Learning to Read Words by Sight

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Exploring Possible Misconceptions about Sight Word Teaching and Learning

What are conventional views?

- What are sight words? How are they read?
- How are they different from other words?
- How are they learned?
- What forms of instruction help learning?
- Does decoding help?
- Does spelling help?

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Conventional Views of Sight Word Teaching and Learning

- Memorize whole words as visual forms
- Applies to high frequency words, irregularly spelled words
- Teaching methods:
  - Flash cards
  - Attaching written labels to objects around classroom
  - Exposure to words repeated in predictable books
- Different form of learning from decoding, phonics

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Different Ways to Read Words

By Decoding:

1. Convert letters into sounds,
2. Blend sounds to form a pronunciation,
3. Match pronunciation to a word meaning in memory

Beginning readers: Identify graphemes, convert to phonemes, blend

Phonemes are smallest sounds in words,

Graphemes are 1 or more letters that represent phonemes

(IPA phonetic symbols shown between slash marks – depict phonemes)

- D O G --> /d/ /a/ /g/ --> "dog"
- CH E CK (5 letters, 3 graphemes) - > /č/ /E/ /k/ - > "check"

More advanced readers

- Segment and blend larger letter units: syllables, prefixes, suffixes, root words
  - EXCELLENT -> /ex/ /cel/ /lent/ (syllables)
  - UPHOLDING -> /up/ /hold/ /ing/ (prefix, root, suffix)

Morphemes – minimal units of meaning

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Sources of Confusion

- Graphemes versus letters
- Graphemes are the important units for decoding

1 grapheme may consist of 2 or 3 letters representing 1 phoneme

SH, TH, CH, NG, WH, PH, CK, EA, AI, GHT

- Letters can mislead about the phonemes in words
- How many phonemes in these words?

Teach
Thing
Straight

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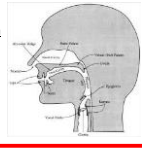
Sources of Confusion

- How many phonemes in these words?

Teach	3 phonemes	t + ea + ch 3 graphemes but 5 letters
Thing	3 phonemes	th + i + ng 3 graphemes but 5 letters
Straight	5 phonemes	s + t + r + ai + ght 5 graphemes but 8 letters

To detect phonemes, monitor sounds and **mouth movements**

Place of Articulation
Lips
Tongue
Teeth



Manner of Articulation
Air stops or continues
Air noisy, hissing
Nasal air

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Different Ways to Read Words

- ***By Analogy***: adapt known word to read unknown word
  j ump → d ump
  n ight → br ight
- ***By Prediction***: use of context & partial letters
  - At the hospital, the doctors and n……
- ***From Memory / By Sight***: retrieve word from memory
  Dog → "dog" Cat → "cat"


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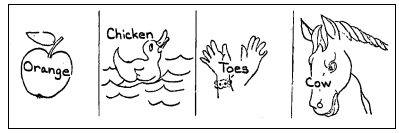
AUTOMATICITY – Stroop Task

Task: Name the color or picture and ignore the words

RED GREEN BLUE BLACK



Evidence that familiar words are read automatically from memory.

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How Are Sight Words Learned?

FACTS TO EXPLAIN
- Thousands of words are recognized in an instant
- Accuracy is high, especially in text
- Word shapes are not distinctive
- Similarly spelled words aren't confused
  - Stick, sick, slick, stink, stiff
- Words are learned quickly – little practice required

CONCLUSION
- Powerful memory **system** needed as the explanation
- Rote memory for unique visual forms can't explain learning

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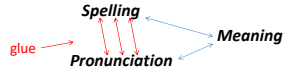
Reading Words from Memory

- Process of forming connections



Knowledge of the grapheme-phoneme system provides the *glue* connecting spellings to pronunciations in memory: called orthographic mapping

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Examples of grapheme-phoneme connections for regularly spelled words

S T O P	CH E CK	←Graphemes
/s/-/t/-/a/-/p/	/č/-/ɛ/-/k/	Connections (glue)
		←Phonemes
G I GG LE	B IR D	← Graphemes
/g/-/l/-/g/-/L/	/b/-/r/-/d/	Connections (glue)
		←Phonemes

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Examples of grapheme-phoneme connections for irregularly spelled words

