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Examining One Class of Third-Grade Spellers: The Diagnostic Potential of Students' Spelling

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Abstract

The purpose of this article is to examine the developmental spelling levels of one class of 17 third-grade students. In analyzing over 600 student spelling samples, results indicate that these students spanned four spelling stages: (1) letter name, (2) within word pattern, (3) syllables and affixes, and (4) derivational relations (Bear, Invernizzi, Templeton, & Johnston, 2008; Henderson, 1981). The article provides convincing evidence of the diagnostic potential of spelling analysis as a means to comprehending students' orthographic understandings. Implications for small-group word study instruction are provided.

Teachers and educational diagnosticians are well aware of the importance of conducting periodic assessments to monitor and evaluate each student's literacy development. Though a wide range of literacy assessments are readily conducted by many K-5 classroom teachers, assessing students' spelling is often a missing component. Invernizzi and Hayes (2004) called the diagnostic potential of spelling assessment "overlooked" (p. 217). Yet the ability to understand a child's spelling errors provides a window into a child's developmental knowledge of words (Henderson, 1990). Multiple studies have shown that scores from spelling inventories predict reading achievement from kindergarten through adulthood (Bear, Templeton, & Warner, 1991; Bear, Truex, & Baron, 1989; Edwards, 2003; Ehri, 2000; Ellis & Cataldo, 1992; Morris, Nelson, & Perney, 1986). In fact, developmental spelling assessments have predicted end-of-year first-grade reading achievement (Morris & Perney, 1984), reading fluency in Grades 1, 3, and 5 (Bear, 1982; Zutell & Rasinski, 1989), and word recognition accuracy through fourth grade (Invernizzi, 1985).

Because of its high visibility, spelling is often considered a proxy for literacy (Templeton & Morris, 1999). Researchers have made significant strides in understanding the instructional importance of spelling. For example, we now understand the synchrony among reading, writing, and spelling development; the way in which a student *spells* a word provides important information about how the student *reads* words. It is enormously important to keep a student's reading and spelling materials at the same instructional level as students' literacy growth can be stunted by a mismatch in the words they are expected to *spell* and the words they can independently *read*.

Understanding How Spelling Develops in Young Children

Three decades of research in children's invented spellings have led to the knowledge that their spelling development follows a stage-like progression. As students learn to spell, they advance in their understandings of the *alphabetic*, *pattern*, and *meaning* layers of words (Henderson & Templeton, 1986). Initially, children explore the *alphabetic* layer of spelling, in which sounds within words correspond to a one-to-one linear, left-to-right manner. At the *pattern* layer, learners understand that groups or patterns of letters represent sounds within a syllable. The *meaning* layer reveals that "words that are related in meaning are often related in spelling as well, despite changes in sound" (Templeton, 1991, p. 194). For the purposes of this article, I will follow the stages outlined in Henderson's (1990) pioneering work exploring the developmental patterns of spelling development: 1) emergent, 2) letter name, 3) within word pattern, 4) syllable juncture (referred to here as syllables and affixes), and 5) derivational relations. The following sections describe each of these patterns of spelling development.

Emergent Spelling

Before children begin to read, they practice literacy skills through pretend writing and drawing as they begin with nonalphabetic scribbles and experiment with the differences between drawing and printing. As children begin to learn letters, they incorporate them into their invented spellings, often in ways totally unrelated to the intended word. Rather than match letters to their corresponding sound, the emergent speller is demonstrating both his/her rudimentary understandings of some letters and his/her knowledge that words are comprised of letters. Progressing as emergent spellers (ES), children often represent only the initial or final sounds to mark an entire word, such as S for *sun*. As they develop in phonological awareness, emergent spellers may mark the salient sounds in a word because of their

prominence in how the letters are heard and felt in the mouth and, across the board, emergent spellings do not include vowel markers. Emergent spellers typically have not yet had formal literacy instruction, and range in age from 0 to 5 years.

Letter Name Spelling

In the letter name (LN) stage, children begin to match the sounds that they hear to the letters that they know. Letter name spellers typically range in age from 5 to 8 years. The letter name stage is most often associated with beginning readers, who read aloud in a word-by-word manner, with slow and choppy oral reading. During this stage, children undergo rapid growth as they learn to segment sounds through formal instruction. Early in the letter name stage, children may spell the first and last sounds of a word. In the middle of the letter name stage, children consistently attempt, whether correct or incorrect, to mark vowels as they develop an understanding of the alphabetic principle (McKenna & Stahl, 2003). By the end of this stage, children typically represent short vowel sounds, digraphs, and consonant blends; these components indicate a child's understandings of word boundaries as they operate with a firm Concept of Word. Late in the letter name stage, children may begin to experiment with the long vowel marker of the silent *-e*.

