Morphological Awareness Intervention

TECHNIQUES FOR PROMOTING LANGUAGE AND LITERACY SUCCESS

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Compounding

side
fire
lawn
book
space
cow
walk
fighter
mower
shelf
suit
boy

Green & Wolter (2011)
# Word Part Combining

<table>
<thead>
<tr>
<th>(in blue)</th>
<th>(in green)</th>
<th>(in red)</th>
</tr>
</thead>
<tbody>
<tr>
<td>anti- (against)</td>
<td>-ped (to walk)</td>
<td>-ology (study of)</td>
</tr>
<tr>
<td>micro- (small)</td>
<td>-act- (to do)</td>
<td>-ion (state of being)</td>
</tr>
<tr>
<td>un- (not)</td>
<td>-dict- (to say)</td>
<td>-ness (state of being)</td>
</tr>
<tr>
<td>re- (repeat)</td>
<td>-mot- (to move)</td>
<td>-or (doer)</td>
</tr>
</tbody>
</table>

Green & Wolter (2011)
Morphological Awareness

- Morphological awareness can most simply be defined as “the study of word structure” (Carlisle, 2004)

  - Involves the ability to manipulate and combine morphemes

  - Adding suffixes to base words -> readers learn to see words as the sum of these component parts -> able to infer the meaning and pronunciation of unfamiliar words (Green, 2009).
Morphological Awareness: Impacts Language and Literacy

(Vocabulary, Reading, Writing)

(Bowers, Kirby, & Deacon, 2010; Carlisle, 1996; 2000; Carlisle 2004; Elbro & Arnback, 1996; Fowler & Liberman, 1995; Goodwin & Ahn, 2010; Reed, 2008; Singson, Mahoney, & Mann, 2000; Windsor, 2000)

Green & Wolter (2011)
Morphology and Vocabulary: The Connection

- Children increase vocabulary by using the meanings of familiar base words and suffixes to infer the meanings of unfamiliar derivatives.

- **piglet**
  - little pig

- **-let**
  - little

- **owlet**
  - little owl

Green & Wolter (2011)
Approximately 60% of new words acquired by school-age children are morphologically complex (Anglin, 1993).

Morphological awareness treatment resulted in ability to generalize this strategy to infer meaning in unknown words (Bauman, Edwards, & Kameenui, 2003; Baumann, Edwards, Kameenui, & Olejnik, 2002).
Morphology and Reading: The Connection

- **Decoding**
  - Morpheme knowledge / spellings
  - Quick recognition
  - Efficient Decoding
  - "shun"

- **Reading Comprehension**
  - Morpheme knowledge
  - Understand vocabulary
  - Text comprehension
  - "astronaut"
  - "Ocean" "naut"
  - naut = traveler

The oceanaut was interested in knowing more about fish habitats.

Green & Wolter (2011)
Researchers have found strong correlations between morphological awareness and success in reading, writing and spelling (Apel & Lawrence, 2011; Carlisle, 2000; Binder & Borecki, 2007; Green, 2009; Jarmulowicz, Hay, Taran & Ethington, 2008; Kirby, Desrochers, Roth & Lai, 2008; McCutchen, Green & Abbott, 2008; Nagy et al., 2006; Schwiebert, Green & McCutchen, 2002; Wolter, Wood & D’zatko, 2009).

Researchers have reported that knowledge of morphology is significantly related to reading and spelling abilities even in the elementary years (e.g., Carlisle, 1995; Carlisle & Nomanbhoy, 1993; Nunes, Bryant, & Bindman, 2006; Wolter, et al., 2009).
Morphology and Writing: The Connection

Our writing system is morphologically meaning-based:

- Different morphemes with identical pronunciations spelled differently (bare/bear)
- Morphemes with different pronunciations in different contexts maintain a constant spelling (sign/signature).

For example, consider the following spelling errors:

Esere for easier; Carlls for careless; Produst for produced; Counten for counting

Green & Wolter (2011)
Evidence suggests that children as early as kindergarten and first grade are incorporating their knowledge of base words into their spellings (e.g., Treiman, Cassar, & Zukowski, 1994; Treiman & Cassar, 1996; Wolter Wood, D’zatko, 2009) and exhibit an emerging knowledge of morphological endings in words (Carlisle, 1996; Carlisle & Nomanbhoy, 1993; Wolter et al., 2009).