I S* L A N D	S W* O R D
/ay/-/l/-/æ/-/n/-/d/	/s/ - /o/ - /r/ - /d/
L I S T* E N	S I G* N
/l/-/i/-/s/-/ɛ/-/n/	/s/ - /ay/ - /n/

* "Silent" letters

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Knowledge needed to form connections and secure words in memory

- **Phoneme segmentation**
  - Need to analyze the word's pronunciation into the smallest sounds or phonemes
- **Grapheme-phoneme correspondences**
  - Need to know letter-sound units of the writing system **(the glue)**
- **Orthographic Mapping**
  - Need to connect graphemes to phonemes within that word
- **Word Meaning**
  - Need to bond spelling-sound connections to meaning in memory

Multi-letter Units to Form Connections for Sight Word Learning

More advanced readers

Compute mappings between

- **Written multi-letter units**
- **Spoken units: syllables, root words, prefixes, suffixes**

- **Connect spelling and pronunciation to word meaning in memory**
- **Example: in ter est ing**
  (4 syllables; 1 root *interest*, 1 suffix *ing)*

Word Reading: Phases of Development

Labels reflect the predominant type of connection to read and spell words

Phase 1: Pre-alphabetic

Use of visual, non-alphabetic connections

Phase 2: Partial alphabetic

Use of partial letter-sound connections

Phase 3: Full alphabetic

Use of more complete grapheme-phoneme connections

Phase 4: Consolidated alphabetic

Use of multi-letter units (syllables, morphemes, affixes) to form connections

Examples: -ING, -TION, PRE-, CON-; IN – TER – EST – ING

Pre-alphabetic Phase

- Pre-readers
  - Cannot decode words; cannot read text independently
- Little if any use of letter-sounds to read or spell
- Writes words with random, pseudo or memorized letters, not connected to sounds
  - Example: knowing letters in own name
- Pretends to read memorized stories
- Uses visual cues to remember how to read words and environmental print

VISUAL CUES USED TO READ WORDS

dog
Tail as visual cue

camel
Two humps as visual cue

Colors and logo to read McDonalds

LOOK

Eyes as visual cues to read LOOK

Colors and logo – Misread as Pepsi

Movement into Partial Alphabetic Phase

- Learn letter shapes, names and sounds
- Acquire some awareness of sounds in words
- Can write partial letter-sound spellings of words
  - Examples: BP for bump; KR for car
  - Very hard to remember correct spellings
- Cannot decode new words
- Can guess words from partial letters or context
- Can read words by sight
  - Connects partial letters to sounds in words
  - Misreads words sharing similar letters: *stop* for *step*
  - Not fully accurate

STEP
/s/ /p/

Invented Spellings in the Partial Phase

* Informative window revealing child's knowledge
* Child uses sounds in letter names to write the sounds she detects in words
* Spellings are partially phonetic – you can read most of them
* But spellings are not correct

Female, Age 6, Kindergarten

Bot	(boat)
Grl	(girl)
chikn	(chicken)
Fernds	(friends)
Nar	(nature)
Blawcs	(blouses)
truc	(truck)
Drde	(dirty)
Monsr	(monster)
DriKin	(drinking)

Targets of instruction – Partial alphabetic Phase

- Letter shapes and names
- Grapheme-phoneme correspondences
  - Phonemes not in letter names: short vowels; c=/k/; g=/g/; h; w; y;
- Phonemic awareness:
  - Segmentation for spelling and orthographic mapping
  - Blending for decoding
- Instructional activities
  - Guided invented spelling
  - Reading simple text with words conforming to students' grapheme-phoneme knowledge

Movement into Full Alphabetic Phase

- Can segment words into phonemes
- Knows the major grapheme-phoneme correspondences
  - The glue
- Can decode unfamiliar words
- Able to connect all graphemes to phonemes to bond spellings, pronunciations, and meanings in memory

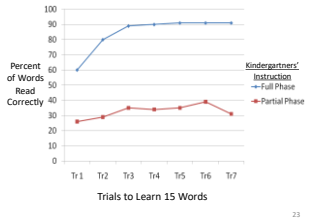
Orthographic Mapping Practice in Reading Words: Teach Kindergartners to Connect All the Graphemes to Phonemes

