The Effectiveness of the Zoo-phonics Multisensory Language Arts Program for Preschool and Kindergarten Children in California, Kentucky, and Oklahoma Schools

4 Studies

(Plus Gender Studies)

2014 - 2016

Study One: Three-year-old Students' Alphabetic Knowledge

Study Two: Four-year-old Students' Alphabetic Knowledge - Half-Day Program

Study Three: Four-year-old Students' Alphabetic Knowledge - Full-Day

Study Four: Kindergarten Students' Alphabetic Knowledge – First Trimester

E3 RESEARCH

An Independent Study Conducted by E3 Research

Zoo-phonics and Gender Issues

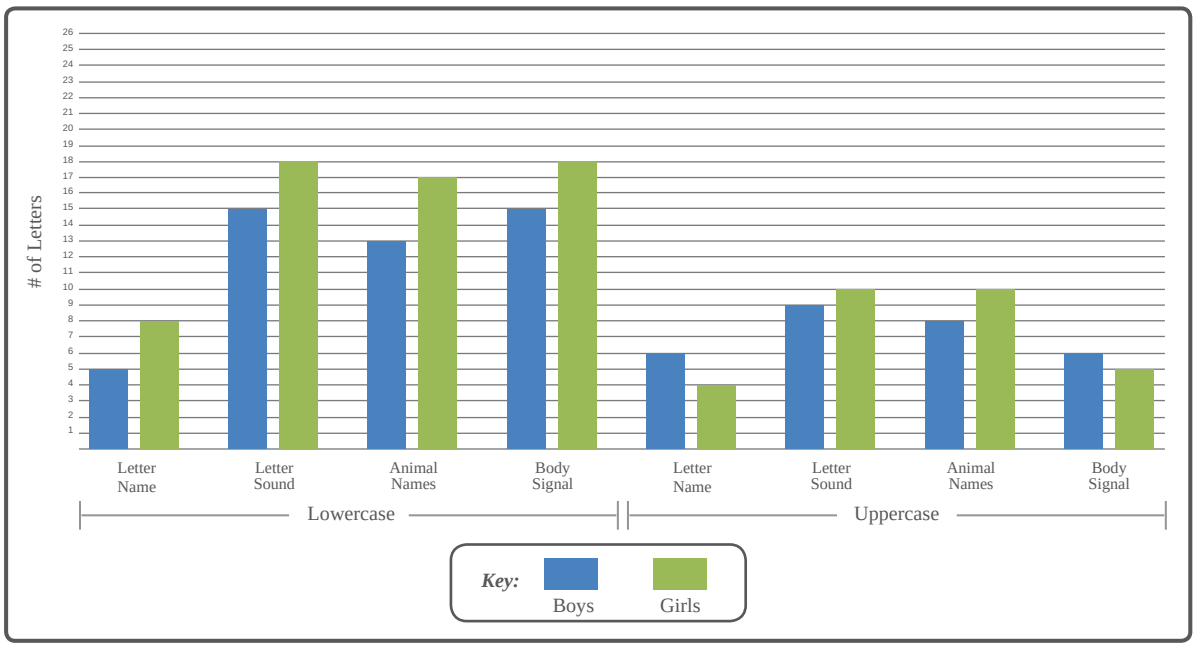


Figure 1. **Three-Year-Old Head Start Boys and Girls. This graph shows lower- and uppercase alphabetic proficiency for four measures at the end of the year, for two school years.**

Mean scores show that three-year-old girls slightly outperformed boys by an average of 3.5 (3.4%) letters across all four variables measured in the study. Lowercase shapes, sounds, Zoo-phonics Alliterative Animal Names and Body Signals were stressed, rather than letter names and uppercase letters for children at this age. The *Zoo-phonics'* philosophy believes in teaching the most important alphabet skills first and not overloading young children with too much information at one time. All of the variables measured are predicated on recognizing the shape of the lowercase letters. The result is a high correlation among letter shapes, sounds, Alliterative Animal Names and Body Signals.