Accuracy of use of morphological forms in writing is predictive of reading and spelling performance in third and fourth graders (Green, McCutchen & Schwiebert, 2001).
Reed (2008) conducted a research synthesis on 7 research studies and found strong treatment effects for morphological awareness interventions that targeted reading development in an age of acquisition pattern.

Two recent meta-analyses revealed morphological awareness instruction to be beneficial for school age children in the areas of reading, vocabulary, and spelling (Bowers et al., 2010; Goodwin & Ahn, 2010)
Goodwin & Ahn (2010) conducted a meta-analysis of 17 studies and found that morphological awareness instruction was effective for children with reading, learning, or speech and language disabilities.

Bowers et al. (2010) studied 22 research studies and found that morphological awareness instruction resulted in increased benefits for children with literacy deficits. Additionally, this instruction was more effective when combined with other literacy instruction.
Morphology, Phonology and Orthography: Connections for Readers and Writers

- **Morphology-Phonology**: Need to appreciate that some derivations involve sound changes (e.g., magic-magician).
- **Morphology-Orthography**: Need to know the orthographic patterns onto which meaning is mapped, also recognizing that some derivations involve spelling changes (e.g., five-fifth).
- **Phonology-Orthography**: Need to understand that sounds map onto letters (alphabetic principle) in order to decode and spell.

Green & Wolter (2011)
Morphological Development of Typical Students

Preschoolers: Have some ability to use suffixes and compounding to coin new words.

Second Graders: Can infer meanings of new words based on word structure.

Between Grades 3 and 5: There is a massive increase in children’s morphological knowledge.

Beginning in 4th Grade: Knowledge of syntactic function of derivational suffixes (i.e. –ness indicates a noun) begins (Tyler & Nagy, 1989) and continues to develop through the school years.

Green & Wolter (2011)
In written narratives, of 2nd and 3rd graders with Learning Disabilities, there were significantly fewer morphologically complex words than their typical peers and their use of the forms is less accurate (Carlisle, 1996).

Children with Learning Disabilities and have difficulty learning morphological rules (Wiig, Semel, & Crouse, 1973).
Children with Learning Disabilities tend to:

- Show poorer command of past tense inflections (Moran & Bryne, 1977).
- Tend to make morphemic errors in writing (Rubin et al., 1991).
- Continue to use less mature forms (Windsor, 2000; Curtis, Kutz, & Tallal, 1992).

Green & Wolter (2011)
Assessment
Morphological Awareness Assessment

- Likely will use non-standardized measures (Carlisle, 1996):
  - Generation task:
    - Observant: I need to _______ for my class.
    - Magic: David Copperfield is a good ______
  - Relational task:
    - moth – mother
    - Swim-swimming
- New Standardized
  - TOLD -4 (inflections and derivations)
  - New TOAL (derivations)

Green & Wolter (2011)
Examples from the Derivational Suffix Test (Green, 2004)

- Part A

Example: farm: My uncle is a __________.
1. ill: Maria worried about her __________.
2. quick: Sheila had to work __________.
3. nerve: I got __________.
4. five: A line formed and Sue was ______.*
5. swim: Kim wanted to improve her ______.
6. victory: Marco’s soccer team was __________.*

* shift words
Treatment: Links to the Classroom

Green & Wolter (2011)
Treatment Rationale

Instruction in changing meaning and how morphology can help

Incorporation of all three literacy codes (phonological, orthographic, and morphological)

Repeated practice with newly learned information

Application of newly-learned skills in functional reading and writing contexts

Green & Wolter (2011)
Treatment goals can be linked to national or state academic standards and benchmarks

These standards are in the areas of reading, writing, vocabulary and language

Green & Wolter (2011)
K-12 Standards

Speaking and Listening
• Inclusion of formal/informal talk

Language
• Using standard English in formal writing and speaking
  ▪ Determining word meanings and word nuances
  ▪ Acquiring general academic and domain-specific words and phrases

Green & Wolter (2011)
K-12 Standards continued...

