Easy as AcHGzrjq: The Quick Letter Name Knowledge Assessment

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Preschool and kindergarten teachers can assess and monitor their students' letter name knowledge in less than a minute per student using the freely available Quick Letter Name Knowledge assessment.

t's the first week of kindergarten, and Ms. Diaz (all names are pseudonyms) has a full room this year. Josephine strides around the room confidently, pointing out the letters and words she recognizes on the classroom posters and bulletin boards: "J! O! X! Sun!" Logan runs around exploring all the toys in the room, confused, excited, and scared all at once. Mira sits quietly on a beanbag chair in the corner and looks like she is about to cry.

Parents and teachers often comment that "kindergarten is the new first grade" (Watson, 2013). For preschool and kindergarten teachers, this means increased pressure to get students ready to read (Bomer & Maloch, 2011). Under new early childhood and elementary standards, students are expected to master foundational literacy skills early and start reading and writing in a variety of genres by the end of the kindergarten year (Bomer & Maloch, 2011; Scott-Little, Kagan, & Frelow, 2006).

The students in Ms. Diaz's classroom arrive with different interests, personalities, and prior school and home literacy experiences. Mira has been home with her grandmother and cousins for most of her life, and this is her first formal classroom experience. However, Josephine has been attending a university preschool and has already had her first "graduation" ceremony!

How can Ms. Diaz address her students' needs and get them all reading by the end of the year? Building their alphabet knowledge will play a crucial part, and the first step is understanding where her students are in their development of letter name knowledge (LNK) through quick, easy, valid assessment.

Ready to Read: Alphabet Knowledge in Preschool and Kindergarten

Many skills and knowledge sources help children begin to read, including concepts of print, phonological

and phonemic awareness, and vocabulary (National Early Literacy Panel [NELP], 2008; Storch & Whitehurst, 2002; Whitehurst & Lonigan, 1998). Alphabet knowledge plays a special role in the transition from these early literacy skills into formal reading by providing children with some of the raw materials for phonics instruction when they learn to match letters to the phonemes within words (Ehri, 2005; Liberman, Shankweiler, & Liberman, 1989). That important role is reflected in national standards for preschool and kindergarten, as laid out in Table 1 (National Governors Association Center for Best Practices & Council of Chief State School Officers [NGA Center & CCSSO], 2010; Office of Head Start, 2015).

Students who learn to recognize and name the letters early demonstrate stronger decoding and comprehension in the later grades (Hammill, 2004; NELP, 2008; Piasta, Petscher, & Justice, 2012; Schatschneider, Fletcher, Francis, Carlson, & Foorman, 2004). LNK represents a snapshot of students' overall literacy knowledge, and it also allows students to take advantage of the phonics instruction that now plays a big role in kindergarten (Bomer & Maloch, 2011). LNK is often lower for students with environmental risk factors, such as living in

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a low-income environment (Strang & Piasta, 2016). This makes LNK an important skill to teach in preschool and kindergarten for many students.

For teachers, a student's LNK provides three important insights:

- LNK provides an indication of the amount and type of early literacy instruction a student has had (Bond & Dykstra, 1967; Foulin, 2005). Josephine's easy letter recognition means that she has had a lot of exposure to books and letters either at school or home. Students who know few letters, however, may also have needs in other literacy areas as well (Foulin, 2005; Strang & Piasta, 2016).
- LNK indicates where instruction should begin. Josephine and Logan know a lot of letters already; letter name instruction may not be a priority for them (Jones & Reutzel, 2012; Piasta, 2014).
- LNK indicates how much support a student will need to take advantage of beginning phonics instruction and begin

reading by the end of kindergarten (Fielding-Barnsley, 1997; Roberts, 2003).

New standards and research have expanded the definition of early literacy instruction in prekindergarten and kindergarten. Vocabulary development, content area knowledge, exposure to literature and nonfiction texts, and writing experiences need equal or even more time than foundational skills such as alphabet knowledge, but there is only so much time in the school year. A "letter a week" approach will be too repetitive for some students and not supportive enough for others. As students like Josephine, Logan, and Mira arrive each fall in this new, more challenging kindergarten, efficient, flexible alphabet instruction, targeted to students' individual needs, is more important than ever (Piasta, 2014; Strang & Piasta, 2016).

The ABCs: What Students Need to Know

Alphabet knowledge is a constrained skill, which means that it consists of a limited number of items to be learned (Paris, 2005; Stahl, 2011). In the case of alphabet knowledge, these items are the 26 letter names, the corresponding 26 uppercase letters and 26 lowercase letters, and one or more phonemes associated with each letter. In contrast, unconstrained skills, such as vocabulary and comprehension, con-

> tinue to develop over the course of a reader's lifetime; there are always new words and strategies to learn (Paris, 2005; Stahl, 2011).

