


Facilitating Spelling and Reading Skills in Authentic Contexts


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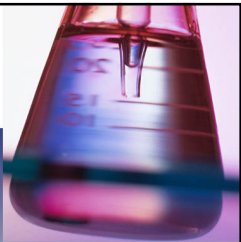
What is Language?

Language has been described as a dynamic system embedded in and influenced by the biological, social, cultural, cognitive, and affective domains we face daily. It is rule-governed and involves the integrated use of all areas of language, including phonology, morphology, syntax, semantics, and pragmatics. Proficient use requires knowledge of human interaction and the communicative demands of the environment. Language can be expressed via oral, text, and sign modes (channels). (ASHA)




During School Years

- Written Language is Crucial
- Language is Decontextualized
- Nonliteral Language
 - Figurative Language
 - Jokes, Humor
 - Sarcasm




What is the SLP's Role in Written Language?




Nelson et al. (1999-2002)

- Roles and Responsibilities of Speech-Language Pathologists for Reading and Writing in Children and Adolescents
- Ad hoc committee formed because there was some question about whether written language was within SLP's purview
- Interesting because SLPs have always worked with written language in acquired disorders...




SLP Special Skills/Perspective

- Knowledge of normal and disordered language acquisition
 - See Moats (1999) about what teachers need to know about language
- Clinical experience in developing *individualized* programs for children and adolescents
 - Based on specific profile of strengths and weaknesses, as opposed to general methods approach



Roles


- Preventing written language problems by fostering language acquisition and emergent literacy
- Identifying children at risk for reading and writing problems
- Assessing reading and writing
- Providing intervention and documenting outcomes for reading and writing
- Other
 - Providing assistance to general education teachers, parents, and students
 - Advocating for effective literacy practices
 - Advancing the knowledge base



Are children being left behind?

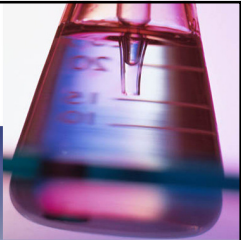
- 95% of all children should be able to be taught to read. That is, in studies that control for quality of instruction, only 5% of the subjects continue to have trouble learning to read.
- 20% of elementary students nation-wide have significant problems learning to read.
- An additional 20% of elementary children do not read fluently enough to enjoy reading.
- 60-70% is the rate of reading failure in African-American, Hispanic, LES, and poor children

* Moats, 2004




Spelling is important

Recent articles in popular press indicate that up to 75% of potential employers are "put off" by applicant's poor spelling




Factors that Influence Spelling (and Word-Level Reading)



Cognitive Abilities

- Global measures of intelligence that allow a child the capacity to lay down spelling rules
- Specific problem-solving skills that may be associated with spelling success (e.g., decentration, the ability to consider more than one aspect simultaneously in seeking a solution to a problem, has been shown to be significantly correlated with spelling strategy development). Spelling errors appear to increase when spellers rely on one strategy alone.




Phonological Awareness

Spelling requires the ability to segment and blend syllables and phonemes.


Difficulties in this area of phonemic awareness are marked by:

- ✓ Omission of letters for less salient phonemes, especially in internal locations and in unstressed syllables, "sop" for "stop", "relize" for "realize"
- ✓ Additions of letters for phonemes that do not occur in a word, "ment" for "met"
- ✓ Letter reversals, especially for liquids and nasals in a word or syllable sequence, "fiod" for "fold"




Orthographic Knowledge:

- Sound-symbol correspondences
 - Difficulties marked by letter-sound confusions & illegal substitution: "cas" for "catch"
- Spelling requires knowledge of the patterns that govern spelling within root/base words
 - Difficulties marked by phonetically possible spellings that violate patterns: "ran" for rain; "lader" for ladder
- Spelling requires knowledge of positional constraints (orthotactics) on spelling patterns.
 - Difficulties marked violation of orthotactic constraints: "tchop" for chop; "cacke" for cake



Mental Orthographic Images

- Also called Mental Graphemic Representations
- The representation of images or templates for words, morphemes, and syllables in memory
- Developed through adequate exposure to print and phonetic decoding.
- Inadequate MGRs may result from the use of a partial-cues reading strategy
- Problems indicated by
 - Words read adequately but not spelled correctly
 - Words spelled differently on repeated attempts (stopd, stopt, stoppd, stoppt)
 - Legal spelling of non-phonetic words and word units; e.g., "cidy" for "city", "vishous" for "vicious"
 - Incorrect spelling of unstressed syllables ("buckit" for "bucket") and vowels preceding ng, r, l ("reng" for "rang", "whil" for "wheel")
 - Poor proofreading




Semantic Knowledge

Spelling requires knowledge of the effect of spelling on word meanings (or vice versa).