Within Word Pattern Spelling

At the within word pattern (WWP) stage, children correctly spell short vowels and begin to experiment with long vowels. Within word pattern spellers are in the transitional stage of reading, during which their reading approaches fluency. In this stage, students move towards automaticity in their application of patterns and chunks, particularly long vowel patterns, within single-syllable words (Henderson, 1990). At the start of the stage, students accurately apply the common long vowel patterns. Within word pattern spellers typically use but confuse long vowel patterns as they differentiate between common long vowel patterns and those of lesser frequency. Students' efforts to mark vowel patterns are complicated by diphthongs, ambiguous vowels, and r-influenced vowels. In diphthongs, a speech sound begins with one vowel sound and moves to another within the same syllable, such as in *toy*. Within word pattern spellers may struggle with ambiguous vowels in which the sound is neither long nor short, such as in *caught*. Students may also struggle with r-influenced vowels in which the *-r* "robs" the preceding vowel sound (Bear, Invernizzi, Templeton, & Johnston, 2008). In addition, students explore three-letter blends and diphthongs such as *spr*, *thr*, *squ*, *scr*, *shr*, *spl*, *tch*, *dge*, and *str*; Henderson (1990) referred to these as complex consonant clusters. As children master features

within this stage, typically by the end of third- or fourth-grade, they are ready to explore how the meaning of a word influences its spelling.

Syllables and Affixes

The syllables and affixes (SA) stage typically ranges from third through eighth grades, as children enter the intermediate reading stage. Syllables and affixes spellers read fluently and with expression and they develop a variety of reading and writing styles as their vocabulary blossoms. In this stage, students explore how spelling patterns change where syllables and affixes meet. Syllables and affixes spellers consider inflected endings, which change the usage, meaning, and spelling of words. A significant focus within this stage are open and closed syllables, which guide students in knowing when to double consonants at syllables and affixes. Within this stage, students also address unstressed vowel sounds in final syllables. Syllables and affixes spellers begin to draw connections between spelling and meaning as they add prefixes and suffixes to base words.

Derivational Relations

In the derivational relations (DR) stage, continuing through adulthood, students learn how to preserve meaning units through spelling. A considerable focus here is how Greek and Latin roots carry meaning and how these morphemes impact a word's spelling. Derivational relations features include silent and sounded consonants, reduced and altered vowels, Latin-derived suffixes, and assimilated prefixes in which consonants are doubled. Students in the derivational relations stage are advanced readers who read and write fluently and experiment with genre and style.

Methodology

The purpose of this article is to examine a system of analyzing students' spelling development. Following a district-wide professional development workshop that I facilitated, a third-grade teacher at an elementary school in suburban Virginia asked for my assistance in assessing the spelling levels of her 17 students. Furthermore, the teacher's intent was to use the results from the spelling analysis to create small instructional word study groups. Our collaborative objectives were to assess students' spellings to help plan for differentiated reading and word study groups within this third-grade classroom. Thus, research questions were as follows:

1. What will the developmental spelling analysis reveal about a class of third-grade students?

2. What do results of the developmental spelling analysis indicate about students' instructional strengths, needs, and areas for instruction?
3. In what capacity does analyzing students' spelling samples help teachers plan for small-group word study instruction?

This work comes in response to Ganske's (1999) call for teachers to carry out developmentally appropriate spelling assessment and instruction:

Teachers must first know what understandings their students have about words. Although children's spellings have been shown to provide a window on this knowledge, the move from recognizing an error to interpreting it for appropriate instruction is not easy...Child-centered instruction depends on informed teachers, but the means for teachers to learn about their students' orthographic understandings are limited. (p. 43)

Participants

Of the 17 third-grade students, two were English Language Learners, with Spanish and Vietnamese being the first languages for Joseph and Danzeng (all students names have been changed), respectively. Two other students, Darron and Jacob received pull-out instruction from the school's literacy coach. It should be noted that in the years prior to this study, spelling instruction was left up to individual classroom teachers with no school or district-wide adopted curriculum. In her eight years of teaching prior to this study, the classroom teacher had taught spelling through weekly spelling lists; her frustration with students' retention of spelling words led her to actively seek professional development regarding spelling.