Instruction in constrained

skills is often limited in time. Students are expected to master alphabet knowledge relatively quickly in their academic careers and move on to more sophisticated reading and writing instruction, such as reading and writing simple texts in multiple genres (NGA Center & CCSSO, 2010). After preschool and kindergarten, alphabet instruction is no longer a central instructional goal, so students who do not master alphabet

knowledge relatively quickly

may continue to struggle with

little support (NGA Center & CCSSO, 2010). Constrained does not mean simple, however. Alphabet knowledge is complex and has many dimensions. Consider the overlapping alphabet and phonics knowledge needed to read even a simple sentence, such as "Frog and Toad went on a long walk" (Lobel & Sallis, 1972, p. 12), presented in Table 2.

LNK may be particularly important because in most U.S. contexts, letter names are the language of instruction. In a typical early phonics lesson, Ms. Diaz says many things like the following:

- "How do you spell cat? C-A-T."
- "What's the first letter of that word? A!"
- "What letter makes the mmm sound? That's right, M makes the mmm sound."

Students who do not have these letter names at the ready will have trouble participating in these classroom discussions about reading and writing. They may also struggle to integrate the different pieces of knowledge they have about a letter without

PAUSE AND PONDER

- How do you assess your students' LNK? How often? What advantages and disadvantages do you see in this approach?
- Which students in your class are just beginning to develop their LNK? Which students know all of the letter names? How do you know?
- Do your students know both uppercase and lowercase letters?
- What are your alphabet knowledge goals for each of your students for the next few weeks and for the year? How did you determine those goals?
- Are your students making progress toward achieving your alphabet knowledge goals? How do you know?

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Table 1
Sample Alphabet Knowledge Standards in Preschool and Kindergarten

Overall standards	Standard number	Age group	Standard text
Head Start Early Learning Outcomes Framework	P-LIT 3	36-48 months	"Shows an awareness of alphabet letters, such as singing the ABC song, recognizing letters from one's name, or naming some letters that are encountered often."
		48–60 months	"Recognizes and names at least half of the letters in the alphabet, including letters in own name (first name and last name), as well as letters encountered often in the environment."
			"Produces the sound of many recognized letters."
		60 months	"Names 18 upper- and 15 lowercase letters."
			"Knows the sounds associated with several letters."
Common Core ELA/ Reading: Foundational Skills	RF.K.1.D	Kindergarten	"Recognize and name all upper- and lowercase letters of the alphabet."
	RF.K.3.A	Kindergarten	"Demonstrate basic knowledge of one-to-one letter-sound correspondences by producing the primary sound or many of the most frequent sounds for each consonant."
	RF.K.3.B	Kindergarten	"Associate the long and short sounds with common spellings (graphemes) for the five major vowels."
	RF.K.3.D	Kindergarten	"Distinguish between similarly spelled words by identifying the sounds of the letters that differ."

Table 2
Overlapping Alphabet and Beginning Phonics Knowledge

Letter name knowledge	Letter sound knowledge/ beginning phonics	Beginning phonics
Two uppercase letters (F and T)	Ten consonant sounds associated with <i>d, f, g, k, l, n, o, r, t,</i> and <i>w</i>	How to blend consonant sounds together (<i>fr</i>)
Ten lowercase letters (a, d, g, k, l, n, o, r, t, and w)	The short vowel sounds associated with a and o	Vowel sounds with vowel teams (oa and oo)

a concrete label to hold them all together (Adams, 1990). It is not obvious to every student that Abby, Abe, ape, and apple all start with the "same" letter unless we teach this!

In addition, letter names and letter sounds are often related. For example, the letter name B ("bee") starts with the phoneme /b/, and the letter name S ("ess") ends with /s/. Students who know letter

names can use them to learn and remember the associated phonemes (Piasta, Purpura, & Wagner, 2010; Treiman, Weatherston, & Berch, 1994). The similarities can also cause young students to confuse letter names and letter sounds, which can be seen in their writing; for example, beginning the word *elephant* with the letter L (Bear, Invernizzi, Templeton, & Johnston, 2015). In the letter name alphabetic stage

of spelling development, students work on associating letters with phonemes and resolving these confusions (Bear et al., 2015).

The Road to Reading: How Alphabet Knowledge Develops

Constrained skills often demonstrate common developmental pathways, meaning that students in similar instructional environments develop skills in a predictable order (Stahl, 2011). Developmental pathways have been documented for spelling and phonics knowledge (Bear et al., 2015; Henderson, 1990). In the United States, many students also follow a common developmental pathway in alphabet knowledge, as depicted in Figure 1.