Difficulties in this ability are marked by:

- ✓ Homophone confusions
 - "bear" vs. "bare"
 - "won" vs. "one"
 - "which" vs. "witch"




Morphological Awareness

- The ability to be conscious of and manipulate the morphological units of a language.
- Involves the ability to identify base words and their inflected or derived forms.
- Inflections: Typically involve changes in number, tense, etc.
- Derivations: Typically involve a change in part of speech




Morphological Knowledge

- **Transparent Derivations:** the semantic link between the base word and the derived word is clear, or *transparent*.
 - Derivational forms do not affect spelling of the base word "friend, friendly"
 - Derivational forms alter the base word orthographically OR phonologically "silly, silliness" (phonologically transparent) "magic, magician" (orthographically transparent)
- **Opaque Derivations:** The semantic connection between the base and derived form is less clear because BOTH phonological and orthographic properties of the base word change "admit, admission"




MK Difficulties

- ✓ Misspelling of base word component (yet correct when alone) "magic" yet "magishun"
- ✓ Misspelling of base modification "hoped" for "hopped"
- ✓ Omission of morphemes "walk" for "walked"
- ✓ Phonetic spelling of morphemes "walkt" for "walked", "musishun" for "musician"




Individual Abilities

Proficient spelling requires flexible, simultaneous use of all these skills. However, the importance of each varies at different points of spelling mastery.




Instructional Strategies

- *Instead of having “answers” on a math test, they should just call them “impressions,” and if you got a different “impression,” so what, can’t we all be brothers?*
Jack Handey, Deep Thoughts, 1994




Instructional Strategies

- Memorized word lists
 - Organized orthographically
 - Organized thematically
- Word study
 - Attention drawn to ortho pattern, morph characteristics
 - Not usually “revisited”
- Other Issues
 - Reaction to misspellings
 - Cursive Writing




Spelling Development

- Traditionally characterized in “stages” (e.g., Bear & Templeton, Henderson)
- Question whether changes are qualitative or quantitative
- Prefer repertoire explanation of development (Sulzby)



Spelling & Reading

- Children read spellings, spell spellings, and read the spellings of words they have spelled
- Highly correlated (.68-.86), although less for non-typically developing students
- Both are language skills
- Both tap into similar knowledge sources (PA, MA, MOI, etc.)
- Both follow similar developmental patterns



Spelling and Reading

- Both require some direct instruction for most children
- Teaching spelling improves reading skills (more in a minute) (Ellis & Cataldo, 1988; Ehri & Wilce, 1987)
- Spelling is the more “stringent” measure of the literacy-related skills. It requires attention to conventional form, not just a plausible spelling.
- Phoneme-Grapheme rules more ambiguous than Grapheme-Phoneme rules (Bain et al., 2001)
 - /f/ -> “f” “ff” “gh” “ph”
 - “f” -> /f/

Kelman & Apel (CDQ, 2004)

- Case study of 11-year-old girl with spelling difficulties
- Pre-Treatment
 - 59% correct spelling on dictation task
 - 74% correct spelling in connected writing
 - Word Attack 83-88
 - Word Identification 87-90
- Determined nature of errors (phonological, orthographic, mental images) and tailored 9.5 hours treatment
- Post-Treatment
 - 92% correct spelling on dictation task
 - 84% correct spelling in connected writing
 - Word Attack 96-102
 - Word Identification 92-95

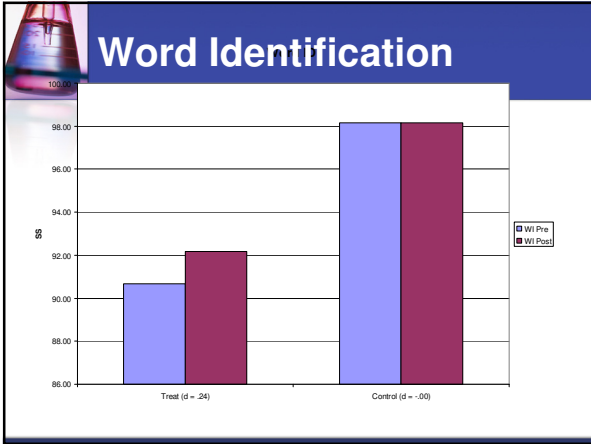
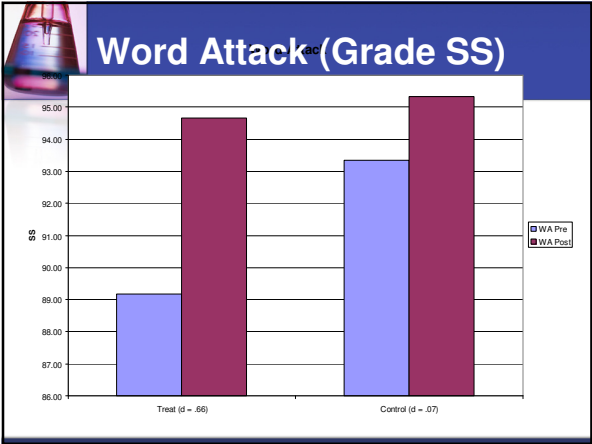
Berninger, Abbott, Abbott, Graham, & Richards (JLD, 2002)

