/ would* /aw/ bought
ow	/ō/ grow	/ow/ now		
oy	/oi/ boy			
ue	/ōō/ glue			
ui	/ōō/ fruit	/ī/ built	/ī/ guide	
Vowels/Vowel Teams Controlled by <i>r</i>				
air	/ār/ hair			
ar	/ār/ car	/ur/ collar	/ār/ carry	/or/ warm
are	/ār/ care	/ār/ are		
ear	/īr/ near	/ur/ earth	/ār/ bear	/ār/ heart
eer	/īr/ deer			
er	/ur/ her	/īr/ here*	/ār/ there*	
ir	/ur/ shirt	/īr/ spirit		
or	/ur/ worm tractor	/or/ for worn		
ur	/ur/ fur			

Note. Vowel teams are listed in alphabetical order in the vowel team column. Sounds are listed in order of frequency across each row in the table. *Denotes common sight words.

the Appendix for a pilot study on the usefulness of the TOTO strategy.)

In addition, not all vowel pairs use the long or short sound of one of the vowels in the pair; however, a modified TOTO strategy can still be applied to these pairs. For example, some vowel teams (e.g., *oo*) have multiple sounds, but if students know these sounds, they can attack the vowel team trying one sound

and then another sound in turn until they find a word that makes sense (e.g., /ōō/, /oo/, then /ū/ to arrive at the word *flood*). Still other vowel teams contain the letters *w* or *y* as part of the vowel (e.g., *ew*, *ow*, *aw*, *ay*, *ey*). The TOTO strategy applies to these vowel teams as well, as long as students know the most to least frequent sounds. They can try one and then try the other sounds in order of

frequency to improve their overall success at decoding the unknown word (e.g., /ōō/ then /yōō/ to decode *few*). Even vowel teams controlled by the letter *r* can be approached through TOTO by systematically applying the sounds in the order of frequency (e.g., /īr/, /ur/, then /ār/ to decode *wear*; see Table for suggested letter-to-sound frequencies for vowel teams).

*"Teaching children
to use TOTO...
provides them with
a flexible tool."*

How can teachers help students make sense out of vowel digraphs using the TOTO strategy? First, the TOTO strategy is certainly not for beginning readers. Be sure children have already mastered the basic phonics skills, know the short and long sounds of the vowels, and can recognize two vowels together within a word as well as common vowel patterns. Give children practice using the TOTO strategy in isolation with first-vowel-long, first-vowel-short, second-vowel-long, and second-vowel-short CVVC words following the process used by Mrs. May in the first example presented.

Second, remember this is one strategy among many (e.g., recognizing a letter pattern in a word part to guess the word) to help children derive a word making sense in context. Teachers can, of course, simply supply an unknown word to keep children reading, but using TOTO to revisit miscued CVVC words can foster a flexible approach to help children independently problem-solve in context. Finally, children must understand that some words, including some with vowel digraphs, are simply "snakes lurking in the grass" that must be recognized by sight (e.g., *been*, *said*). Children enjoy calling these sight words "snurks."

Summary

Struggling readers, including those with learning disabilities in reading,

require clear, explicit strategies to decode unknown words. Words containing vowel digraphs present a particular challenge because common phonics generalizations may have limited usefulness (Clymer, 1963, 1996). Some vowel digraphs, however, predictably use only one or two sounds (Gates & Yale, 2011; Johnston, 2001), and the order of frequency of sounds for other vowel pairs can provide additional information for attacking unknown words (Fox, 2012; Gunning, 2013). Thus, long- and short-vowel sounds can be harnessed through the TOTO strategy to help struggling readers increase their success to as much as 85% in decoding CVVC words that make sense in a sentence. The TOTO strategy is also versatile enough to prompt children to use the order of frequency of sounds when presented with vowel teams or *r*-controlled vowels having multiple sounds. Teaching children to use TOTO, along with other problem-solving strategies, provides them with a flexible tool. When children realize they are "not in Kansas anymore," TOTO helps them decode words independently that can then be checked against the context.

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Appendix

A Pilot Study on the Usefulness of the TOTO Strategy

To research the utility of the TOTO strategy, a list of 6,000 words was randomly generated from an online dictionary. To that list, Fry's first 1,000 words and the 220 Dolch words were added as high-frequency words for children. All words not containing a vowel pair were eliminated, along with words duplicated within or across the three lists. Only the first occurrence of alternate forms of words (e.g., *meat* and *meaty*) was included unless the word had more than one pronunciation (e.g., *lead/leading*). The final list contained 327 words having vowel digraphs.

Of the 327 words containing vowel digraphs, 231 words (70.6%) were decodable using the TOTO strategy. Of the 231 words, 76% were first-vowel-long words, 10% were first-vowel-short words, 7% were second-vowel-long words, and 6% were second-vowel-short words. When the graphemes *oo* and *au* were eliminated, the percentage of decodable CVVC words (i.e., 278 out of 327) rose to 85%.