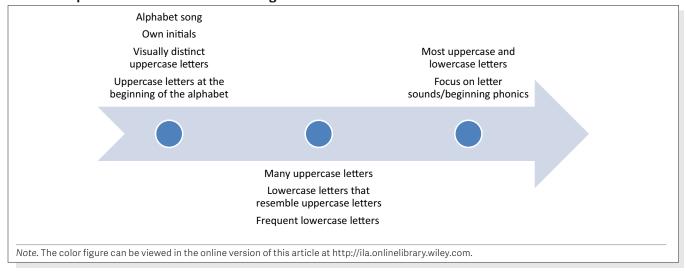
The Beginning. Children often begin to develop their alphabet knowledge at home and/or in preschool and develop knowledge of letter names first. They often begin by learning to sing the alphabet song and recognize their own first initials (e.g., Mira can recognize M, Logan can recognize L; Justice, Pence, Bowles, & Wiggins, 2006; Treiman & Broderick, 1998). They begin to identify uppercase letters that are visually distinct (e.g., O, X) and letters that come early in the alphabetic order (e.g., A, B, C; Justice et al., 2006; McBride-Chang, 1999). Students may begin to include some letters while drawing and scribbling (Bear et al., 2015; Bowles, Pentimonti, Gerde, & Montroy, 2014).

The Middle. In the middle of developing their alphabet knowledge, students continue to develop LNK. They start to identify more uppercase letters and some lowercase letters. They identify lowercase letters that look similar to their uppercase letters (e.g., C/c, W/w) more easily than those that change shape from uppercase to lowercase (e.g., G/g, R/r). They begin to recognize lowercase letters that appear frequently in print (e.g., e, s; Huang & Invernizzi, 2014; Justice et al., 2006). They learn to write their own names and may incorporate letters from their names into other writings and drawings (Bloodgood, 1999; Bowles et al., 2014; Ehri, 2005).

At the same time, students may start to associate phonemes with the letters they can recognize, especially those that provide a clue in the letter names (e.g., B, P, F, S; Bowles et al., 2014; Evans, Bell, Shaw, Moretti, & Page, 2006; McBride-Chang, 1999).

The End. As students approach the end of alphabet knowledge development, they know most uppercase and lowercase letters, but they know some of them better than others. They may still struggle with easily confused lowercase letters, such as *b* and *d*, and they may struggle to associate letters with more than one phoneme (e.g., the vowels; hard and soft sounds of *C* and *G*) and to associate letters with phonemes that are not related to their letter names (e.g., H, W; Bowles et al., 2014; Evans et al., 2006; Huang & Invernizzi, 2014; Turnbull, Bowles, Skibbe, Justice, & Wiggins, 2010). These confusions can be addressed quickly with targeted instruction, but without that

Figure 1
The Development of Letter Name Knowledge



support, they may persist well into the early grades, particularly in a student's writing and spelling. At this point, students' alphabet knowledge becomes beginning phonics, as students use letters to sound out and spell words phonetically in their writing (Bowles et al., 2014; Ehri, 2005).

The particular order in which students develop the components of alphabet knowledge may be different for students from different family and educational backgrounds; for example, students in the United Kingdom and in American Montessori schools often learn letter sounds before they learn letter names (Ellefson, Treiman, & Kessler, 2009). In most cases, however, understanding students' LNK will indicate where they fall in their overall alphabet and phonics development.

L Is for Logan, M Is for Mira: What Students Know

Under the Common Core State Standards, students are required to recognize all uppercase and lowercase letters and associate letters with sounds by the end of kindergarten (see Table 1), but students start the year at dramatically different places in relationship to those goals. Students in a single preschool or kindergarten classroom can range from 0 to 52 letters known, including uppercase and lowercase (Piasta, 2014; Strang & Piasta, 2016). This wide range of skills means that teachers increasingly need to differentiate alphabet instruction to meet the literacy needs of all their students (Piasta, 2014).

In Ms. Diaz's classroom, these differences have practical consequences from day 1. Intensive alphabet instruction may be a waste of time for Josephine, who could be using that time to work toward other literacy goals. In contrast, whole-class alphabet instruction might not provide enough support for Logan or Mira. Logan and Mira also need to have meaningful experiences with texts and develop their writing skills, however, and they should not spend the whole year on alphabet instruction before working toward those goals (Jones & Reutzel, 2012; Neuman & Celano, 2006).

Alphabet instruction works, and works quickly, to teach students the alphabet and transition them into reading (NELP, 2008; Piasta & Wagner, 2010). As a result, spending time teaching the alphabet to students who need it is a high-leverage practice. At the same time, once students have well-developed alphabet knowledge, they can spend that time more productively engaging with texts, writing,

and developing unconstrained skills such as vocabulary knowledge (Paris, 2005). Assessment-driven, differentiated instruction in preschool and kindergarten can help teachers balance these needs as students progress through the year.

From A to Z: Alphabet Assessment

The first step for Ms. Diaz is to think about her purposes for alphabet assessment. She wants to gather data that she can use to differentiate her alphabet instruction, develop appropriate goals for each student, and provide additional support and resources where needed. She has three main goals:

- 1. She wants to identify students who know most letter names so she can focus her instruction on their other literacy needs and interests.
- 2. She wants to identify and characterize the needs of all the students who are at the beginning and middle of developing their LNK to target their instruction most effectively.
- She wants to assess these students at regular intervals to determine how their needs are changing.

