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Letter Names, Sounds, or Both?

What the Research Says about Alphabet Learning In Young Children

Lucy Hart Paulson, EdD, CCC-SLP
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Agenda



- A** Research findings on letter learning
- B** Characteristics of letters that may facilitate learning
- C** Research on letter learning and teaching

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Current Challenges

- There are wide ranges of alphabet learning in young children.
- Approaches to alphabet teaching vary greatly with relatively little knowledge about the impact of these various methods of instruction (Piasta & Wagner, 2010a).

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An unanswered question

“What are the factors that underpin huge Letter Naming Knowledge differences observed among prereaders and even beginners?”

Jean Foulon, 2005

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Early Learning Standards

Early Learning Standards or Guidelines across the states have a range of letter learning expectation from “some” to a specific number (e.g. ranging from 10 to 20).

Newly revised Head Start standards (2015) have increased the letter learning benchmark to:

- 18 uppercase letter names
- 15 lowercase letter names
- knows the sounds associated with several letters

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Common Core Reading Standards: Kindergarten Foundational Skills

1. Print concepts: Demonstrate understanding of organization and features of print:
 - a. Follow words left-right, top-bottom, page-page
 - b. Recognize spoken words represent written words with specific letter sequences
 - c. Use spaces between words
 - d. Name all upper and lower case letters**

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Common Core Reading Standards: Kindergarten Foundational Skills

3. Phonics and word recognition: Know and apply grade-level and word analysis skills in decoding words

- Demonstrate knowledge of 1:1 letter-sound correspondences**
- Associate long/short sounds with common spellings for 5 major vowels**
- Read common high-frequency words by sight
- Distinguish between similarly spelled words by identifying sound of letters that differ

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Definitions

Early literacy learning is defined as the time period from birth to six years of age (Robyak, Masiello, Trivette, Roper & Dunst, 2007).

Early reading and writing occur in kindergarten into the early elementary grades.

Early Childhood is the period from birth through age 8.



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Narrow Window for Alphabet Learning

- Floor effects** in preschool children
- Ceiling effects** in studies with older children (Ouellette & Haley, 2013)

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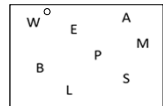
Alphabet Knowledge

Understanding of letter forms, names and corresponding sounds

Measured by

- Recognition:** ask the student to find the letter 'M'
- Production:** show the letter 'M' and ask the student to name the letter and/or sound
- Writing:** ask the student to write the shape of the letter 'M'

(National Early Literacy Panel, 2008)





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Predicting Later Reading Development

The **best TWO** early kindergarten predictors of reading achievement in 2nd grade are:

- ☒ **Phonemic awareness (sound isolation)**
- ☒ **Letter name knowledge**



(National Early Literacy Panel, 2008; National Reading Panel, 2000)

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"Early Identification of Reading Disabilities: Within an RTI Framework"

A screening battery in kindergarten of:

- **Letter name fluency**
- **Phonemic awareness (sound matching)**
- **Rapid Naming**
- **Nonword repetition**

Accurately identified good and poor readers at the end of 1st grade.



(Catts, Nielsen, Bridges, Liu, & Bontempo, 2015)

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Transition from Early Literacy to Early Reading and Writing

- **Alphabetic principle** is the understanding that there is a systematic relationship between letters and speech sounds.

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Bidirectional Relationship

Phonological skills may be the catalyst for letter name to sound knowledge

- being able to segment the sounds in letter names
"b" into /b/ /i/

(Piasta & Wagner 2010b)

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Four-Part Processing Model for Word Recognition

Adams, 1990
- From Seidenberg & McClelland, 1989
- Enhanced by Moats (LETRS)

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"The **Phonological Processor** cannot usefully learn letter sounds until the Orthographic Processor has learned to discriminate the individual letters with which they must be linked."

"The **Orthographic Processor** cannot begin to learn spellings until it has learned to recognize the letters from which they must be built."

(Adams, 1990, p. 362 & 2013)

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Letter-Naming Abilities...

- In preschool and kindergarten is a well-established predictor of children's later literacy skills (National Early Literacy Panel, 2008)
- For example, when assessed at ages 3.5 years, 4.5 years, and 5.5 years was the most consistent predictor of 2nd grade word reading and spelling disabilities. (Puolakanaho et al. 2007)

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Letter Knowledge . . .

- There is a relationship between early letter knowledge and later literacy skills, independent of children's age, socioeconomic status, IQ, or other emergent literacy skills, such as oral language and phonological awareness.

(National Early Literacy Panel, 2008)

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Letter Name Knowledge



LNK at entry into kindergarten was the best individual predictor of K reading achievement and second best after phoneme segmentation in first grade reading achievement.