Final Sound Varied Across Words
Set 1: SAB SAP SAM SAT SAD SAN SAS
Set 2: SIB SIP SIM SIT SID SIN SIS
Set 3:SUB SUP SUM SUT SUD SUN SUS
Initial Sound Varied
Set 4: LAS RAS SAS BAS DAS PAS TAS
Set 5: LOS ROS SOS BOS DOS POS TOS
Set 6: LUS RUS SUS BUS DUS PUS TUS
Review Mix of Words
BAP DAT LAB PAM RAS SAN TAD

Final Cluster Varied
Set 7: SIP SIM SIMP; SIN SID SIND; SIS SIT SIST
Set 8: SUP SUM SUMP; SUN SUD SUND; SUS SUT SUST
Initial Cluster Varied
Set 9: DOS ROS DROS; BOS LOS BLOS
Set 10: DIS RIS DRIS; BIS LIS BLIS
Set 11: SUM PUM SPUM; TUM STUM
Set 12: SIM PIM SPIM; TIM STIM
Review Mix of Words
BUP BLUT DUD DRUB SPUM STUD SUMP RUS LUND PUST

Kindergartners in the full and partial phases of development learn to read words with corrective feedback across 7 trials

15 words children practiced reading
bend
bib
blast
blond
dot
drip
drum
dump
lamp
lap
list
spin
stab
stamp
stand



Other Abilities of Readers in the Full Alphabetic Phase

- Able to decode novel words
- Sight word reading vocabulary expands
  - Word reading is accurate
  - Words are recognized automatically
- Children can invent more complete letter-sound spellings
- Children can remember correct spellings of words that are consistent with their knowledge of the spelling system
- Children can read text at their level independently

Movement into the Consolidated Alphabetic Phase

- Growth in sight word vocabulary
- Recurring letter patterns become unitized
  - Examples: **-amp** in camp, damp, lamp, champ
  - -ing, -ed, -ack, -ake, -est, pre-, -tion,
- Forming connections for sight word learning
  - Segment spelling into multi-letter units
  - Segment pronunciation into syllables, morphemes, affixes
  - Connect written and spoken units to retain the word in memory
  - Example: **IN TER EST ING**

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Spelling Words: Very Close Relationship to Reading Words

Evidence:

- Reading words improves memory for spellings
- Learning to spell words facilitates reading words
  - Reciprocal relationship
- Highly correlated, with *r's* above .70
- Same underlying processes:
  - Knowledge of the alphabetic spelling **system**
    - **Phoneme segmentation**
    - **Grapheme-phoneme relations**
    - **Multi-letter spelling patterns**
  - Using knowledge to form **connections** between spellings and their pronunciations and secure letters in memory

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Revising Old Ideas

- Learning to read words by sight:
  - Enabled by alphabetic knowledge, grapheme phoneme mapping, decoding, phonics
  - Not rote memorization of visual forms
  - All words that are read become sight words, not just high frequency or irregular words
- Phonemic awareness: teaching and learning
  - Attention to articulation as well as sounds
  - Requires specialized knowledge by teachers
- Spelling ability:
  - Closely related to reading ability (same processes)

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Vocabulary Learning Study – 2nd Graders

Students were 20 2nd graders, Mean age = 7yrs. 7 months

Reading on grade level

Taught two sets of words, one with spellings, another without spellings

- Examples of words:
  - Gam – family of whales
  - Cur – a homeless dog
  - Sod – wet, grassy ground
  - Fet – big, fun party
  - Nib – tip of a pen
  - Yag – fake jewelry
  - Keg – a barrel that holds water

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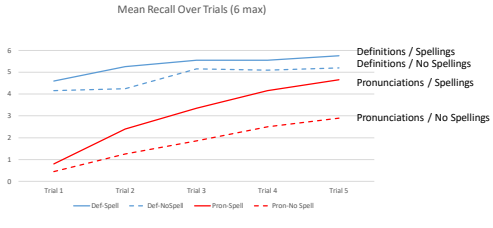
Recall of Pronunciations and Definitions Learned with and without Spellings



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2nd Graders' Comments during Test Trials Recalling Pronunciations in the Spelling Exposure Condition

- A few children named letters before recalling words
- After mispronouncing a word and then seeing its spelling, one child exclaimed "Oh, I misspelled it!"
- One said "I know there are two E's at the end" when trying to recall *hicatee* (kind of turtle).