The Developmental Spelling Analysis as a Measure

The primary measure for this study was Ganske's (2000) Developmental Spelling Analysis (DSA), a screening inventory of 20 words increasing in difficulty to align with the stages of spelling development. The DSA was purposefully chosen because of its feasibility to administer in a whole-group setting and its high reliability with 90% accuracy in identifying a child's stage of development (Ganske, 1999). The classroom teacher administered the DSA to her entire class of third graders at the start of the 2007-2008 academic year. The results from the screening inventory can be seen in Table 1. While Table 1 only shows results from the screening inventory, results from probing lists are subsequently presented and analyzed for each child.

Table 1. *Examining One Class of 3rd Grade Spellers*

Correct Word	Joseph	Darron	Danzeng	Yolanda	Amy	Latrice	Jacob	Kassie	Gena
hen	✓	hin	✓	✓	✓	✓	✓	✓	✓
wish	✓	✓	✓	✓	✓	✓	✓	✓	✓
trap	tarp	✓	✓	✓	✓	✓	✓	✓	✓
jump	✓	jomp	✓	✓	✓	✓	✓	✓	✓
brave	bavre	✓	brav	✓	✓	✓	✓	✓	✓
smile	simlee	smil	✓	smil	✓	gran	smaille	✓	✓
grain	grin	gran	✓	gain	grane	✓	grian	✓	✓
crawl	cral	crol	craw	cral	crall	crowl	✓	✓	cral
clerk	clrk	clork	clerk	crek	clurck	✓	✓	✓	clerck
clutch	closh	kuoch	clah	cluch	cluch	cluch	cluth	cluch	clouch
palace	place	plasi	palce	palis	palius	plalis	paleacs	palis	palese
observe	orbvse	urb	abzerb	absr	ubseurve	uzzerv	observeerve	esves	apsever
shuffle	saffle	srofl	shufer	shufull	shufel	shuffle	shuful	shuffl	shovel
exciting	exsiting	xcoid	iksiting	exsing	exiting	icsintting	exsiteing	excide	esading
treason	treesn	trasing	treecin	trsin	treesent	trezin	tresen	treesin	trisen
column	colme	clom	clome	calam	coleum	callolm	colum	calmu	colem
variety	vrayit	verd	forrited	varad	furiety	briad	variati	virdue	verady
extension	exsten	inisen	ikstheshin	exstanchin	extenchan	instenchin	extenchen	extck	estechen
competition	copnthsn	copisn	capertishine	copatishin	compitichan	copdshin	computeshen	cotshen	copatin
illiterate	oletre	dirt	aliret	alirit	eliteret	ilterit	aleterite	leite	alirit

Correct Word	Alyssa	Katilin	Rene	Willis	Amber	Garron	Eli	Maddy
hen	✓	✓	✓	✓	✓	✓	✓	✓
wish	✓	✓	✓	✓	✓	✓	✓	✓
trap	✓	✓	✓	✓	✓	✓	✓	✓
jump	✓	✓	✓	✓	✓	✓	✓	✓
brave	✓	✓	✓	✓	✓	✓	✓	✓
smile	✓	✓	✓	✓	✓	✓	✓	✓
grain	✓	✓	✓	✓	✓	✓	grane	✓
crawl	✓	✓	crall	✓	✓	✓	✓	✓
clerk	✓	✓	✓	✓	✓	✓	clurk	✓
clutch	✓	✓	✓	✓	✓	✓	✓	✓
palace	✓	✓	✓	✓	✓	palis	✓	palas
observe	✓	✓	✓	✓	✓	ubserve	✓	ubsirve
shuffle	✓	✓	✓	✓	✓	✓	✓	✓
exciting	exiting	✓	✓	✓	✓	exciteing	✓	exiting
treason	✓	tresin	treeson	✓	✓	treasin	treasen	tresen
column	column	colum	colum	✓	coln	collum	colom	collumn
variety	variati	varirety	varite	✓	✓	✓	biriedy	viriate
extension	extention	exstenchin	ektenson	✓	extenchin	extension	exstension	extinchin
competition	compotion	compatishion	compitiun	competen	compation	competition	compatisoin	compation
illiterate	eliterate	aliterit	aliterat	aliterate	aliterite	deletarit	aliterit	aliteret