LNK allows children to bridge the gap between visual-cue strategy to phonetic-cue strategy in early literacy.

LNK contributes to phonemic sensitivity.
(Foulin, 2005)

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Letter Names → Sounds



- Letter names serve as an entry point into learning letter sounds and understanding the alphabetic principle.
- Children extract the sound cues in letter names (e.g., CV /bē/ in B or VC /ĕf/ in F).
- Evidence for this can be found in the invented spellings of young children (e.g., r for are, yt for what, etc.)

(Baillet, et al., 2009; Evans et al., 2006; Foulin, 2005; Piatsta & Wagner, 2010b; Treiman, Tincoff, Rodriguez, Mouzaki, & Francis, 1998)

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Challenges of Letter Learning

Letter names are arbitrary and designated by cultural convention.

Letter shapes are similar and easily confused.

Many letters have different upper and lower case forms.

Letter names generally sound similar.
(Adams, 2013)



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Letter Properties

(Piasta & Wagner, 2010b)

- Consonant or vowel
- Manner of articulation
- Sound/symbol associations (i.e., B vs C)
- Age when a speech sound is typically produced
- Confusability of letter shape and/or pronunciation with other letters
- Frequency in print materials
- Letter name structure
- Letter name-to-sound facilitation effect

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What's in a LETTER?

- Graphic shape
- Name
- Sound
- Recognition rate



Each has a contribution and all must be considered separately.

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Upper/ Lower Case Contrasts

SAME	SIMILAR	DIFFERENT

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Visual Shape Characteristics

Straight i l

Curved C c J j O o S s U

Straight Intersections E F H I L T †

Curved Intersections B D G P Q a b d e f g h
m n p q r u

Diagonal Intersections A K M N (R) V W X Y Z k
v w x y z

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Foundations of Writing Development

Child learn to print letters by first imitating geometric shapes beginning with:

2 years	vertical strokes	
2 ½ years	horizontal strokes	~~~~~
3 years	circles	o o
4 years	cross	+
5 years	square	□
5 ½ years	triangle	△

(Feder & Majnemer, 2007)

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Visual Contrasts

E/F	b/d/p/q
M/N/W	m/n/u
P/R	
C/G	• These are ones to NOT teach together at first.
O/Q	• Later, these contrasts may be important to highlight.

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Similar Sounding Labels

/ā/	/ē/	/ě/	
/ū/	/ī/	/ō/	/ah/

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ACROPHONIC PRINCIPLE

Letter – Sound Facilitation Effect

Initial phoneme of the letter's NAME corresponds to the letter's SOUND. Consider:

- V
- CV
- VC
- Inconsistent match
- No match
- Interference

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Young children learn letter names and sounds in stages:

Acquisition	Maintenance	Generalization
Slow and Halting	Rate Improving	Better Automaticity

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Letter Learning Outcomes

- Letter name knowledge
- Letter sound knowledge
- Letter name fluency
- Letter sound fluency
- Letter writing



(Piasta, Petscher, & Justice, 2012)

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Letter Learning at Home

A study looking at letter “talk” at home:

- More of a focus on letters in words
- Less of a focus on letter sounds

(Robins, Treiman, & Rosales, 2014)



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Factors that Influence Letter Learning

- Letter position in alphabet
 - recency and primacy effect
- Acrophonic properties
- Shape distinctions
- Rates of exposure

(Jones, Clark, & Reutzel, 2012)



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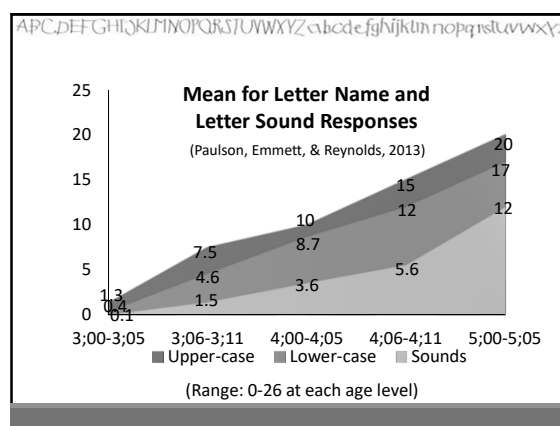
Letter name knowledge in 3-4 yr. olds (Justice et al., 2006)	Impact Size
Own-name advantage	11 X
Any letter	1.5 X
Initial letter	7.3 X
Alphabet order hypothesis	1.02 X
Letter-name/sound pronunciation effect	n.s.
CV vs VC	1.8 X
CV vs NOT	1.8 X
Consonant order hypothesis	1.09 X

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Letter Name Learning

- Considering literacy outcomes of word identification, spelling, and passage comprehension in first grade and . . .
- Looking at sensitivity, specificity and positive predictive power:
 - Optimal benchmark at P-K to K of:
 - 18 uppercase**
 - 15 lowercase letters**