**Reading**
- **Foundational Skills**
  - Print concepts (K−1)
  - Phonological awareness (K−1)
  - Phonics and word recognition (K−5)
  - Fluency (K−5)
- **Reading Comprehension**
  - Balance of literature and informational texts

**Writing**
- Writing informative/explanatory texts
- Writing narratives

Green & Wolter (2011)
Common Core Example: Language

- **Vocabulary Acquisition and Use**
- L.6.4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 6 reading and content, choosing flexibly from a range of strategies.
  - Use common, grade-appropriate Greek or Latin affixes and roots as clues to the meaning of a word (e.g., *audience*, *auditory*, *audible*).

Green & Wolter (2011)
Common Core Standards

- IPAD AP: *EZ Common Core* at the Ap. store
Example IEP Goal

- The student will determine the meaning of targeted grade-level academic words by identifying their roots and affixes, explaining their meanings, and using them correctly in a sentence with 80% accuracy across 2 of 3 sessions.

Taken from

**TEKS: Grade 5**
- (2) Reading/Vocabulary Development. Students understand new vocabulary and use it when reading and writing. Students are expected to:
  - (A) determine the meaning of grade-level academic English words derived from Latin, Greek, or other linguistic roots and affixes
Treatment Implementation
Treatment

- Where do we begin?
- What elements of morphology should we include?
- What kinds of activities can we utilize?
- How do we gather data?

Green & Wolter (2011)
Concept Introduction

- Compounding activity: “firewalker”
- Harry Potter Words: “toothflossing stringmints”
- Decode “sleeplessness” by breaking it into morphemes
- Begin targeting a pattern (inflectional or derivational) and provide multiple examples.
  - “ed” means something happened in the past
  - “-ful” means you are “full of” the base word
  - “un-” means you are not it or not doing it

Green & Wolter (2011)
Hi & Lois

HAND ME THE UNRACER

IT'S ERASER, DUMMY

WHEN YOU 'UN' SOMETHING YOU GET RID OF IT

YEAH, BUT WHAT'S "RACING"?

IT'S LIKE TRACING BUT YOU'RE NOT COPYING

MAKES SENSE... HERE'S YOUR UNRACER
We will learn about words and word parts to help you learn more words and become a better reader and speller.

Some suffixes change a word’s number or tell when a verb happened or is happening (e.g., plural “s” means more than one, “ed” means the action happened in the past).

These endings are spelled the same each time you use them, even though they may sound different (e.g., cats, girls).

Green & Wolter (2011)
Concept Explanation: Derivation

Learning about words and word parts to help you learn more words and become a better reader and speller.

Words can be broken up into parts called morphemes. ‘Morphing’ words means changing them to change meaning.

A base word can stand all by itself. It’s the power of the word and tells us what the word is about. A base word might be “read” or “heat”.

We can add a suffix or prefix to make a change. So we can change “read” to “readable.” Or, we can change “heat” to “preheat.”

Green & Wolter (2011)
Treatment

- Mission

- Activities
Mission: Create/Find Meaning

Affixes change word meaning, so:

Reasoning by analogy can increase word comprehension if affix is understood

Affix knowledge can increase development of new words

Green & Wolter (2011)
What is the meaning of the following words?
- centenarian
- definiendum
- fructuous
- pentarchy
- subjacent

Create derivations of the following nonsense verb: “ponk”
See if you can use the clues to figure out the mystery words described below. All of the words have a suffix that we’ve learned and were somewhere in today’s lesson.

**Who am I?** I work at a place where people deposit their money and cash their checks. (banker)

**What am I?** You could describe me with this word because I always tell things the way they really happened. I don’t lie. (truthful)

**What am I?** You could describe me with this word because I am good at creating things. (creative)

**Who am I?** I am someone who always loves a really good book. (reader)
We can sort out which words are morphologically complex and which are not.

We can break up the words into morphemes to make them easier to decode and comprehend.

