

## Letterland Results, Research

Letterland aligns closely with the findings of decades of research about the need to explicitly teach phonemic awareness and phonics, and the best instructional practices to do so.

**The National Reading Panel** (2000) not only identified the same instructional practices used in Letterland as the most effective ways to teach phonemic awareness and phonics, it actually cited the Letterland program. Here are some excerpts from the National Reading Panel report:

*"In a study by Ehri, Deffner and Wilce (1984), children were shown letters drawn to assume the shape of familiar objects, for example, s drawn as a snake, h drawn as a house (with a chimney) ...Memory for the letter-sound relations was mediated by the name of the object. Children were taught to look at the letter, be reminded of the object, say its name, and isolate the first sound of the name to identify the sound...With practice they were able to look at the letters and promptly say the sounds. Children who were taught letters in this way learned them better than:*

- *Children who were taught letters by rehearsing the relations with pictures unrelated to the letter shapes...*
- *Children who simply rehearsed the associations without any pictures."*

The NRP reported, "application of this principle can be found in Letterland (Wendon, 1992), a program that teaches kindergartners letter-sound associations". Not only did the NRP cite Letterland as a program where the use of mnemonics is prominent, but they also said:

- *"The motivational value of associating letters with interesting characters or hand motions and incorporating this into activities and games that are fun is important for promoting young children's learning..."*
- *Techniques to speed up the learning process are valuable in helping kindergartners prepare for formal reading instruction."*

National Institute of Child Health and Human Development. (2000). *Report of the National Reading Panel. Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction* (NIH Publication No. 00-4769). Washington, DC: U.S. Government Printing Office.

## Research Studies

### Early Childhood Research Quarterly, Vol. 46, 2019.

Theresa Roberts & Carol Sadler: *Letter sound characters and imaginary narratives: Can they enhance motivation and letter sound learning?*

This research study compared two explicit teaching approaches for teaching alphabet letter sounds to preschool children: The Letterland program (i.e., integrated mnemonics) was used for the first treatment (utilizing letters with letters sound characters integrated into the letter shapes and short narratives about the letter sound characters). In the treated control, plain letters and alphabet books were the foundation of instruction. The study found **significant effects in favor of the use of Letterland** on identifying letter sounds (effect size 1.31), identifying initial consonants (effect size 0.61) and blending phonemes (effect size 0.62). (Note that 0.5 is considered a medium effect size and 0.8 a large effect size). Quotes from the research article:

- "Integrated mnemonics (Letterland) children identified more than 1.5 times as many initial phonemes in meaningful whole words at posttest as did treated control instruction children... Children in the Letterland treatment heard words and identified the first sound in words that began with target phonemes within imaginary character narratives. In contrast, children in the treated control group heard and identified initial phonemes in the same number of words within alphabet books. The significantly greater scores on initial phoneme ID suggest the effectiveness of the imaginary narratives."
- "Integrated mnemonics (Letterland) instruction also resulted in significantly higher achievement in comparison to the treated control on oral phoneme blending, a skill not taught during instruction. The effect size was 0.62. This finding constitutes additional evidence of the relationship between alphabet knowledge and phonemic awareness, and generalization of integrated mnemonics benefit."
- "Evidence that early difficulties in reading foundations predicts later reading difficulties led us to explore how children at the lower end of the learning distribution fared at posttest. Lower performers were defined as those children having a score of 25% or less on a measure. This exploration suggested that children in the Letterland group fared better than those in the treated control group. There were 38% (letter sounds), 30% (blending), and 5% (initial phonemes) more low performers in the treated control treatment. Notably, there were no low performers in the Letterland group on letter sound ID. These frequencies suggest that Letterland instruction was protective against low learning of instructional content."

## Florida Center for Reading Research, 2005 – 2008

### Description:

Liz Crawford (Director of Interventions at Florida Centre for Reading Research) and Rebecca Felton (Adjunct Professor, Simmons College) conducted a study in a school district in northern Florida. Students at a Title I school with a large number of students considered at risk were provided with Letterland instruction over a three-year period. The DIBELS scores of kindergarten students in year 1 (2005-2006) when Letterland was not used were compared to scores in year 2 (2006-2007), year 3 (2007-2008), and year 4 (2008 and 2009) when students did receive Letterland instruction. Year 4 was the first year that kindergarten students received Letterland in kindergarten, as well as some students also received Letterland instruction in Pre-School. Fidelity of use by teachers of Letterland increased as their experience teaching it increased.