Further evidence that spellings of words were bonded to pronunciations in memory

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Vocabulary Learning Study – 5th Graders

Students were 32 5th graders, Mean age = 10 yrs. 11 months

Grouped by reading/spelling ability

Higher Readers (7.3 Grade Equiv.) vs. Lower Readers (4.6 GE)

They were taught two sets of 10 concrete nouns

- One set: spellings seen
- One set: spellings not seen; words repeated extra times

- Examples of words:
  - Barrow: a small hill
  - Tandem: a horse-drawn carriage
  - Fribble: a foolish shallow person
  - Tamarack: a big tree found all over America
  - Proboscis: a really big nose

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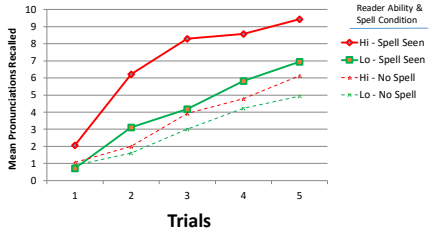
Recall of pronunciations when spellings were seen vs. not seen by higher and lower 5th grade readers



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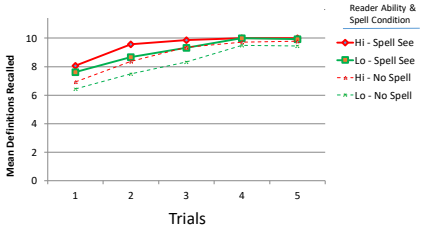
Recall of definitions when spellings were seen vs. not seen by higher and lower 5th grade readers



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Vocabulary Learning – Attention

- Question: Will drawing attention to the spellings enhance facilitation?
- 45 first graders, mean age = 6 yrs. 9 months
- Letter-sounds known; Reading grade equivalent = 2.1
- Taught pronunciations and meanings of 6 words
  - * One set with spellings
  - * One set with no spellings
- Three conditions compared
  - Pointing to spellings during study trial and feedback
  - Mere exposure to spellings during study trial and feedback
  - No exposure to spellings

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Vocabulary Learning Conditions

No Spelling (Control)

Soft mushy food for babies

No spelling is shown.
Word pronounced "Pap".
Student repeats word twice.

Spelling Exposure Only

A group of whales

Gam

Spelling is exposed.
Word pronounced "Gam."
Student repeats word. No attention is directed at print.

Pointing to Spellings

A homeless dog

Cur

Spelling is exposed.
Word pronounced "Gam."
Student points to spelling and repeats word.

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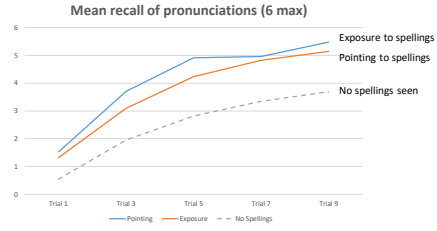
Recalling Pronunciations Learned by Pointing to Spellings, by Exposure to Spellings, and by No Exposure



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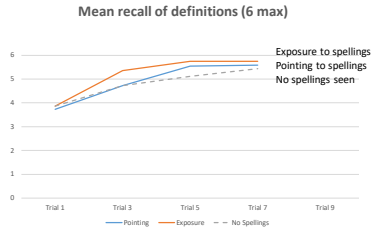
Recalling Definitions Learned by Pointing to Spellings, by Exposure to Spellings, and by No Exposure



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Vocabulary Learning – Decoding

Vocabulary Word	Meaning
Keg	A barrel that holds water
Hun	Someone who destroys things
Lad	A boy who works with horses.
Sod	Wet grass ground
Gam	A group of whales
Pap	Soft mushy food for babies
Cur	A homeless dog
Yac	Fake jewelry
Nib	A pen
Jib	A part of a sail
Ret	To soak
Mog	To walk along slowly

- Question: Will having students decode the words enhance facilitation from spellings?
- 56 1st graders, mean age = 6 yrs. 9 mo.
- Letter-sounds known
- Reading grade equivalent = 2.1
- Taught pronunciations and meanings of 6 words
  - * One set with spellings
  - * One set with no spellings
- Three conditions compared:
  - Decoding spellings
  - Exposure to spellings
  - No spellings seen

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Vocabulary Learning Conditions

No Spelling (Control)

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No spelling is shown.
Word pronounced "Pap".
Student repeats word twice.

Spelling Exposure Only

A group of whales

Gam

Spelling is exposed.
Word pronounced "Gam."
Student repeats word. No attention is directed at print.