Additional measures included feature inventories, or additional word lists probing for more specific information particular to each student. This was done because, while the screening inventory provides a global sense of each child's spelling stage, the features inventories lend important information about a child's strengths and weaknesses within that stage. Finally, data from the screening inventory and the feature inventory were triangulated with additional spelling samples from authentic writing tasks, as recommended by Williams and Phillips-Birdsong (2006). Uncorrected journals, homework, and in-class writing samples made up the students' samples. All together, over 40 words per student were analyzed, yielding an abundance of assessment data.

The Analysis of Student Spelling Samples

Each student's spelling samples were analyzed with the following three questions in mind: (1) What does the student spell correctly? (2) What does the student use but confuse? and (3) What features are absent from the student's spelling? Looking at what features the student spelled correctly provided a glimpse into his/her *independent level*, or where the student could successfully perform with 90-100% accuracy (Schlagal, 1986). Perhaps the most fruitful place to explore fell within the features that a student used but confused (Invernizzi, Abouzeid, & Gill, 1994), also aligning with his/her *instructional level* of 50-89% accuracy (Schlagal, 1986). The focus on what students use but confuse exemplifies the Vygotskian (1962) principle of the zone of proximal development, where instructional opportunities abound. Lastly, the features that were absent in the student's spelling represented the *frustrational level*, with a 0-49% accuracy rate (Schlagal, 1986). Frustrational errors are typically not analyzed, as they reflect "primitive or even confused and uninterpretable orthographic choices" (Schlagal, 1982, p. 51).

Findings

The purpose of this research was to examine a class of third-grade students' spelling in order to gain an accurate understanding of each child's orthographic knowledge and its relation to their reading development. The results of analyzing student errors exemplified the diversity of instructional levels within one class; with the exception of the emergent stage, these 17 students ranged within the entire spectrum of spelling stages, including letter name, within word pattern, syllables and affixes, and derivational relations. Table 2 provides the appropriate spelling stage for each student, as evidenced by features at the student's independent and instructional levels.

Table 2. *Students' Areas of Strength and Instructional Needs*

Student	Spelling Stage	Areas of Strength	Features the Students Uses But Confuses
Joseph	LN	Initial and final consonants	Short vowels Initial blends and digraphs
Danzeng	LN / Early WWP	Initial and final blends and digraphs	Short vowels VCe marker
Yolanda	LN / Early WWP	Initial blends and digraphs	Ending blends and digraphs VCe pattern
Darron	LN / Early WWP	Short vowels	Beginning blends and digraphs Common long vowel patterns
Amy	WWP	R-controlled vowels	Ambiguous vowels Complex consonant clusters at the end of words Long vowel patterns
Latrice	WWP	R-influenced vowels	Complex consonants Long vowel patterns Ambiguous vowels
Kassie	WWP	Long vowel patterns Complex consonant clusters at the beginning of words	Complex consonant clusters at the end of words Ambiguous vowels R-controlled
Jacob	WWP	Complex consonant clusters at the beginning of words R-controlled vowels Ambiguous vowels	Complex consonant clusters at the end of words Common long vowel patterns
Gena	WWP	R-controlled Ambiguous vowels	Complex consonant clusters
Maddy	S&A	-E drop	Consonant doubling Unstressed vowel patterns
Rene	S&A	Consonant doubling -E drop	Ambiguous vowels Common long vowel patterns
Eli	S&A	-E drop Consonant doubling	Long vowel patterns R-controlled vowels
Kaitlin	S&A	-E drop Consonant doubling	Silent consonants Unstressed syllables
Garron	S&A	All features in WWP stage	Unstressed syllables -E drop Consonant doubling
Alyssa	DR	Unaccented syllables Consonant doubling	Assimilated prefixes Vowel changes
Willis	DR	Silent/sounded consonants Unaccented syllables Consonant doubling	Assimilated prefixes Vowel changes
Amber	DR	Unaccented syllables Consonant doubling	Assimilated prefixes Vowel changes

A principle objective of this research was to use the diagnostic potential of students' spelling samples to help the classroom teacher create small homogeneous groups for word study and reading instruction. Though small-group instruction responsive to the needs of diverse learners has become common practice in many elementary schools, differentiated instruction in phonics and spelling instruction is not yet readily embraced (Johnston, 2001). The three identified groups are described in detail below, along with specific information about each student's instructional strengths, needs, and areas for instruction.