(Piasta, Petscher, & Justice, 2012)

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Letter Name, Letter Sounds and Phonological Awareness: An Examination of Kindergarten Children Across Letters and of Letters Across Children

Task	Mean	SD	Range
U/C Names	23.1	4.9	2-26
L/C Names	19.5	6.1	1-26
L/C Sounds	15.1	8.1	0-26

(Evans, Bell, Shaw, Moretti, & Page, 2006)

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Teaching Letter Knowledge

A comparison of alphabet instruction in preschool curricula shows:

- Some do not make mention of explicit instruction of letters
- Instruction in ABC order
- Instruction based on letter frequency
- Instruction in letter sound only
- Instruction in lowercase letters

(Justice et al., 2006; Piasta & Wagner, 2010b)



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Teaching Letter Knowledge

Letter of the week instruction is based on tradition

- It takes 26 weeks for to cover the alphabet.
- Some letters are easier to learn than others.
- Some children already know some letters.
- Repetition and practice are required for learning.

(Justice et al., 2006)



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Meta-Analysis of Alphabet Learning and Instruction

Instruction in alphabet knowledge has modest effect sizes.

Letter-name instruction led to significant impacts on letter-sound knowledge.

Letter-sound (only) instruction led to letter-sound learning (not letter-name learning).

Instruction in greater duration was more effective.

Small groups (compared to 1:1 tutoring) was more effective.

(Piasta & Wagner, 2010a)

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Meta-Analysis of Alphabet Learning and Instruction

Why only modest effect sizes?

Alphabet learning may require significant amounts of rote memorization and repeated practice.

Letter-name and sound instruction were embedded in a broader literacy program.

Children have opportunities to learn about letters in other settings.

This may reflect our current ability to teach alphabet knowledge in the early literacy period.

(Piasta & Wagner, 2010a)

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Instructional Guidance

"Our findings are contrary to findings that letter name instruction is unimportant or, worse, detrimental for children's letter sound acquisition.... Such beliefs have prompted approaches for teaching early literacy that disregard letter names altogether (e.g. Gurney, 1999. Jolly Learning, n.d.; Montessori & Gutek, 2004)."

Letter name learning, when combined with sound instruction may causally impact students' letter sound acquisition.

(Piasta & Wagner, 2010b)

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Letter Instruction Components

Name
Shape (uppercase/lowercase)
Sound
Target word
Mouth shape
Writing it

A a /ă/ apple 

B b /b/ bus 

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Strategies for Teaching Alphabet Knowledge

1. Explicit lesson format includes teacher modeling and guided practice for:
2. Upper- and lower-case letter name identification
3. Letter sound identification
4. Recognizing the letter in text
5. Producing the letter form

(Jones, Clark & Reutzel, 2012)



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Consider these cycles:

1. **Own name advantage**
 - Learning advantage for initial letter in children's names
 - Highly motivating and responsive to developmental needs
2. **Alphabet order advantage**
 - Learning advantage for alphabet sequence
 - Serial effects with advantage for beginning and ending
3. **Letter name-sound relationship**
 - Learning advantage for letters with sound connection and for letters with single sound
 - May spend less time on letters with sound connections and more on more difficult letters

(Jones, Clark & Reutzel, 2012)



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4. **Letter frequency**
 - Learning advantage for environmental exposure
 - Teaches focus on letters in text
5. **Consonant acquisition order**
 - Learning advantage of developmental speech sound acquisition
 - Teaches earlier developed sounds before later developing sounds
6. **Distinctive visual features in writing**
 - Learning advantage based on distinctive features in written letter form
 - Teaching emphasizes distinctive features between similar letters

(Jones, Clark & Reutzel, 2012)



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Preliminary Results

Letter per day instruction in 9 to 12 minute lessons

- 5 weeks to present 26 letter names and sounds
- 7 possible distributed review cycles throughout the school year

Instructional time can focus more efficiently on letter names and sounds that are more difficult to learn.

Results showed a significant decrease in the number of kindergarteners benchmarked at-risk.

(Jones, Clark & Reutzel, 2012)



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What do we really know?

Letter-name knowledge precedes letter sounds knowledge – and both are important.

There are WIDE developmental ranges and a narrow window of development.

Many characteristics influence letter learning.

Explicit instruction has larger effect sizes than embedded instruction.

Alphabet learning most likely requires significant amounts of rote memorization and repeated practice.

Multi-component instruction is effective.



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What squared up?

What's going around?

3 key points?

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Questions and comments?

Thank you



Contact Information
Lucy Hart Paulson, Ed.D, CCC-SLP
lucy.hartpaulson@gmail.com

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