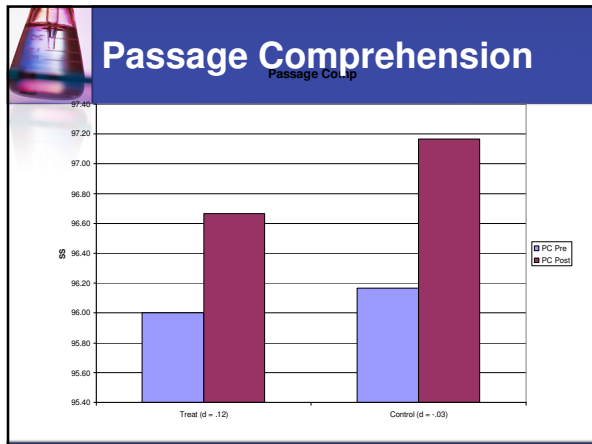
- Typically developing students in Grades 1-6 (n=600)
- Correlational Findings
 - Word recognition influences spelling
 - Spelling influences word recognition
- Concluded that instruction in either skill may transfer to the other

Pilot Intervention Study

(Masterson, Black, Ellman, Grieg, Wald, 2004)

- Ss= 5th graders failing NCLB criteria
- Delayed Treatment Design
- Paired, then Random Assignment
- Treatment
 - SPELL-Links Orthographic Instruction
 - CORE Model for Comprehension
 - 10 weeks; 20 50-min sessions





The “Golden Rule” of Literacy Assessment and Treatment

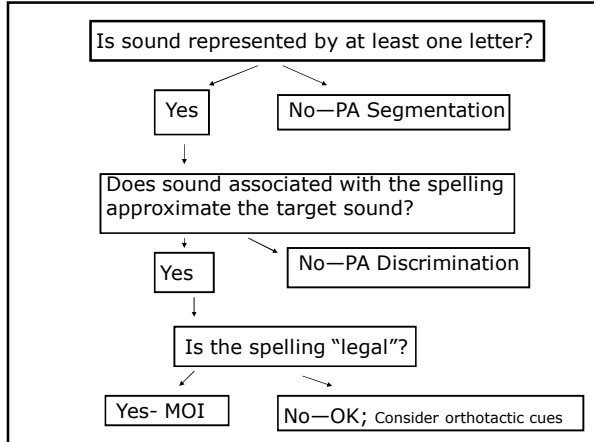
Knowledge of literacy development, research and theory is our guide!

- ### Assessment: Reading
- Phonemic (Phonological) Awareness
 - Decoding
 - Phonetic
 - Letter/Word Identification
 - Comprehension (Another visit to Ohio)
 - Appreciation for Linguistic Conventions- Miscue Analysis (Another visit to Ohio)
 - Fluency (Another visit to Ohio... Perhaps during football season?)

- ### Assessment of Spelling
- Test of Written Spelling-4
 - Value is Derived Score

Instruction/Intervention


- ### Spelling: A “Peek”
- Use a child’s spellings to pinpoint what is known and not known about literacy
 - Use spellings to identify target orthographic structures for word study, which involves reading, spelling, and writing activities
 - Use spellings to identify nature of “missing” knowledge related to orthographic structures
 - Bottom line: MORE than just spelling work!!



Selecting Appropriate Instructional Targets

Performance-based Model

- A prescriptive assessment uses **error analysis** to determine *why* a student misspells words and precisely *what type* of word study instruction is needed.
- The prescriptive assessment provides clear roadmap for differentiated word study instruction



Spelling Performance Evaluation for Language and Literacy (SPELL)
Masterson, Apel & Wasowicz 2002

Disclosure: The presenter is a co-author of SPELL and consequently has a financial interest in the product. The analyses described in this presentation can be done by hand or with the computer-based tool.

Selecting Appropriate Instructional Targets

SPELL prescriptive assessment vs. other spelling assessments:

- Standardized tests** quantify spelling performance relative to peers
Test of Written Spelling (TWS-4); Wide Range Achievement Test (WRAT-3); Test of Written Language (TOWL-3); Woodcock-Johnson-III – Spelling (WJ-3)
- Spelling inventories** describe what letter patterns a student can and cannot spell
Words Their Way Bear et. al. 2000; Spellography Moats 2002


Orthographic Structure	Level 1	Level 2	Level 3	Level 4
Consonants	b, d, p, t, v, z, r, l, g, h, w, y, qu Hard c and k	Soft c Soft g Flapped t, dd, t, d		/sh, ch, zh / spelled as ci), ti), si)
Consonant diagraphs	ng wh, sh, th			
Short vowel	All short vowels			
Long vowels	Long vowels spelled as vCe, and digraphs	Long vowels in multisyllabic words		
Within word doubling		All in Level 2		
Nasal Clusters		All in Level 2		
Liquid Clusters		All in Level 2		
S – clusters and abutting consonants		All in Level 2		
Vocalic r, l		All in Level 2		
Silent e and silent consonants		All in Level 2		
Unstressed vowels (schwas)			Schwa in 2 & 3 syllable words	Schwa in 4 + syllable words
Inflected words			All in Level 3	
Derived words				All in Level 4

Targets Have Been Selected, Nature of Problems Identified

Now What?