Group #1: Letter Name to Early Within Word Pattern Spellers

The first group - Darron, Joseph, Danzeng, and Yolanda - straddles the letter name and within word pattern spelling stages. A close evaluation of students' features inventories indicates that they have all mastered beginning and endings sounds. Of this group, Darron is still firmly planted in the letter name stage, as evidenced by errors with short vowels (HIN/hen) and confusion with beginning blends and digraphs (SIP/ship; JRUM/drum; COP/chop). Danzeng appears to be further along in the letter name stage; many of his errors are consistent with the letter name stage, particularly short vowel confusion (DASH/dish; MAD/mud). Danzeng, however, demonstrates a rudimentary understanding of short and long vowels, as shown in his using but confusing long vowel markers as he correctly spells *smile* and *grain* but fails to differentiate between other short and long vowels (BITE/bet; RUBE; rub).

Keeping in mind that the transition between spelling stages is not all-or-nothing, the remaining students in this group are beginning to mark long vowels as they move between letter name and within word. Digraphs and blends positioned at the end of words are troubling for Yolanda (MUCK/much; BUP/bump) who also demonstrates confusion over the VCe pattern. Yolanda correctly applies it to *cute*, overapplies the long -e marker when unnecessary (COSTE/coast), and omits it when needed (GRAP/grape; SMOK/smoke). Joseph makes similar errors with long vowel markers; he correctly applies the VCe pattern to *cute*, but struggles with other long vowel patterns (GRIN/grain; LEST/least; COST/coast). Interestingly, Joseph has begun mastering features associated with the within word pattern stage while still struggling with letter name features. Of note are Joseph's errors with blends and digraphs at the beginning of words (SIPE/ship; GAB/grab; TARP/trap; BAVRE/brave).

Building on the principle that a step back is often a step forward in spelling instruction (Templeton, 2004), this group of students will benefit from word study instruction, firming up their short vowels in order to solidify and build upon their knowledge of long vowels. Table 3 provides a word study progression to benefit the letter name spellers in this group.

Table 3. *Word Study Progression for Letter Name Spellers*

Spelling Feature	Examples
Word Families Short A Short I Short O Short U Short E Review All Families	<i>_at, _an, _ad, _ap, _ag, _ack</i> <i>_it, _in, _ip</i> <i>_og, _ox, _op, _ot</i> <i>_un, _ug, -um, _ut, _ud</i> <i>_ed, _et, _en</i> Mixed short A, E, I, O, U families
Digraphs	<i>sh, ch, th, qu, wh</i>
Blends L Blends S Blends R Blends Affricates	<i>sl, fl, bl, cl, pl, gl</i> <i>sm, sp, st, sn, sc, sw, sk</i> <i>fr, gr, br, tr, dr, cr, pr</i> <i>dr, tr</i>
Final Blends & Digraphs	<i>-ch, -th, -sh</i> and <i>-st, -ft, -sk</i>
Medial Short Vowel Comparisons	Short A vs. Short E words Short O vs. Short U words Short A, I, O words Short E vs. Short I words Review medial vowels
Preconsonantal Nasals	<i>-m, -p, mp; -n, -d, -nd; -ing, -ang, -ung;</i> <i>-ank, -unk; -amp, -ump</i>

Source: University of Virginia, 2007

Furthermore, these students will benefit from instruction in consonant blends and digraphs occurring in the beginning of words for Darron and Joseph and at the conclusion of words to assist Yolanda. The letter name and late letter name spellers in this group—Darron and Danzeng—should examine blends, digraphs, and short vowels. Danzeng may also be ready to examine blends, digraphs, and preconsonantal nasals at the ends of words. Darron and Danzeng appear to be late beginning

readers, who may also benefit from structured and repetitive texts and the use of word banks to increase their sight word vocabularies. Yolanda and Joseph are on the cusp of the within word pattern stage and should receive explicit instruction in the VCe pattern before moving ahead. As these students move to the transitional stage of reading, they may need less support from both the teacher and the text.