### Results:

The number of students classified as at risk decreased significantly over the course of the intervention. At the onset of the study in the fall of 2005, 19% of students were identified as high risk, 39% as at risk, and 42% at or above target performance. The number of students in the high risk and at risk categories declined progressively in each year of the study. In the final assessment, 3% were at high risk, 12% at risk, and 85% at or above target.

*Source: Felton, R. & Crawford, E. (2009). Paper presented at the annual conference of the International Dyslexia Association, Lake Buena Vista, Florida, November 2009.*

## Independent Research Study: Wake County Public School System (WCPSS), 2013-2014.

### Description:

The WCPSS conducted a Letterland evaluation study to help the district determine if it should continue with a plan to adopt Letterland across the whole district. This study examined both the implementation and impact of Letterland. WCPSS is a large district with 110 elementary schools and a student population of over 160,000 students. The district includes students from the city of Raleigh, NC. Literacy outcomes were examined utilizing both descriptive and inferential analysis. To test the impact of Letterland on early reading achievement, WCPSS students participating in Letterland were compared to matched students in a comparison school district that was not using Letterland during the 2013-2014 academic year. The district-wide rollout of Letterland at WCPSS prohibited a pilot with a random research design; thus, data from a comparison school district were requested and a student match was conducted making this study a quasi-experimental design. Descriptively, we assessed whether district goals associated with Letterland were met by comparing DIBELS results prior to Letterland implementation year one and year two of implementation in the context of DIBELS Next benchmarks.

### Results:

In 2013-2014, Letterland had strong implementation, with moderate to high fidelity within approximately 90% of WCPSS K-1 classrooms. The impact of Letterland on students' reading achievement was neutral to positive. A significantly higher percentage of WCPSS kindergarten students were at or above benchmark mid-year on Phoneme Segmentation Fluency (PS) and Nonsense Word Fluency-Correct Letter Sounds (NWF-CLS) than matched students for a comparison school district. WCPSS students' scores remained significantly higher on the end-of-year NWF-CLS. Participation in Letterland had a significant positive effect for limited English proficient (LEP), Asian, Black, and Hispanic/Latino kindergarten students varying by indicator and benchmark period. The percentage of kindergarten students with an end-of-year PSF score at or above benchmark increased 8.2 percentage points from 2011-12 to 2013-14. Results for NWF-CLS were inconsistent across years. Results suggest Letterland is a promising approach and should be continued. Since 2014, WCPSS has adopted Letterland across the entire district for grades Pre-K through Grade 2 and has seen positive results in terms of student literacy achievement.

*Source: Data and Accountability department, Wake County Public School System. D&A Report No. 14.18, May 2015*

## Brain Activity Research, 2005, Dr. Dennis Molfese

### Description:

Dr. Dennis Molfese, Editor-in-Chief of the journal *Developmental Neuropsychology* and Chair and professor of the Department of Psychological and Brain Sciences, University of Louisville, Kentucky conducted a 6-month research project pre- and post-testing 60 three and four year olds, mapping brain activity when learning the alphabet with Letterland, and comparing it to brain activity in a control group using a more traditional phonics approach to teaching

a-z. Dr. Molfese used *event-related potentials* (ERPs), a noninvasive method of measuring brain activity during perceptual and cognitive processing in which students wear a wired cap for recording brain wave activity. The goal of the study was to determine if the more multi-sensory instructional approach of Letterland might impact brain processing and behavior in a different way than a more traditional approach to learning a-z.