Optimal Word Study Instruction

- Explicit, Systematic**
 - Follow a sequence of instruction that reflects literacy acquisition research
- Tailored**
 - Teach only what most students need to learn; use the most appropriate instructional methods for most students
- Multilinguistic**
 - Pay close attention to *linguistic properties*; proceed gradually and systematically from the most simple to the most complex spelling patterns
- Encourage Active Learning**
 - Limit the number of new words introduced daily; focus on teaching *strategies* not words
 - Address incorrect views of spelling
 - Include instruction in self-monitoring and correction
- Apply in Authentic Contexts**
 - Integrate spelling, reading, and writing instruction




SPELL-Links

SPELL-Links
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SPELL-Links to Reading & Writing

- Three-volume spiral-bound curriculum
 - Program overview and teacher's guide
 - Systematically targets more than 70 spelling patterns
 - 275 step-by-step activities for one-on-one, small group and whole classroom instruction
- Teaching plans and checklists, scope and sequence and student progress charts, starter word lists and annotated student journal pages

Disclosure: The presenter is a co-author of SPELL-Links and consequently has a financial interest in the product.




SPELL-Links to Reading and Writing

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SPELL-Links to Reading & Writing

- **Volume 1**
 - Consonants
 - Consonant Digraphs & Trigraphs
 - Short Vowels
- **Volume 2**
 - Long Vowels
 - Other Vowels & Diphthongs
 - Within-Word Consonant Doubling
 - 'l, r' Clusters
 - 'm, n, ng' Clusters
- **Volume 3**
 - Silent Consonants
 - Syllabic-r, Syllabic-l Vowel Sounds
 - Unstressed Vowels
 - Inflected Words
 - Derived Words
 - Homophones, Contractions, Possessive Nouns, Irregular Plural Nouns & Irregular Past-Tense Verbs
 - Connected Writing Activities
 - Timed Reading Activities
 - Review & Practice
 - Resource Materials




SPELL-Links

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SPELL-Links to Reading & Writing

- Companion CD-ROM
 - Student Word Study Journal pages
 - Activity worksheets
 - Lesson-planning worksheets
 - Word cards
 - Home-Link activities



Instruction for Deficiencies in Phonemic Awareness

- Target specific segmentation/identification errors
- Control and gradually increase size of word or syllable
- Consider word position
- Consider phoneme properties
- Tie to spelling
- Work in authentic contexts (Big Books, interactive journals)




Phonemic Awareness

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Section **3**
Short Vowels

Lesson 20
Short Vowel a Sound as in cat, laugh



Materials Needed

- Word list
- Index cards
- Pencil or pen
- Highlighter pen
- Student's Word Study Journal
- Tap & Map Worksheet (p. xx)

1. Tap & Map


Learning Objective: Develop the ability to segment phonemes and map letters to the short vowel a – /æ/ – sound.

Performance Objectives: The student will segment spoken words into individual sounds and will write the letter or letters that represent the /æ/ vowel sound in the words with 70% or greater accuracy. The student will identify two strategies for spelling the /æ/ sound.

1 syllable	2 syllables
mat	happy
at	daddy
have	
tap	
laugh	
an	
man	
am	
than	

DID YOU KNOW?

Segmentation of short vowel sounds is most difficult when the vowel sound is followed by the consonant sounds /c, l, m, n/ or /r, j/. To facilitate learning, begin with words in which the vowel sound is **aa**, followed by the letters /l, m, n, ng/, or /nk/.



Instruction for Deficiencies in Orthographic Knowledge

- Choose target patterns according to spelling developmental patterns
- Encourage self-discovery of patterns
- Target contrasting patterns
- Describe patterns
- Establish key words
- Practice new patterns in controlled writing tasks
- Attend to specific orthotactic patterns
- Proofing activities (foil = illegal spelling)
- Work in authentic contexts (texts selected on basis of orthographic target, interactive journals, story builders)

Orthographic Knowledge (Phonics)

3. Sort It Out

Lesson 20
Short Vowel *a* Sound as in *cat, laugh*

Learning Objective: Develop knowledge of letter-sound relationships for the short vowel *a* - /æ/ - sound.

Performance Objectives: The student will identify the letter or letters that spell the /æ/ vowel sound in words and will sort the words according to different spellings of this vowel sound with 70% or greater accuracy. The student will identify the letter-sound relationships for the /æ/ sound.