To meet these goals, Ms. Diaz needs different kinds of LNK assessment. At the beginning of the year, she needs a quick snapshot of where all the students in her class are—a screening assessment. To follow up with students who demonstrate needs in LNK, she will need a thorough diagnostic assessment, to pinpoint areas of need. Throughout the year, she will use benchmark assessments to check in with her students' overall progress and decide when to transition them out of letter name instruction.

Several good diagnostic alphabet assessments are available to directly test students' knowledge of all the letter names (Piasta, 2014), including the Phonological Awareness Literacy Screening (Invernizzi, Meier, & Juel, 2003) and Clay's (1993) Observation Survey of Early Literacy Achievement. These assessments provide a wealth of information that Diaz wants for particular students, but they are time-consuming and must be administered one-onone, taking both her and her students away from valuable instructional activities. Testing uppercase and lowercase LNK involves 52 individual items! By the end of these assessments, her young students get tired, bored, or frustrated and seem to lose focus and start to make mistakes.

For a quick screening measure, Ms. Diaz finds she has few options (Piasta, 2014). Timed letter name fluency tests such as the Dynamic Indicator of Basic Early Literacy Skills subtest (Good, Kaminski, Smith, Laimon, & Dill, 2001) are fast to administer, but for young students, the rate of letter naming is not necessarily as important as accuracy (Speece, Mills, Ritchey, & Hillman, 2003). Ms. Diaz wants to know the depth of her students' alphabet knowledge, and she finds that timed tasks often underestimate what they do know.

Larger early literacy assessments, such as the Test of Preschool Early Literacy (Lonigan, Wagner, Torgesen, & Rashotte, 2007), the Woodcock Reading Mastery Test (Schrank, Mather, & McGrew, 2014) and the Test of Early Reading Ability (Reid, Hresko, & Hammill, 2001), include a small number of alphabet items, but these tests focus on a large range of skills, making it difficult to use the results to specifically plan alphabet instruction. Each assessment can also take up to 30 minutes per student.

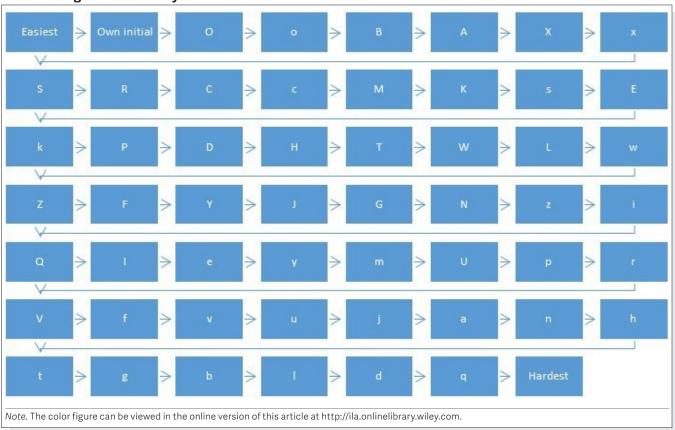
Most important, none of these assessments account for what research has said about how letters differ from one another in their difficulty (Bowles et al., 2014; Huang & Invernizzi, 2014; Justice et al., 2006; McBride-Chang, 1999). As summarized in Figure 2, some letters are easier:

- Letters at the beginning of the alphabet (e.g., A, B, C)
- Letters that appear more frequently in print (e.g., E, S)
- Letters that include their sounds in their names (e.g., B, F)
- Uppercase letters

Other letters are more difficult:

- Letters at the end of the alphabet (e.g., W, Y, Z)
- Letters that appear less frequently in print
- Lowercase letters, especially those that do not look like their uppercase letters (e.g., *g*)

Figure 2 Letter Recognition Difficulty



- Letters that look similar to other letters (e.g., p and q)
- Letters that do not include their sounds in their names (e.g., W)

Finally, there are no quick assessments that Ms. Diaz can use multiple times to benchmark student progress without repeating every item. Ms. Diaz needs a quick, reliable, research-based LNK assessment to jump-start her year.

A New Approach: The Quick Letter Name Knowledge Assessment

To address this need, we developed the Quick Letter Name Knowledge (Q-LNK) assessment to quickly and efficiently assess students' alphabet knowledge for screening and progress monitoring in preschool and kindergarten. We based the short forms on our previous research, in which we asked 1,113 preschoolers to name all of the uppercase and lowercase letters of the alphabet (Bowles et al., 2014).

We found that by using a contemporary statistical method called item response theory, we could provide a very accurate and precise assessment of a student's LNK using only eight strategically chosen letters and that we could create six separate forms with a different set of letters on each form. Each

form includes a mix of uppercase and lowercase letters. The forms are intended to be used periodically over the course of a school year to benchmark students' LNK at regular intervals.

By accounting for differences in letter difficulty (see Figure 2), we were able to create all six forms to be approximately equivalent (Piasta, Phillips, Williams, Anthony, & Bowles, 2016; Thissen & Orlando, 2001). Reliability for the forms, calculated using the method described by Raykov, Dimitrov, and Asparouhov (2010), averaged .91 (ranging from .89 to .92), which is considered strong. Validity of the short forms was established by comparing the scores on the short forms (out of eight) with the total LNK score for each student (out of 52), indicating a correspondence between the number of letters correctly recognized on a short form and the total number of letter names known.