#### Results:

Dr. Molfese results showed brain activity limited to the left (speech center) side with children taught by the traditional method in the control group, but brain activity in left and right sides of the brain for the group learning a-z with Letterland, indicating increased brain activity. Also, more diverse brain networks appeared in both the left and right hemispheres shortly after the beginning of instruction, and continued across all three tests, whereas changes in the control group remained limited to a more standard left hemisphere activation across all three tests. Furthermore, Dr. Molfese found that the Letterland children exhibited large advantages over the control group following the long summer break, as witnessed in the fourth test. Unexpectedly, the Letterland group continued to show changes in brain activity even at the end of the summer period of not instruction, indicated by greater activity over the left hemisphere. Dr. Molfese noted: "Discrimination effects were present at multiple electrode locations and at multiple time points suggesting possible involvement of multiple cognitive processes, such as attention, memory, language processing, and visual processing."

*Source: Reported August 17th 2005, by Dr Dennis Molfese PhD, Chair & Professor, Department of Psychological and Brain Sciences, University of Louisville, Kentucky, Editor-in-Chief of Developmental Neuropsychology*

## Implementation Studies

### Davidson County Schools, NC, 2014 -- 2017

#### Description:

Davidson County Schools is located in central NC, just south of Winston-Salem and Greensboro. After reviewing the positive results of a pilot year of using Letterland in one kindergarten at one elementary school, the district introduced Letterland to 8 more of its 17 elementary schools. After two years, the district reviewed its DIBELS assessment data. They compared data from (1) schools using Letterland to their prior two years not using Letterland, and (2) schools using Letterland with two schools that used a different phonics program.

#### Results:

- (1) Schools using Letterland:
  - Kindergarten: Percentage of student End-of-Year DIBELS at or above proficiency prior to using Letterland: 19%. Percentage after using Letterland year 1: 71%, after year 2: 75%.
  - First Grade: Percentage of student End-of-Year DIBELS at or above proficiency prior to using Letterland: 41%, after using Letterland: 66%.
- (2) One School using Letterland was compared to another school using a different phonics program – schools were demographically matched:
  - Kindergarten: Significant growth in percentage of student End-of-Year DIBELS proficiency prior to using Letterland to after using Letterland (i.e., 19% to 73%). No significant change prior to using other phonics program to after using other phonics program (i.e., 70%, 74%).
  - First Grade: Significant growth in percentage of student End-of-Year DIBELS proficiency prior to using Letterland to after using Letterland (i.e., 41% to 66%). Slight decrease prior to using other phonics program to after using other phonics program (i.e., 70% to 68%).

Given the positive assessment for the schools using Letterland, the district decided to bring Letterland into all elementary schools for the 2017-2018 school year.

*Source: Davidson County Schools, NC*

### Newton Conover City Schools, NC 2012-2015

#### Description:

This district has three elementary schools. School #1 started using Letterland in 2012-13, followed by school #2 in 2012-14, and then school #3 in 2014-15.

#### Results:

The average Kindergarten proficiency DIBELS score for all three schools in 2011-12 before any of the schools used Letterland was 44%. The average in 2014-15 after all three schools were using Letterland increased to 91%. Details by school:

- School #1: After its first year of using Letterland, the proficiency score increased from 44% to 79%. At the end of its second year it increased to 82%, and to 91% in its third year.
- School #2: After its first year of using Letterland, the proficiency score increased from 46% to 68%. At the end of its second year it increased to 93%.
- School #3: After its first year of using Letterland, the proficiency score increased from 40% to 89%.

Source: Newton Conover City Schools, NC

<b>Grayson County, VA, 2014-2015</b>
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Description:

Grayson County compared its I-Station Early Reading Kindergarten assessment data for four of its elementary schools before and after implementing Letterland in Kindergarten.

Results:

A comparison of the I-Station data for year prior to use of Letterland to the first year using Letterland found the following:

- School #1: increase from 20% to 42%
- School #2: increase from 38% to 86%
- School #3: increase from 52% to 61%
- School #4: increase from 38% to 58%

Source: Grayson County Schools, VA

<b>Iredell-Statesville, NC 2011-2014</b>
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Description:

Beginning in 2011, the Iredell-Statesville district began implementing Letterland in 4 schools, and by the fall of 2013 it was being used in all 17 elementary schools. After implementing Letterland across the district, there was a significant rise in the number of students reaching benchmark scores on DIBELS end of year assessments. Details are below.