Materials Needed

- Word list
- Index cards
- Pencil or pen
- Student's Word Study Journal

Starter Word List

'a'	'ai'	'au'	'a_e'
mat	plaid	laugh	have
at			cake
tab			pay
an			
am			
man			
dad			
than			

Teacher Preparation

1. Gather the materials.
2. Print each word from the Starter Word List or another list on an index card, then shuffle the cards. (Remember to

DID YOU KNOW?
The short vowel *a* sound is spelled with the letter 'a' in 97% of words.
Uncommon spellings include:
'ai' (plaid)
'au' (laugh)
'a_e' (have)

Instruction

“Fuzzy” Mental Graphemic Representations

- Discuss the characteristics of the printed word
- Spell the word with the printed form present
- Visualize the word
- Spell the word without the printed form present
- Spell word backward
- Proofing activities (foil = legal spelling)
- Work in authentic contexts (texts selected on basis of orthographic target, interactive journals, story builders)

SPELL-Links to Reading & Writing

Section 3
Short Vowels

Lesson 20
Short Vowel *a* Sound as in *cat, laugh*

Learning Objective: Develop clear and complete mental images of words containing the short vowel *a* - /æ/ - sound.¹

Performance Objectives: The student will sort words according to word ending and will correctly spell the /æ/ vowel sound in the words with 70% or greater accuracy. The student will identify two strategies for spelling the /æ/ sound.

Materials Needed

- Word list
- Index cards
- Pencil or pen
- Writing paper
- Student's Word Study Journal

Starter Word List

-al	-ang	-ank
pal	bang	bank
gal	sang	thank
Sal	hang	tank

Teacher Preparation

1. Gather the materials.
2. Print each word from the Starter Word List or another word list on an index card, then shuffle the cards. (Remember to use the Starter Word List the

DID YOU KNOW?
The student must rely upon clear and complete mental images to correctly spell the short vowel *a* sound² in the phonograms listed below.
al (pal, gal, Sal)
-ang (bang, sang, thank)
-ank (bank, thank, tank)

SPELL-Links to Reading & Writing

Section 3
Short Vowels

Lesson 20
Short Vowel *a* Sound as in *cat, laugh*

Learning Objective: Develop clear and complete mental images of words containing the short vowel *a* - /æ/ - sound.¹

Performance Objectives: The student will visualize words with the /æ/ vowel sound and then spell the words forward and backward without viewing the printed words with 70% or greater accuracy. The student will identify one strategy for spelling the /æ/ sound.

Materials Needed

- Word List
- Index cards
- Pencil or pen
- Writing paper
- Student's Word Study Journal
- Several photographs of familiar scenes (e.g., a park, a beach)

Starter Word List

carry
area
have
plaid
laugh

Teacher Preparation

1. Gather the materials.
2. Review the directions for the activity.
3. Guide student preparation. (If student handwriting is poor, prepare the word cards yourself. Also, be sure to use the Starter Word List the first time you

DID YOU KNOW?
The student must rely upon clear and complete mental images to correctly spell the short vowel *a* sound² when it is followed by the consonant sounds /c, l, n, r, / or /g/. These consonant sounds distort the vowel sound (e.g., area).
The student also must rely upon clear and complete mental images to correctly spell the short vowel *a* sound in words that contain uncommon spellings of this vowel sound (e.g., plaid, laugh, have).

Backward Spelling

- Used for words for which other strategies fail
- Student and specialist look at word (on table and then in air), talk about its characteristics, spell it forward and backward
- Student takes “picture” of word
- Student visualizes word, spells it forward, then backward.

Proofing Activities

Word List:

they	hey
way	play
maid	raid

They/ They went to the store.
The mayd / maid cleaned the house.

ey / ai
They went to the store while the mayd cleaned the house.

Instruction for Deficiencies in Semantic Knowledge

- Teach word meaning in conjunction with MOI activities

Instruction for Deficiencies in Morphological Knowledge

- Heighten awareness for inflectional and derivational morphology
- Link meaning between words
- Identify relationships
- Target correct spelling of inflections
- Target inflectional and derivations spelling patterns
- Contrast inflected vs. non-inflected word endings
- Identify commonalities among base words and derived forms
- Control for transparency of derivational forms
- Proofing activities (foils = incorrect base, modification, or inflection)
- Work in authentic contexts (texts selected on basis of morphological target, interactive journals, story builders)

Authentic Reading & Writing

- Goal: Kids need to see that our word study is to be used in "real reading and writing"
- Reading
 - Choose text that is appropriate for
 - Reading grade level
 - Gender
 - Interest
 - Children's Literature Databas Search System <http://clcd.odyssi.com/member/csearch.htm>
 - Have child identify/mark words that are characterized by target structure
- Writing
 - Provide words that student can use in generating narrative
 - Proofing activities (think about structure of foil)

Supplemental Reading Activity


- The student will be given several pages from a book at the 4th grade reading level. The student will read the pages and mark words containing the vocalic 'r'. Each different spelling of the 'er' sound can be marked in a different color or with a different shape.
- Book used:** *The Whipping Boy* by Sid Fleischman. Illustrated by Peter Sis.