Decoding Spellings

A homeless dog

Cur

Spelling is exposed.
Word pronounced "Cur."
Student sounds out letters:
/c/ - /u/ - /r/. Student repeats word.

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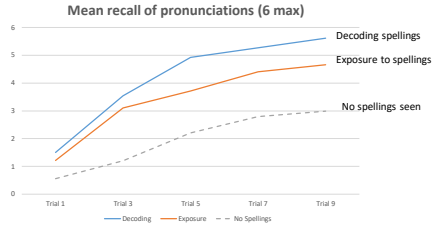
Recalling Pronunciations Learned by Decoding Spellings, by Exposure to Spellings, and by No Exposure



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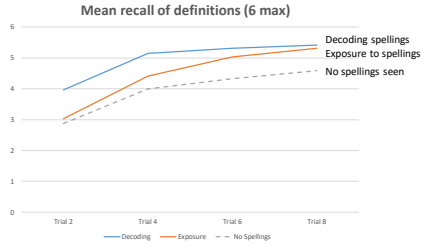
Recalling Definitions Learned by Decoding Spellings, by Exposure to Spellings, and by No Exposure



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Vocabulary Learning – Novice Beginners

FE 26
MO 93
BA 18
JI 47
LU 50

- Pre-K and Kindergartners
  N = 60; Mean age = 4 yrs. 10 mo.
- Knew letter names
- Read few if any words or nonwords
- Were taught CV pronunciations over trials
  - CVs pronounced with vowel letter names
    "A pig with wings is called Fee."

Learning Conditions:
- Exposure to spellings
- Control: Exposure to irrelevant print (numbers)

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Vocabulary Learning Conditions

Spelling Exposure

MO

Number Exposure (Control)

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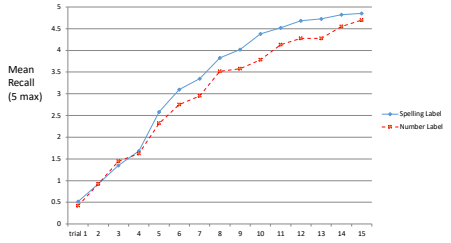
Recalling Pronunciations Learned with Spellings vs. Numbers by Pre-K and K Children



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Conclusions

- Exposure to spellings facilitates memory for pronunciations and meanings compared to no spellings.
- Effect is incidental:
  - no attention to spellings;
  - no explicit decoding required
  - orthographic knowledge and mapping are activated automatically
- Facilitation is not limited developmentally.
  - Evident in children from pre-K to 5th grades
  - Multiple studies across the globe - Ricketts
- Facilitation from spellings in learning pronunciations occurs in both good and poor readers.
  - Boost is greater in good readers.
- Decoding enhances facilitation but drawing attention to spellings does not

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Orthographic Facilitation of Vocabulary

- Participants with Autism Spectrum Disorders
  - Lucas & Norbury, 2013; Ricketts, Dockrell, Patel, Charman, & Lindsay, 2015
- Down's Syndrome
  - Mengoni, Nash, & Hulme, 2013
- English language learners and bilingual students
  - Jubenville, Sénéchal, & Malette, 2014; Miles, Ehri, & Lauterbach, 2016; Vadasy & Sanders, 2015
- Students with specific language impairments
  - Ricketts, Dockrell, Patel, Charman, & Lindsay, 2015

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Application to Instruction

- How might principles of sight word learning be applied to help students build their sight vocabularies?
- At each stage of development?
- How incorporate into the following:
  - reading words in isolation and in text,
  - spelling instruction,
  - Vocabulary learning

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What can teachers do?

- Teach letter names in pre-school
- Work on Phonemic Awareness, Phonemic Segmentation activities in Pre-K
- Discuss grapheme-phoneme correspondences in fun and integrative ways
  - Use childrens' names
  - Talk about spellings of familiar items
  - Let children select letters
- Encourage inventive spelling
  - Provide letters for children if handwriting of letters is not yet developed
- Show spellings of vocabulary words
- Provide Definitions of words while students view spellings

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Other Related Sessions to Attend

Tuesday, March 6

1:50 – 3 PM T26 Sight words: Comparing approaches and surveying the field

3:30 – 4:40 PM T36 Vocabulary learning in the elementary classroom: The benefits of orthography and decoding on student word acquisition