To use these forms, teachers can print out the recommended letters from a PDF file freely available at the Early Language and Literacy Investigations Lab (http://www.ellilab.com) along with an associated instruction and score sheet (see Figures 3 and 4). We often print out each letter onto an index card, so that they can be stored easily in a small binder, but the letters could be printed out on any kind of paper, one letter to a page. The type of font used does not appear to affect how students respond to the assessment (Bowles et al., 2014), so we use Comic Sans,

Figure 3
Q-LNK Forms

Latter None								2.0
Letter Name Form 1	0	S	W	F	е	m	u	V
Letter Name Form 2	В	E	Р	У	I	υ	v	d
Letter Name Form 3	X	k	D	J	2	p	α	t
Letter Name Form 4	Α	С	Н	G	z	r	j	q
Letter Name Form 5	5	M	W	L	i	f	n	g
Letter Name Form 6	R	К	Т	Z	Q	У	h	b

Figure 4 Q-LNK Score Sheet

Child ID			
Age			
	Letter Na	me Knowledg	ge
	timuli in binder. Be sure to u		
			xaminer may reprompt with
	e of this letter?" Do not corr child gives correct letter nam	-	
answer.	cilia gives correct letter han	ic. Mark on crina gives meor	rect letter name of no
Form 1	Form 2	Form 3	Form 4
1. 0		_ 1. X	
2. s	. r	2. k	
3. w		3. D	
4. F	4. y	_ 4. J	4. G
5. e	_ 5. I	_ 5. N	5. z
6. m	6. U	_ 6. p	_ 6. r
7. u	7. v	_ 7. a	_ 7. j
8. V	8. d	_ 8. †	_ 8. q
Total:	Total:	Total:	Total:
Date:	Date:	Date:	Date:
Form 5	Form 6		
1. S			
2. M			
3. W			
4. L			
5. i	-		
6. f			
7. n			
8. g	8. b	_	
Total:		_	
Date:	Date:	_	

which has letters with the shapes most commonly learned in preschool (e.g., compare a in Comic Sans with a in Verdana).

After assessment materials have been prepared, teachers can select one of the six forms to use with each student. The teacher should generally not use the forms that include the first letter of the student's first name, as this is the letter that the student is most likely to know and is not indicative of the student's overall alphabet knowledge (Justice

et al., 2006). Then, the teacher asks the student to name just the eight letters on the chosen form. A score of 1 should be provided for each letter the student names correctly, and a score of 0 should be provided for those letters that are named incorrectly or not named. The teacher can use Table 3 to get an estimate of how many letters the student knows in total.

During literacy block that first week, Ms. Diaz sets up stations that allow her students to explore

Table 3
Score Interpretation for the Q-LNK

Total score	Expected total letters known
0	1
1	6 or 7
2	12–14
3	18–21
4	24–28
5	30–34
6	36–40
7	42–46
8	48 or 49

the books, writing supplies, and imaginative play materials in her classroom. As her students are exploring their new environment, she calls them over one by one.

Ms. Diaz has picked out two Q-LNK forms to use today and has a score sheet for each student (see Figure 4). She chose Form 4, AcHGzrjq, for the first week of class, because entering kindergartners are likely to know uppercase A, and she wants everyone to experience some success (Justice et al., 2006). She will switch to Form 5, SMWLifng, for Aaron and Ada to avoid testing the first letters of their first names.

As each student comes over, Ms. Diaz shows him or her the eight letter cards, one at a time, and asks, "What letter is this?" Josephine quickly names all eight letters and goes back to playing. Logan says, "A, c, H, G, z, I don't know, I don't know, I don't know." Mira says, "A," and then looks at Ms. Diaz uncertainly for the following cards. By the end of the literacy block, Ms. Diaz has collected letter name data about all 25 students in her class.

Strang and Piasta (2016) used the Q-LNK to assess the LNK of students attending a single preschool and found that students from low and high socioeconomic environments differ significantly in their LNK. By using the Q-LNK throughout the year, Strang and Piasta were able to establish that, although all students gain LNK throughout the year, students who begin the year with low LNK do not necessarily catch up to their classmates over the course of the year. Without individualized instruction, the students who started the year with lower LNK also ended the year with lower LNK and overall literacy knowledge than students who came in with

more knowledge. Ms. Diaz plans to use her Q-LNK results to identify the students who need extra support in LNK and to plan her instruction to disrupt that cycle.

Putting Alphabet Assessment to Work in the Classroom

Based on each student's Q-LNK score, Ms. Diaz can identify where each student is in his or her LNK development.

Josephine identified all eight letters, which means we guess that she can recognize approximately 48 or 49 out of 52 uppercase and lowercase letters (see Table 3). There may be a few letters that confuse her, but she has a strong grasp of both uppercase and lowercase letters and needs very little instruction in letter names. Instead, Ms. Diaz plans to help Josephine develop and use her letter sound knowledge in reading and writing.