Supplemental Writing Activity

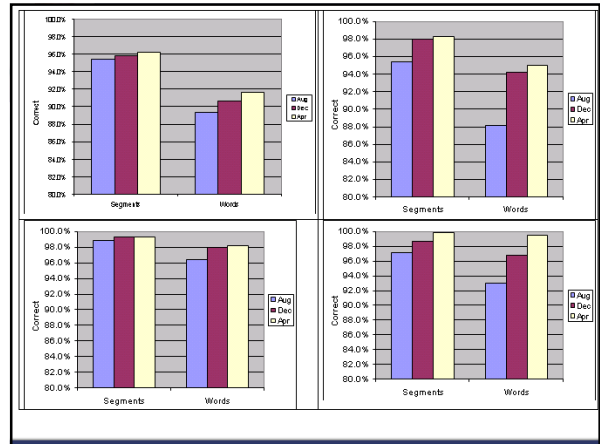
- Provide the student with the following paragraph and ask him or her to read it and check for spelling errors. When an error is found, the student should correct it. NOTE: All vocalic 'r' sounds are underlined in the sample below, but the underlining should be removed before the student receives it.

Measuring Progress

Cold Writing Samples



**Authentic Indicator
Suggested by Teachers**



Gr 3		Segments					Words									
Sample	Total	Deleted	Ortho Error	Ortho Vis Error	MOI Error	Correct	Total	Phon Error	Ortho Error	Ortho Legal	Ortho Homonym	Apost	Word Correct	Multi-morph	x segs word	
Aug	481.3	0.7%	1.9%	0.4%	1.5%	95.5%	182.2	1.9%	5.3%	2.6%	0.7%	0.2%	89.2%	11.6%	3.0	
Dec	314.4	0.6%	1.6%	0.3%	1.6%	95.9%	103.3	1.8%	4.2%	2.9%	0.2%	0.3%	90.6%	11.8%	3.0	
Apr	324.8	0.8%	1.2%	0.3%	1.5%	96.2%	109.3	2.0%	3.2%	2.3%	0.3%	0.3%	91.7%	12.3%	3.0	

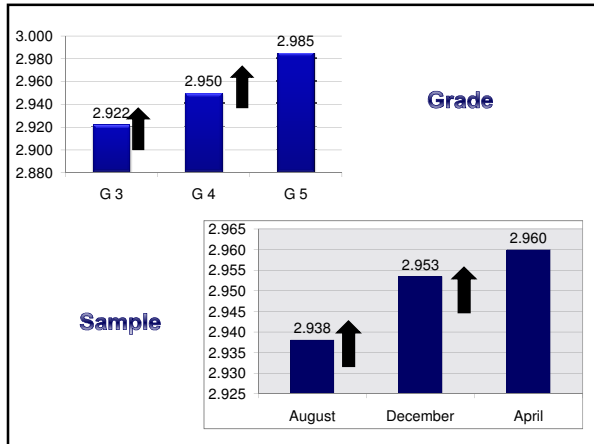
Gr 4		Segments					Words									
Sample	Total	Deleted	Ortho Error	Ortho Vis Error	MOI Error	Correct	Total	Phon Error	Ortho Error	Ortho Legal	Ortho Homonym	Apost	Word Correct	Multi-morph	x segs word	
Aug	295.1	0.6%	1.7%	0.6%	1.7%	95.4%	84.4	2.5%	6.0%	2.1%	0.3%	1.0%	88.1%	18.5%	3.5	
Dec	470.4	0.6%	0.9%	0.1%	0.6%	98.0%	137.7	1.9%	2.4%	1.1%	0.1%	0.3%	94.2%	18.9%	3.4	
Apr	613.0	0.7%	0.4%	0.1%	0.5%	98.3%	175.6	2.0%	1.3%	1.0%	0.0%	0.1%	95.0%	22.6%	3.6	

Gr 5		Segments					Words									
Sample	Total	Deleted	Ortho Error	Ortho Vis Error	MOI Error	Correct	Total	Phon Error	Ortho Error	Ortho Legal	Ortho Homonym	Apost	Word Correct	Multi-morph	x segs word	
Aug	444.1	0.2%	0.5%	0.1%	0.3%	98.8%	138.0	0.8%	1.8%	0.5%	0.0%	0.4%	96.4%	14.8%	3.3	
Dec	603.3	0.1%	0.3%	0.1%	0.3%	99.3%	190.4	0.1%	1.0%	0.4%	0.1%	0.4%	98.0%	14.0%	3.2	
Apr	563.5	0.2%	0.2%	0.1%	0.2%	99.3%	173.7	0.7%	0.6%	0.3%	0.0%	0.3%	98.2%	15.5%	3.2	

Gr 6		Segments					Words									
Sample	Total	Deleted	Ortho Error	Ortho Vis Error	MOI Error	Correct	Total	Phon Error	Ortho Error	Ortho Legal	Ortho Homonym	Apost	Word Correct	Multi-morph	x segs word	
Aug	528.5	0.3%	1.2%	0.3%	1.1%	97.2%	164.2	0.9%	3.7%	2.2%	0.2%	0.2%	93.0%	15.2%	3.2	
Dec	670.3	0.2%	0.4%	0.1%	0.6%	98.7%	210.7	0.6%	1.2%	1.1%	0.2%	0.1%	96.8%	14.1%	3.2	
Apr	727.5	0.1%	0.1%	0.0%	0.0%	99.8%	232.4	0.2%	0.2%	0.1%	0.0%	0.0%	99.5%	13.8%	3.1	