Group #2: Within Word Pattern Spellers

The second group consists of Amy, Latrice, Jacob, Kassie, and Gena – all of whom are firmly within word pattern spellers. As early within word pattern spellers, both Latrice and Jacob are uncertain of the diverse range of long vowel patterns. Latrice does not mark the common long –a vowel pattern (GRAN/grain), the common long –e pattern (LEST/least), or the common long –i pattern (MITE/might). She also overapplies the VCe pattern in appropriate places (COSTE/coast; YONE/yawn; STUDE/stood). Because Latrice’s knowledge of long vowels is shaky, it is logical that she would struggle with ambiguous vowels (COCH/couch; CROWL/crawl). Jacob’s confusion is largely related to the long –a pattern (GRIAN/grain), the long –o pattern (COST/coast), and the long –i pattern (SMAILE/smile). Interestingly, Jacob demonstrates accuracy with r-controlled vowels and ambiguous vowels; these features are typically mastered after a firm basis in long vowel patterns.

Amy’s errors lie in confusion of common long vowel patterns (GRANE/grain; COSTE; coast) and with inconsistencies with complex consonant patterns, mastering *patch* and *scrap* while struggling with others (CLUCH/clutch; BRIGE/bridge). Finally, she is using confusing r-controlled vowels; she provides a correct spelling of *hurt* but struggles with other r-controlled vowels (CLURCK/clerk). Both Kassie and Latrice struggle with ambiguous vowels (COACH/couch; YOWN/yawn; CRALL/crawl) and r-controlled vowels (GRIL/girl; FEIR/fear). In addition, across all five students, complex consonants clusters are an area of confusion. Latrice and Gena do not yet demonstrate any knowledge of complex consonants (PACH/patch; SCAPE/scrap; CLUCH/clutch). On the other hand, Amy, Kassie, and Jacob are relatively adept with complex consonants, struggling only with those at the end of words (CLUTH/clutch; BRICH/bridge; PACH/patch).

The general instructional scope and sequence for this group would be as follows: common and less common long vowel patterns, r-influenced vowels, diphthongs and other ambiguous vowels, and complex consonants, as displayed in Table 4.

Table 4. *Word Study Progression for Within Word Pattern Spellers*

Spelling Feature	Examples
Common Long Vowels: E-Marker (Medial short vowels vs. e-marker)	Short <i>a</i> vs. Long <i>a_e</i> (<i>cap</i> vs. <i>cape</i>) Short <i>i</i> vs. Long <i>i_e</i> Short <i>o</i> vs. Long <i>o_e</i>
Simple R-controlled Vowels	<i>ar, or, ir, ur, er</i>
Common Long Vowel Patterns Sort long vowel pattern vs. other known patterns	(A) Short <i>a, ai, a_e</i> ; <i>a_e, ai, ay</i> (E) Short <i>e, ea, ee</i> (I) Short <i>i, i_e, igh</i> (O) Short <i>o, o_e, oa; ow, oa, o_e</i> (U) Short <i>u, u_e, ew; ew, ui</i>
Complex Consonant Patterns Less Common Digraphs Triple Blends Final Patterns Soft / Silent Consonants	<i>qu, wh</i> <i>scr, shr, spl, spr, squ, str, thr</i> <i>_ck, _ke, _k, _ch, _tch, _ge/dge</i> Hard <i>g</i> soft <i>c</i> hard <i>c</i> <i>gn/kn/mb/wr</i>
R-Controlled Vowels Sort with Simple R-controlled and/or common long vowel patterns	<i>ar are air</i> <i>or ore oar</i> <i>er ear eer</i> <i>ir ire ier</i> <i>ur ure</i>
Other Vowel Patterns Sort other vowel patterns with known long vowel patterns	<i>a_e al au aw</i> <i>o_e ou ow; o_e oo ou</i> <i>o_e oi oy</i>
Homophones Contractions Simple Endings	<i>meat/meet bear/bare</i> <i>am (I'm) are (we're) had (hadn't)</i> <i>_ing, _s, _ed, _er, _est</i>

University of Virginia, 2007

Instruction for Latrice, Amy, and Jacob might focus on their long vowel confusions. As students clarify their understandings of long vowel patterns, they can progress to an exploration of ambiguous vowels and r-controlled vowels. All five students in this group will benefit from explicit instruction in complex consonant clusters.