Logan recognized five letters, which means we guess that he knows about 30–34 uppercase and lowercase letters (see Table 3). Ms. Diaz notices that he seemed to do better with uppercase letters (A, H, and G) and lowercase letters that look like the uppercase letters (c and z).

Finally, Mira only recognized the uppercase letter A, which is one of the first letters typically known by young students. Her score indicates that she is at the beginning of her alphabet knowledge and can probably only recognize about six or seven letters right now (see Table 3).

The Q-LNK has given Ms. Diaz some quick, early insight into the alphabet knowledge of her class and helped her identify the students who have needs in LNK. It does not, however, tell her which specific letters each student needs to learn. To plan her instruction for these students, Ms. Diaz will administer a diagnostic alphabet assessment to these students. Clay's (1993) Observation Survey of Early Literacy Achievement, for example, includes an extensive alphabet knowledge section, including both uppercase and lowercase letters, and space for taking careful notes on the student's speed of response, specific confusions, and patterns of response.

Ms. Diaz will use diagnostic assessment results to plan flexible cycles of instruction for Logan, Mira, and other students in her class that will target the specific letters they need to learn, following an approach such as Enhanced Alphabet Knowledge instruction (Jones & Reutzel, 2012). For students who did well on the Q-LNK, she may follow up with a similar letter sound

assessment (Piasta et al., 2016) and early word reading and spelling inventories (Bear et al., 2015) to measure these students' beginning phonics knowledge.

As the year continues, Ms. Diaz will administer another Q-LNK form to Logan and Mira to benchmark their progress toward naming all 52 letters. As they approach mastery, she will transition them out of letter name instruction.

Conclusion

For teachers such as Ms. Diaz, the Q-LNK assessment provides several advantages. It is easy to use and provides a quick, psychometrically rigorous snapshot of students' LNK. The results can be used to differentiate alphabet instruction to focus on each student's needs, resulting in less wasted instructional time and greater progress for everyone. The multiple forms and quick administration time mean that the Q-LNK can be used again and again for benchmark assessment to identify where students are in relationship to class goals and standards. It's only the first week of school, but by using the Q-LNK, Ms. Diaz

TAKE ACTION!

- 1. Choose a time when the rest of the class is working independently or with another teacher. Find a quiet spot to assess students. Allow about one minute per student.
- **2.** Choose an appropriate Q-LNK form for each student you plan to assess. Avoid forms that include the first letter of the student's first name.
- **3.** Prepare score sheets for the students you plan to assess and the form(s) you plan to use.
- **4.** Call students over individually. Ask them, "What letter is this?" and have them identify the eight letters on the Q-LNK form. Record the results on the student's score sheet under the appropriate form, one at a time. Include the date of the assessment.
- **5.** After you finish assessing your students, use Table 3 to identify where the students fall in their overall LNK.
- **6.** Identify any students you want to assess in more depth.
- **7.** Plan or discontinue letter name instruction for individual students based on your Q-LNK results.
- **8.** Repeat as often as necessary to monitor progress, using a different Q-LNK form each time you assess the same student.

can chart a clear path to her literacy goals for each of her students.

NOTES

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REFERENCES

- Adams, M.J. (1990). Beginning to read: Thinking and learning about print. Urbana–Champaign: Center for the Study of Reading, University of Illinois.
- Bear, D.R., Invernizzi, M.A., Templeton, S., & Johnston, F. (2015). Words their way: Word study for phonics, vocabulary, and spelling instruction (6th ed.). Boston, MA: Pearson.
- Bloodgood, J. (1999). What's in a name? Children's name writing and literacy acquisition. Reading Research Quarterly, 34(3), 342–367. https://doi.org/10.1598/RRQ.34.3.5
- Bomer, R., & Maloch, B. (2011). Relating policy to research and practice: The Common Core Standards. Language Arts, 89(1), 38–43.
- Bond, G.L., & Dykstra, R. (1967). The Cooperative Research Program in First-Grade Reading Instruction. Reading Research Quarterly, 2(4), 5–142. https://doi.org/10.2307/746948
- Bowles, R.P., Pentimonti, J.M., Gerde, H.K., & Montroy, J.J. (2014). Item response analysis of uppercase and lowercase letter name knowledge. *Journal of Psychoeducational Assessment*, 32(2), 146–156. https://doi.org/10.1177/0734282913490266
- Clay, M.M. (1993). An observation survey of early literacy achievement. Portsmouth, NH: Heinemann.
- Ehri, L.C. (2005). Learning to read words: Theory, findings, and issues. Scientific Studies of Reading, 9(2), 167–188. https://doi.org/10.1207/s1532799xssr0902_4
- Ellefson, M.R., Treiman, R., & Kessler, B. (2009). Learning to label letters by sounds or names: A comparison of England and the United States. *Journal of Experimental Child Psychology*, 102(3), 323–341. https://doi.org/10.1016/j.jecp.2008.05.008
- Evans, M.A., Bell, M., Shaw, D., Moretti, S., & Page, J. (2006). Letter names, letter sounds, and phonological awareness: An examination of kindergarten children across letters and of letters across children. Reading and Writing, 19(9), 959–989. https://doi.org/10.1007/s11145-006-9026-x
- Fielding-Barnsley, R. (1997). Explicit instruction in decoding benefits children high in phonemic awareness and alphabet knowledge. *Scientific Studies of Reading*, 1(1), 85–98. https://doi.org/10.1207/s1532799xssr0101_5
- Foulin, J.N. (2005). Why is letter-name knowledge such a good predictor of learning to read? Reading and Writing, 18(2), 129–155. https://doi.org/10.1007/s11145-004-5892-2
- Good, R.H., Kaminski, R.A., Smith, S., Laimon, D., & Dill, S. (2001). Dynamic Indicators of Basic Early Literacy Skills. Eugene: University of Oregon.
- Hammill, D.D. (2004). What we know about correlates of reading. Exceptional Children, 70(4), 453–469. https://doi.org/10.1177/001440290407000405
- Henderson, E.H. (1990). Teaching spelling (2nd ed.). Boston, MA: Houghton Mifflin.
- Huang, F.L., & Invernizzi, M.A. (2014). Factors associated with lowercase alphabet naming in kindergarteners. Applied Psycholinguistics, 35(6), 943–968. https://doi.org/10.1017/S0142716412000604
- Invernizzi, M., Meier, J.D., & Juel, C. (2003). Phonological Awareness Literacy Screening 1–3 (PALS 1–3). Charlottesville: University of Virginia Press.