Spelling Sensitivity Score

- Segments, Words Scored Separately
 - 1 point if phonologically represented
 - 2 points if orthographically legal
 - 3 points if spelled correctly
- Interpreted Within Context of Length, Complexity



References

- American Speech-Language-Hearing Association. (2000). *Roles and responsibilities of speech-language pathologists with respect to reading and writing in children and adolescents: Guidelines, and technical report*. Rockville, MD: ASHA.
- Apel, K. (1999). Checks and balances: Keeping science in our profession. *Language, Speech, and Hearing Services in the Schools, 30*, 98-107.
- Apel, K. (1999). An introduction to assessment and intervention with older students with language-learning impairments: Bridges from research to clinical practice. *Language, Speech, and Hearing Services in the Schools, 30*, 228-330.
- Apel, K. (2004). Word study and the speech-language pathologist. *Perspectives on Language Learning and Education, 11*(3), 13-17.
- Apel, K., Masterson, J.J., & Hart, P. (2004). Integration of language components in spelling: Instruction that maximizes students' learning. In Silliman, E.R. & Wilkinson, L.C. (Eds.), *Language and Literacy Learning in Schools*. (pp. 292-315). New York: Guilford Press.
- Apel, K., & Masterson, J. J. (2001). Theory-guided spelling assessment and intervention: A case study. *Language, Speech, and Hearing Services in the Schools, 32*, 162-195.
- Apel, K., & Masterson, J. J. (2000). The ABC's of spelling: Development, assessment, and intervention: Prologue. *Topics in Language Disorders, 20*, (3), vi-viii.

- Apel, K., Masterson, J. J., & Niessen, N.L. (2004). Spelling assessment frameworks. In A. Stone, E.R. Silliman, B. Ehren, & K. Apel, (Eds.), *Handbook of Language and Literacy: Development and Disorders*. (pp. 644-660). New York: Guilford Press.
- Apel, K., & Masterson, J. J. (1997). Child language-learning disorders. In T. A. Crowe (Ed.), *Applications of Counseling in Speech-Language Pathology and Audiology*. (pp. 220-237). Baltimore, MD: Williams & Wilkins.
- Apel, K. & Swank, L. K. (1999). Second chances: Improving decoding skills in the older student. *Language, Speech, and Hearing Services in the Schools*, 30, 231-242.
- Bear, D., Invernizzi, M., Templeton, S., & Johnston, F. (2000). *Words their way: Word study for phonics, vocabulary, and spelling instruction*, 2nd. Ed. Upper Saddle River, NJ: Prentice Hall, Inc.
- Berninger, V., Nagy, W., Carlisle, J., Thomson, J., Hoffer, D., Abbott, S., & Johnson, C. (2003). Effective treatment for dyslexics in grades 4 to 6: Behavioral and brain evidence. In B. Forman (Ed.), *Preventing and treating reading disability: Bringing science to scale* (pp. 382-417). Timonium, MD: York Press.
- Carlisle, J. (2000). Awareness of the structure and meaning of morphologically complex words: Impact on reading. *Reading and Writing: An Interdisciplinary Journal*, 12, 169-190.

- Carlisle, J. F. (1995). Morphological awareness and early reading achievement. In Feldman, L. B. (Ed.), *Morphological aspects of language processing* (pp. 189-209). Hillsdale, NJ: Erlbaum.
- Catts, H.W., Fey, M.E., Zhang, X., & Tomblin, J.B. (2001). Estimating the risk of future reading difficulties in kindergarten children: A research-based model and its clinical implications. *Language, Speech, and Hearing Services in the Schools*, 32, 38-50.
- Catts, H.W., & Kamhi, A.G. (Eds.). (1999). *Language and reading disabilities*. Needham Heights, MA: Allyn & Bacon.
- Graham, S., Harris, K.R., & Troia, G.A. (2000). Self-regulated strategy development revisited: Teaching writing strategies to struggling writers. *Topics in Language Disorders*, 20, 4, 1-14.
- Cramer, R.L. (1998). *The Spelling connection: Integrating reading, writing, and spelling instruction*. New York: Guilford Press.
- Ehri, L.C. (2000). Learning to read and learning to spell: Two sides of a coin. *Topics in Language Disorders*, 20, 3, 19-36.
- Ganske, K. (2000). *Word journeys*. Guilford Press: New York
- Glenn, P., & Hurley, S. (1993). Preventing spelling disabilities. *Child Language Teaching and Therapy*, 9, 1-12

- Graham, S. & Harris, K. (1999). Assessment and intervention in overcoming writing difficulties: An illustration from the self-regulated strategy development model. *Language, Speech, and Hearing Services in the Schools*, 30, 255-264.
- Hasbrouck (1998). Reading fluency: Principles for instruction and progress monitoring. Professional Development Guide. Austin, TX: Texas Center for Reading and Language Arts, University of Texas at Austin.
- Hasbrouck, J. E., Inhot, C., & Rogers, G. H. (1999). "Read Naturally": A strategy to increase oral reading fluency. *Reading Research and Instruction*, 39(1), 27-18.
- Henry, M. (1990). *Words. Integrated decoding and spelling instructions based on word origin and word structure*. Austin, TX: Pro-Ed.
- Hewitt, L. (2000). Does it matter what your client thinks? The Role of theory in intervention: Response to Kamhi. *Language, Speech, and Hearing Services in the Schools*, 31, 186-193.