Green & Wolter (2011)
Find the base word and the suffix in the following words. Underline the base and circle the suffix. Then, read the word and talk about what it means.

singer
protective
hopeful
teacher
wishful
selective
painter
joyful
creative
careful
 drummer
 active

Green & Wolter (2011)
Family Members Can:

- Look or Sound Alike and Be Related
  - swim – swimming
  - slip – slipped
- Look or Sound Different and Be Related
  - divide – division
  - explode – explosion
  - magic – magician
OR
- Look or Sound Alike but NOT Be Related (friends)
  - car-carrot
  - luck-cluck

Are teacher and teach related?
Are mother and moth related?
Are clinician and clinic related?
Are brother and broth related?

Green & Wolter (2011)
Morphology Instruction  (lesson adapted from Cunningham, 1998; Wolter, 2005)
Morphology Instruction: Sample morphology word sort

1. teach
   teacher
   talk
   talking
   swim
   swimming
   bake
   baker
   care
   careful
   amaze
   amazement

2. divide
   division
   sign
   signature
   ready
   readily
   magic
   magician
   invite
   invitation
   explode
   explosion
   happy
   happily

3. cap
   capitol
   car
   carrot
   can
   canvas
   sing
   missing
   pill
   pillow
   cat
   cattle
Relationship Activity: “Match-Up”

Read the base words in the left hand column. Then, draw a line from the base word in the left hand column to an appropriate suffix from the right hand column. Say the words out loud and talk about what they mean.

- bank
- faith
- defense
- paint

- ive
- er
- er
- ful

Green & Wolter (2011)
Mission: Identify Spelling Patterns

- Morphemes tend to have consistent spellings
- Rules govern the addition of suffixes
- Derived forms can help identify silent letters in base words

Green & Wolter (2011)
Spelling Activity: Sort It!

* Sort the following pairs of words into two groups:
  Tape/taping    Hop/hopping    Tap/tapping
  Hope/hoping    Slop/slopping  Slope/sloping

Group 1  
________
________
________

Group 2  
________
________
________

* What is the rule for Group 1? What is the rule for Group 2?
Sample Video – Small-Group Past-tense “ed”
Spelling Activity: Sort It and Spell It

- Sort it out: Given the following words, sort them into two groups
  
  | credible | acceptable | manageable |
  | divisible | incredible | fashionable |
  | reachable | edible      | horrible    |

- Spelling Strategy for adding –able or –ible: If you can delete the ending and the remaining base word is a real word, then the suffix is most likely –able

Green & Wolter (2011)
Mission: Develop Syntactic Awareness

Derivational affixes change words’ parts of speech so:

Can gain
- syntactic flexibility
- increased sentence comprehension
- increased written expression

Green & Wolter (2011)
• Change the word to fill-in-the-blank and make grammatically correct sentences.

The ___________ was very talented. (paint)
That is a __________ book. (read)
He has a college ___________. (educate)
The ___________ sketched a picture. (art)
Syntactic Activity: Morphing Words

Given a base word, “morph” the word into as many word forms as possible using previously taught prefixes and suffixes. Label each word according to its part of speech.

<table>
<thead>
<tr>
<th><strong>Word</strong></th>
<th><strong>Noun:</strong></th>
<th><strong>Verb:</strong></th>
<th><strong>Adjective:</strong></th>
<th><strong>Adverb:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Heat</em></td>
<td>Heater</td>
<td>Preheat</td>
<td>Heated</td>
<td>Heatedly</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reheat</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Apply</em></td>
<td>Application</td>
<td>Apply</td>
<td>Applicable</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Applicability</td>
<td>Reapply</td>
<td>Inapplicable</td>
<td></td>
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</table>

Green & Wolter (2011)
Given a base word, “morph” the word into as many word forms as possible using previously taught prefixes and suffixes. Label each word according to its part of speech.

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<tbody>
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<td>Electric</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Add –y to the words below. Then put those words in complete sentences that make sense. The first one is done for you.

Base Word:  New Word:  Sentence:

1. powder:  powdery:  The new snow was very powdery
2. puff:     ________:________________________________________
3. grass:   ________:________________________________________
4. sweat:  ________:________________________________________
Mission: Increase Phonemic Awareness

Can be addressed by examining derivational changes in words

“Shift words” undergo a phonemic change (and sometimes a spelling change) when a suffix is added

Green & Wolter (2011)
Phonemic Awareness Activity: Change or No Change?