<b>2010-2011 School Year Before Letterland</b>	<b>2013-2014 School Year After Letterland</b>
Kindergarten PSF: 20%	Kindergarten PSF: 81%
Kindergarten NWF: 58%	Kindergarten NWF: 80%
Grade 1 DORF: 47.5%	Grade 1 DORF: 69%
Grade 2 DORF: 46%	Grade 2 DORF: 66%
Grade 3 DORF: 36.6%	Grade 3 DORF: 64%
Grade 4 DORF: 30.8%	Grade 4 DORF: 61.1%

Source: Iredell-Statesville Schools, NC

### Letterland Academic Testimonials

**LINNEA EHRI, Ph.D.** Distinguished Professor, The Graduate School, City University of New York and National Reading Panel Member:

*“You have uncovered some important principles of learning supported by research findings in your efforts to develop Letterland as an effective instructional tool. I am very impressed.”*

**SALLY SHAYWITZ, M.D.** Professor of Pediatrics and Child Study, Yale University School of Medicine and National Reading Panel Member, author of *Overcoming Dyslexia* (2003), Alfred a. Knopf:

*“Another engaging and helpful phonics program ... is Letterland ... in which animate characters take on the names and shapes of the letters they represent as in Fireman Fred and Sammy Snake”.*

**DR DENNIS MOLFESE, Ph.D.** Distinguished University Scholar, Chair & Professor, Department of Psychological

and Brain Sciences, University of Louisville, Kentucky, Editor-in-Chief of Developmental Neuropsychology:

*"Very clearly, Letterland offers a systematic program of instruction for alphabetic and phonological knowledge that is critical for the early stages of reading development. The materials are well designed and highly attractive to children, serving to motivate them to spend more and more time learning to recognize and name the letters of the alphabet as well as learn the letter sounds AND develop their rhyming and rime skills. Researchers across the world have repeatedly found that these components are the literal building blocks that lead to reading success."*

**REBECCA H. FELTON Ph.D.** Reading Consultant, Author, Dyslexia Researcher and former Faculty member, Neuropsychology Department, Bowman Gray School of Medicine:

*"Many children who are at risk for reading difficulties have serious problems learning the names and sounds for the letters of the alphabet. Letterland, with its engaging characters, stories, songs, gestures for each letter, provides a rich and effective system of cues for letter-sound associations. Use of these multiple cues as part of the Letterland reading program should ensure that all students develop mastery in this critical component of reading."*

**BOB SCHLAGAL Ph.D.** Professor of Reading, Graduate Faculty and Senior Clinician, Department of Language, Reading, & Exceptionalities Appalachian State University USA, Board Member, North Carolina Branch of the International Dyslexia Association:

*"Letterland is the most effective of all the synthetic phonics programs for children that I have observed or worked with. This program is not only extremely well-thought out, it is highly imaginative and distinctly and usefully memorable. As a result, teachers and children alike take pleasure in carefully exploring the terrain in which letters and groups of letters live and interact. As a long term student of young children's writing and spelling development, I have been singularly impressed at the early start that children get with the aid of Letterland instruction. (This is something that teachers comment on with regularity.) I have consistently observed earlier, more accurate and more complete phonemic analysis in children's spelling under this system — Letterland's dramatic "live spelling" may be a powerful help in this--as well as a willingness to write among even the most shy and least secure children. Although I have focused my comments on children's writing, I see the same kind of excitement and progress in their reading".*

**LUANNE MCFARLANE, MSc** Associate Professor, Speech Pathology & Audiology, University of Alberta, Edmonton, Canada (extracts from the *Journal of Speech-Language Pathology and Audiology* Vol 22, No. 4, Dec 1998):

*"Letterland is a comprehensive teaching system designed to increase reading success ... for use with children ages three to seven plus... All aspects of reading are taught through metaphors, stories, ... songs, ... narrative and natural experience... The materials are economical and have a multitude of uses... Letterland is a structured, exciting method for introducing early literacy skills and continuing the instruction through the early school year"*