- Hughes, M. & Searle, D. (1997). The violent E and other tricky sounds: Learning to spell from kindergarten through grade 6. York, Maine: Stenhouse Publ.
- Hulme, C. & Joshi, R. M. (Eds.) (1998). *Reading and spelling: Development and disorders* (pp. 113-126). Mahwah, NJ: Erlbaum.
- Kamhi, A. G., & Hinton, L. (2000). Explaining individual differences in spelling ability. *Topics in Language Disorders*, 20, 3, 37-49.
- Kellman, M., & Apel, K. (2004). The effects of a multiple linguistic, prescriptive approach to spelling instruction: A case study. *Communication Disorders Quarterly*, 25, 2, 56-66.
- Masterson, J. J., Apel, K., & Wood, L. A. (2002). Technology and literacy: Decisions for the new millennium. In K. G. Butler & E. R. Silliman (Eds.), *Speaking, listening, reading, and writing in children with language learning disabilities*. (pp. 273-293). Mahwah, NJ: Lawrence Erlbaum Associates.
- Masterson, J. J., & Apel, K. (2000). Spelling assessment: Charting a path to optimal intervention. *Topics in Language Disorders*, 20, (3), 50-65.
- Masterson, J. J., Apel, K. & Wasowicz, J. (2002). *SPELL: Spelling Performance Evaluation for Language & Literacy*. Learning By Design, Inc., Evanston, IL.
- Masterson, J. J., & Crede, L. A. (1999). Learning to spell: Implications for assessment and intervention. *Language, Speech, and Hearing Services in the Schools*, 30, 243-254.

- Mehta, P., Foorman, B.R., Branum-Martin, L., & Taylor, P.W. (2005). Literacy is a unidimensional construct: Validation, sources of influence, and implications in a longitudinal study in grades 1 to 4. *Scientific Studies of Reading*, 9(2), 85-116.
- McMaster, K., & Espin, C. (2007). Technical features of curriculum-based measurement in writing. *The Journal of Special Education*, 41(2), 68-84.
- Moats, 2000 *Speech to Print: Language Essentials for Teachers* Paul Brookes Publishing
- Moats, L.C. (Winter 2005/2006). How spelling supports reading (and why it is more regular than you may think. *American Educator*, 12-43.
- Montgomery, D.J., Karlan, G.R., & Coutinho, M. (2001). The effectiveness of word processor spell checker programs to produce target words for misspellings generated by students with learning disabilities. *Journal of Special Education Technology*, 16 (2).
- Nation, K., & Hulme, C. (1997). Phonemic segmentation, not onset-rime segmentation, predicts early reading and spelling skills. *Reading Research Quarterly*, 32, 154-167.
- Richards, T.L., Aylward, E.H., Berninger, V.W., Field, K.M., Grimme, A.C., Richards, A.L., & Nagy, W. (2006). Individual fMRI activation in orthographic mapping and morpheme mapping after orthographic or morphological spelling treatment in child dyslexics. *Journal of Neurolinguistics*, 19, 56-86
- Scott, C. (2000). Principles and methods of spelling instruction: Applications for poor spellers. *Topics in Language Disorders*, 20, 3, 66-82.
- Singer, B. D., & Boshir, A.S. (1999). What are executive functions and self-regulation and what do they have to do with language-learning disorders? *Language, Speech, and Hearing Services in the Schools*, 30, 265-273.

- Stanovich, K. E. (1986). Matthew effects in reading: Some consequences of individual differences in the acquisition of literacy. *Reading Research Quarterly*, 21, 360-401.
- Stanovich, P.J., & Stanovich, K.E. (2003). *Using research and reason in education: How teachers can use scientifically based research to make curricular and instructional decisions*. Portsmouth, New Hampshire: RMC Research Corporation.
- Stone, A., Silliman, E.R., Ehren, B., & Apel, K. (Eds.). (2004). *Handbook of Language and Literacy: Development and Disorders*. New York: Guilford Press.
- Templeton, S. (2002). Spelling: Logical, learnable and critical. *The ASHA Leader*, 7, 3, 4-5 and 12.
- Treiman, R., & Bourassa, D.C. (2000). The development of spelling skill. *Topics in Language Disorders*, 20, 3, 1-18.
- Wasowicz, J., Apel, K. & Masterson, J. J. (2003). Spelling Assessment: Applying Research in School-Based Practice. *Perspectives on School-Based Issues Newsletter*, 4(1), 3-7.
- Wasowicz, J., Apel, K., Masterson, J.J., & Whitney, A. (2004) *SPELL-Links to Reading and Writing*. Evanston, IL: Learning By Design, Inc.