- act-actor
- flame-flammable
- attain-attainable
- tickle-ticklish
- magic-magician
- please-pleasant

Green & Wolter (2011)
Mission: Apply in Functional Contexts

Show applicability in reading and writing tasks

Use curricular materials when possible

Green & Wolter (2011)
Morphological Awareness Instruction integrated in vocabulary/writing class lesson
<table>
<thead>
<tr>
<th>Vocabulary Word:</th>
<th>harmless</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category:</td>
<td>Science</td>
</tr>
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</table>

**Describe:**

One day Joe heard a noise, he ran home, when he was home he saw a bird take his mother. He was motherless. So now he was not hurt, not injured.

**Draw:**

so sad about his mom being eaten he was speechless. He was walking one day and he saw a rock he ate it and his teeth fell out. He was toothless. Now his mom was gone, she could not pay the rent. He was homeless.
NOTHINJURE

Toothless

Homeless

Speechless

Harmless

Draw: Write:

Joe the Lizard

one day Joe's mother got taken by a

fast falcan. She was gone! Joe was

motherless, he didn't remember where

he lived. NOW Joe is homeless. He was

hungry so he went to find something
to eat. He saw a fossil and bit it he became

toothless. It was now winter. Joe went into a stack

He was speechless, he is harmless he can't

This word makes me think of:

heat anyone at all

My current understanding:

I agree.
Find the morphed words in the paragraph. Talk about what they mean and how you could figure that out:

**Continental Drift**

In 1910, a young German scientist named Alfred Wegener (vay guh nur) became curious about the relationship of the continents. He hypothesized that Earth’s continents had moved! Wegener’s hypothesis was that all the continents were once joined together in a single landmass and have since drifted apart. Wegener’s idea that the continents slowly moved over Earth’s surface became known as continental drift.

Wegener attempted to explain how continental drift took place. He suggested that the continents plowed across the ocean floors. Unfortunately, Wegener could not provide a satisfactory explanation for the force that pushes or pulls the continents. Because Wegener could not identify the cause of continental drift, most geologists rejected his idea.
Look at the passage below and underline the words with the –or, able, and -ation suffixes. Then, answer the questions.

Sarah had a wild imagination. She liked to daydream. Sometimes she was a brave warrior. Other times she was a sailor on a boat in the ocean. There was always the temptation to daydream at school. Her teacher said this was not acceptable. He wanted Sarah to pay attention in class. Sarah did want to learn. She was agreeable and tried to listen carefully to class information. Her teacher helped her use her imagination in different ways. He let Sarah be the illustrator of class stories. He let her be a lead actor in the school play. Sarah had to do a lot of preparation for these jobs. But she thought it was fun. And, she had the admiration of her friends. So, she enjoyed daydreaming at home and trying new things at school.

Green & Wolter (2011)
Comprehension Questions

1. What did Sarah daydream about?
2. Why was it not acceptable to daydream at school?
3. How did Sarah use her imagination in different ways?
4. Why did she have to do a lot of preparation?

Green & Wolter (2011)
“Applicization”

Think of a student on your caseload for whom this type of intervention would be appropriate.

- How might you determine baseline performance?
- How would you introduce the concept in therapy?
- What type of activities would you include?
- How would you measure progress?
Intervention Resources

- **Ready, Set, Grammar, Scissors, Glue and Grammar Too, No Glamour Grammar, 100% Reading: Decoding and Word Recognition** *Linguisystems* 1-800-PRO-IDEA
- **Words: Integrated Decoding and Spelling Instruction** *Pro Ed* 1-800-897-3202
- **Words Their Way: Word Study for Phonics, Vocabulary, and Spelling Instruction** *Pearson Education*, 1-800-223-1360
- **Language! Sopris West** (Supplement: Roots!)
- **Month by Month Phonics for the Upper Grades** by Patricia Cunningham (available in teachers’ supply stores)
- **Vocabulary from Classical Roots** *Educators Publishing Services*

Green & Wolter (2011)
References

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