- Jones, C.D., & Reutzel, D.R. (2012). Enhanced alphabet knowledge instruction: Exploring a change of frequency, focus, and distributed cycles of review. Reading Psychology, 33(5), 448–464. https://doi.org/10.1080/02702711.2010.54 5260
- Justice, L.M., Pence, K., Bowles, R.B., & Wiggins, A. (2006). An investigation of four hypotheses concerning the order by which 4-year-old children learn the alphabet letters. Early Childhood Research Quarterly, 21(3), 374–389. https://doi. org/10.1016/j.ecresq.2006.07.010
- Liberman, I.Y., Shankweiler, D., & Liberman, A.M. (1989).

 The alphabetic principle and learning to read. Bethesda, MD:
 National Institute of Child Health and Human Development
- Lonigan, C.J., Wagner, R.K., Torgesen, J.K., & Rashotte, C.A. (2007). Test of Preschool Early Literacy. Austin, TX: Pro-Ed.
- McBride-Chang, C. (1999). The ABCs of the ABCs: The development of letter-name and letter-sound knowledge. Merrill-Palmer Quarterly, 45(2), 285–308.
- National Early Literacy Panel. (2008). Developing early literacy: Report of the National Early Literacy Panel. Washington, DC: National Institute for Literacy.
- National Governors Association Center for Best Practices & Council of Chief State School Officers. (2010). Common Core State Standards for English language arts and literacy in history/social studies, science, and technical subjects. Washington, DC: Authors.
- Neuman, S.B., & Celano, D. (2006). The knowledge gap: Implications of leveling the playing field for low-income and middle-income children. Reading Research Quarterly, 41(2), 176–201. https://doi.org/10.1598/RRQ.41.2.2
- Office of Head Start. (2015). Head Start early learning outcomes framework: Ages birth to 5. Washington, DC: Office of Head Start, Administration for Children and Families, U.S. Department of Health and Human Services.
- Paris, S.G. (2005). Reinterpreting the development of reading skills. Reading Research Quarterly, 40(2), 184–202. https://doi.org/10.1598/RRQ.40.2.3
- Piasta, S.B. (2014). Moving to assessment-guided differentiated instruction to support young children's alphabet knowledge. The Reading Teacher, 68(3), 202–211. https://doi.org/10.1002/trtr.1316
- Piasta, S.B., Petscher, Y., & Justice, L.M. (2012). How many letters should preschoolers in public programs know? The diagnostic efficiency of various preschool letternaming benchmarks for predicting first-grade literacy achievement. Journal of Educational Psychology, 104(4), 945–958. https://doi.org/10.1037/a0027757
- Piasta, S.B., Phillips, B.M., Williams, J.M., Anthony, J.L., & Bowles, R.P. (2016). Measuring young children's alphabet knowledge: Development and validation of brief lettersound knowledge assessments. The Elementary School Journal, 116(4), 523–548. https://doi.org/10.1086/686222
- Piasta, S.B., Purpura, D.J., & Wagner, R.K. (2010). Fostering alphabet knowledge development: A comparison of two instructional approaches. Reading and Writing, 23(6), 607–626. https://doi.org/10.1007/s11145-009-9174-x
- Piasta, S.B., & Wagner, R.K. (2010). Developing early literacy skills: A meta-analysis of alphabet learning and instruction. Reading Research Quarterly, 45(1), 8–38. https:// doi.org/10.1598/RRQ.45.1.2
- Raykov, T., Dimitrov, D.M., & Asparouhov, T. (2010). Evaluation of scale reliability with binary measures using latent variable modeling. Structural Equation Modeling, 17(2), 265–279. https://doi.org/10.1080/10705511003659417