Group #3: Syllables and Affixes Through Derivational Relations Spellers

The last group of students – Eli, Rene, Maddy, Garron, Kaitlin, Alyssa, Amber, and Willis – span the widest range from syllables and affixes to derivational relations. Not only is this the largest group of the class, but it also presents the most opportunities for differentiated instruction. To make this group both more manageable and more responsive to students' needs, it can be further subdivided into two smaller groups: 1) the syllables and affixes spellers (Eli, Rene, Maddy, Garron, and Kaitlin) and 2) the derivational relations spellers (Alyssa, Amber, and Willis). This subdivision is not meant to be rigid; as error analysis will show some students rest at the cusp of the stages, while some in later stages may need to revisit features typically addressed in earlier stages.

Within the five syllables and affixes spellers, some students need to brush up on features from the within word pattern stage before proceeding into syllables and affixes. Eli struggled with r-controlled vowel patterns (CLURK/clerk) and some long vowel patterns (STEAP/steep; GRANE/grain), yet he demonstrates an understanding of consonant doubling and the –e drop as evidenced by his correct spellings of *making* and *clapped*. Rene needs review with ambiguous vowels (YON/yawn) and common long vowel patterns (COSTE/coast), but has a solid foot in the syllables and affixes stage as shown in correct applications of consonant doubling (*swimming*), –e dropping (*making*), and unaccented vowel sounds (*polar*, *disturb*). Maddy has mastered the within word pattern features; she knows when to drop the –e before adding the –ing (shown in correct spellings of *piling* and *making*), but struggles with consonant doubling (CLAPED/clapped). Her instruction should focus on open versus closed syllables as well as unstressed vowel patterns (FOUNTIAN/fountain). Kaitlin struggles with silent consonants (COLUM/column) and unstressed syllables (TRESIN/treason). Garron is using but confusing –e dropping and consonant doubling as he accurately drops the –e in *making* but not in other words (PILEING/piling) and correctly doubles the consonant in *swimming* but not in *clapped*. Another area of instructional need for Garron is unstressed syllables (PALIS/palace; MAYER/mayor; SOBUR/sober). Table 5 outlines word study progression for the syllables and affixes spellers.

Table 5. *Word Study Progression for Syllables & Affixes Spellers*

Spelling Feature	Examples
Syllables Compound Words Polysyllabic Words	<i>pancake/sidewalk</i> <i>chair vs. table vs. computer</i>
Single vs. Plural Nouns(-s and -es)	<i>apple/apples vs. leash/leashes vs. fly/flies</i>
Inflectional Endings Sort by sound of -ed suffix Doubling E drop No change Change final y to i and add -ed or -s	<i>walked, wagged, shouted</i> <i>stopping, stopped (CVC)</i> <i>skating, skated (CVCe)</i> <i>walking, walked (CVCC)</i> <i>cried, plays</i>
Open vs. Closed Syllables Closed: VCCV; VCCV Doublet Open: VCV	<i>super vs. supper</i> <i>silent vs. matter</i>
Syllable Stress First syllable stress vs. second syllable stress	<i>rainbow (1st) vs. awake (2nd)</i> <i>moody (1st) vs. confuse (2nd)</i>
Long Vowel Patterns in the Stressed Syllable	<i>a_e, ay, ai, open a</i> <i>i_e, ight, y, iCC, open i</i> <i>o_e, oa, ow, oCC, open o</i> <i>ee, ea, ei, open e</i> <i>u_e, open u</i>
R-Controlled Patterns in the Stressed Syllable	<i>are, ar, air</i> <i>er, ear</i> <i>ir, ire</i> <i>or, ore, oar</i> <i>ur, ure</i>
Vowel Patterns in the Unstressed Syllable	<i>er, or, ar</i> <i>en, on, in</i> <i>al, el, le</i>
Simple Prefixes & Suffixes	<i>un-, re-, dis-, en-, mis-, in-, pre-, fore-</i> <i>-ful, -less, -ness, -ly</i>

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The three derivational relations spellers - Alyssa, Amber, and Willis - will be in this wide stage throughout their lives. They struggle with consonant doubling in assimilated prefixes (ALITERITE/illiterate) and inflected endings (EXTENCHIN/extension). All three struggle with vowel changes in unaccented syllables (COMPITITION). Their instruction should begin to focus on suffixes and affixes.

Further, their instruction should focus on how roots impact the spelling and meaning of words, as demonstrated in Table 6.