- Reid, K.D., Hresko, W.P., & Hammill, D.D. (2001). Test of Early Reading Ability (TERA-3). Austin, TX: Pro-Ed.
- Roberts, T.A. (2003). Effects of alphabet-letter instruction on young children's word recognition. *Journal of Educational Psychology*, 95(1), 41–51. https://doi.org/10.1037/0022-0663.95.1.41
- Schatschneider, C., Fletcher, J.M., Francis, D.J., Carlson, C.D., & Foorman, B.R. (2004). Kindergarten prediction of reading skills: A longitudinal comparative analysis. *Journal of Educational Psychology*, 96(2), 265–282. https://doi.org/10.1037/0022-0663.96.2.265
- Schränk, F.A., Mather, N., & McGrew, K.S. (2014). Woodcock-Johnson IV Tests of Achievement. Rolling Meadows, IL: Riverside.
- Scott-Little, C., Kagan, S.L., & Frelow, V.S. (2006). Conceptualization of readiness and the content of early learning standards: The intersection of policy and research? Early Childhood Research Quarterly, 21(2), 153–173. https://doi.org/10.1016/j.ecresq.2006.04.003
- Speece, D.L., Mills, C., Ritchey, K.D., & Hillman, E. (2003). Initial evidence that letter fluency tasks are valid indicators of early reading skill. The Journal of Special Education, 36(4), 223–233. https://doi.org/10.1177/002246690303600403
- 233. https://doi.org/10.1177/002246690303600403 Stahl, K.A. (2011). Applying new visions of reading development in today's classrooms. The Reading Teacher, 65(1), 52–56. https://doi.org/10.1598/RT.65.1.7
- Storch, S.A., & Whitehurst, G.J. (2002). Oral language and coderelated precursors to reading: Evidence from a longitudinal structural model. *Developmental Psychology*, 38(6), 934–947. https://doi.org/10.1037/0012-1649.38.6.934
- Strang, T.M., & Piasta, S.B. (2016). Socioeconomic differences in code-focused emergent literacy skills. *Reading and Writing*, 29(7), 1–26.
- Thissen, D., & Orlando, M. (2001). Item response theory for items scored in two categories. In D. Thissen & H. Wainer (Eds.), Test scoring (pp. 73–140). Hillsdale, NJ: Erlbaum.
- Treiman, R., & Broderick, V. (1998). What's in a name: Children's knowledge about the letters in their own names. *Journal of Experimental Child Psychology*, 70(2), 97–116. https://doi.org/10.1006/jecp.1998.2448
- Treiman, R., Weatherston, S., & Berch, D. (1994). The role of letter names in children's learning of phoneme–grapheme relations. *Applied Psycholinguistics*, 15(1), 97–122. https://doi.org/10.1017/S0142716400006998
- Turnbull, K.L., Bowles, R.P., Skibbe, L.E., Justice, L.M., & Wiggins, A.K. (2010). Theoretical explanations for preschoolers' lowercase alphabet knowledge. *Journal of Speech, Language, and Hearing Research*, 53(6), 1757–1768. https://doi.org/10.1044/1092-4388(2010/09-0093)
- Watson, J. (2013). Is kindergarten the new first grade? Increased academic rigor in America's public school kindergarten classrooms. Washington, DC: American Institutes for Research.
- Whitehurst, G.J., & Lonigan, C.J. (1998). Child development and emergent literacy. Child Development, 69(3), 848–872. https://doi.org/10.1111/j.1467-8624.1998.tb06247.x

LITERATURE CITED

Lobel, A., & Sallis, P. (1972). Frog and Toad together. New York, NY: Harper & Row.

MORE TO EXPLORE

- Bear, D.R., Johnston, F.R., & Invernizzi, M. (2006). Words their way: Letter and picture sorts for emergent spellers. Chicago, IL: Pearson/Merrill/Prentice Hall.
- Block, M.K., & Duke, N.K. (2015). Letter names can cause confusion and other things to know about letter-sound relationships. *Young Children*, 70, 84–91.
- Jones, C.D., Clark, S., & Reutzel, D.R. (2013). Enhancing alphabet knowledge instruction: Research implications and practical strategies for early childhood educators. Early Childhood Education Journal, 41, 81–89. https://doi.org/10.1007/s10643-012-0534-9
- Scanlon, D.M., & Anderson, K.L. (2011). Early intervention for reading difficulties: The interactive strategies approach. New York, NY: Guilford.
- Florida Center for Reading Research K–1 Phonics Activities: http://www.fcrr.org/Curriculum/pdf/GK-1/P_Final_Part1.pdf
- Phonological Awareness Literacy Screening: Kindergarten Alphabet Recognition Activities: https://pals.virginia.edu/activities-LS-AR-k.html