Table 6. *Word Study Progression for Derivational Relations*

Spelling Feature	Examples
Silent and Sounded Consonants	<i>muscle vs. muscular</i>
Consonant Changes (Alternations) Adding <i>-ion</i> and <i>-ian</i> to base words with and without spelling changes	<i>subtract/subtraction, express/expression, magic/magician, create/creation, produce/production, explode/explosion, admit/admission</i>
Vowel Changes (Alternations) Long to short Long to schwa Short to schwa Predictable spelling changes (<i>y</i> to <i>i</i> ; <i>ai</i> to <i>a</i> ; <i>ai</i> to <i>e</i> ; <i>ei</i> to <i>e</i>)	<i>volcano/volcanic, athlete/athletic, relate/relative, combine/combination, excel/excellent, critic/criticize, classify/classification, exclaim/exclamation, detain/detention, receive/reception</i>
Latin Derived Suffixes	<i>-able, -ible, -ant/-ance/-ancy, -ent/-ence/-ency, -ary, -ery, -ory, -ity</i>
Doubling with Polysyllabic Words	Double (<i>propelled</i>) vs. no change (<i>limited</i>)
Assimilated Prefixes <i>In-, ad-, com-, sub-, dis-, ex-, ob-</i>	<i>Incorrect; adjoin; compassion; subconscious; disadvantage; exterminate; obnoxious</i>
Greek and Latin Roots	Number related (<i>mono-, bi-, tri-, penta-, octa-, deca-, uni-, quad-, cent-</i>) Common Greek roots (e.g. <i>cycl, auto</i>) Common Latin roots (e.g. <i>aud, spect</i>) Less common roots (e.g. <i>fer, miss, mit</i>)

Adapted by University of Virginia, 2007 from Ganske, K. (2000). *Word journeys: Assessment-guided phonics, spelling, and vocabulary instruction*. New York: Guilford Press.

Implications and Concluding Thoughts

The purpose of this research was to examine students' spelling as a meaningful source of assessment data and to link the process of analyzing spelling to planning for instruction. This one class of 17 third-graders exemplifies the wide range of diversity in many elementary classrooms, with a range of students developing their understanding of the alphabetic principle in the letter name stage to the mature spellers in the derivational relations stage; these results confirm earlier works

(Henderson, 1990; Schlagal, 1982), which found that in virtually every class there is a spread of three grade levels in spelling.

Using the results of the Developmental Spelling Analysis, logical implications for classroom instruction can be drawn. Though instruction should be differentiated to each of the three groups, all 17 third-grade students will benefit from word study as an instructional approach. In word study, students engage in active examination of words to build their understandings of spelling features and patterns. Word study encourages students to sort categories of words according to sound, spelling pattern, and meaning (Bear et al., 2008) and promotes students' automatic and accurate perceptions of word patterns in order to recognize and produce language (Perfetti, 1991). In an integrated approach, word study instruction focuses on spelling, meaning, and grammar connections to build students' vocabularies and orthographic knowledge. In word sorting activities, students compare, contrast, and classify words as they compare words that do fit a pattern with those that don't. To begin the initial exploration of a category of words, the teacher models and guides students. Initially, students will sort words deliberately and slowly as they build their understanding of each pattern. Students then write words in appropriate columns based on the pattern being studied. Students should examine each sort multiple times with automaticity being a goal as repeated word sorting helps them make judgments about spelling patterns, word structures, and the meanings and uses of words (Invernizzi, Abouzeid, & Bloodgood, 1997). To build automaticity and fluency in word recognition, students can engage in speed sorts or race their classmates or teacher. Finally, an essential component of word study instruction is making meaningful connections to authentic texts. Students should peruse their texts for words that fit their spelling patterns and then record these words in a word study notebook. In addition, to build engagement, students can play board games and card games that reflect spelling patterns.

As advocated by Invernizzi and Hayes (2004), analyzing spelling thus proved to be a worthwhile endeavor to obtain a holistic understanding of these students' literacy development. Administering and scoring qualitative spelling assessments and feature analyses provides valuable insight into students' understandings of orthography. These findings highlight the diverse levels and needs of students within one classroom and provide convincing evidence that traditional spelling approaches of rote memorization or weekly spelling lists simply fall short. With an accurate snapshot of each student's orthographic understandings, instruction can be catered to meet individual and small-group needs. Pre-service and in-service teacher training

should thus provide teachers with the rationale for and a practical understanding of how to analyze student spelling samples.



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