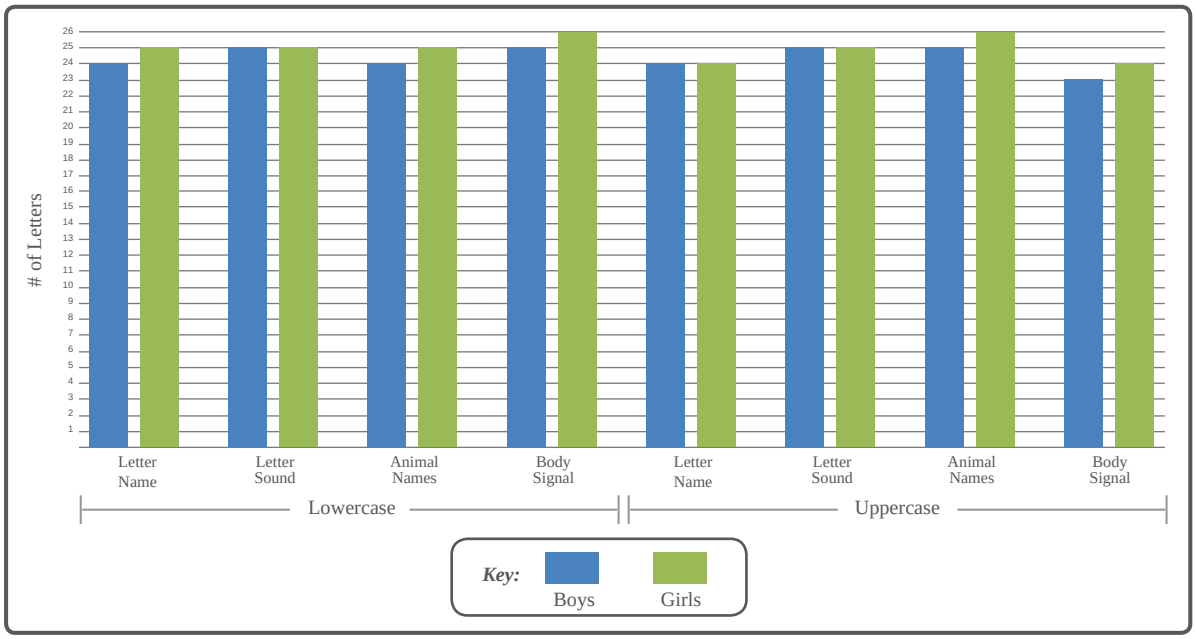


Figure 2. **Four-Year-Old Head Start/Preschool - Boys and Girls - Alphabetic Proficiency. This graphs shows year-end alphabetic proficiency using four lower-and uppercase measures for two school years.**

Four-year-old Head Start/Preschool students demonstrated that the trends of girls performing better than boys is nearly **eliminated** with less than one letter difference in lowercase and one letter difference across the uppercase variables. Boys and girls effectively performed equally by the end of the year. Upper- and lowercase alphabets, including letter names, were taught, and near-mastery was achieved for almost all students.

Abstract

To determine the effectiveness of the *Zoo-phonics Multisensory Language Arts Program* for all students, preschool and kindergarten students in this study were taught lower- and uppercase alphabets (shapes, names, and sounds) through the *Zoo-phonics Program* for children in multi-ethnic, low income school environments.

A multiple cohort design was used to measure alphabetic proficiency gains in four educational settings during the 2014-2016 school years: preschool (3-year-olds – half-day programs, 4-year-olds – half- and full-day programs) and kindergarten. Each of the settings included a significant number of students from low SES demographics as demonstrated by participating in the "free and reduced" meals program. The four cohorts were comprised of 1,619 three- and four-year-old preschoolers and kindergarten students in three school districts in Kentucky, Oklahoma and California.

Overall findings showed that regardless of gender, low income, nor multi-ethnic demographics, demographics did not have a negative effect on the alphabetic knowledge of these children.

The three **mnemonic devices** (animal/letter alphabets, alliterative animal names, and physical movement for each letter) are at the core of Zoo-phonics. Data demonstrated that kindergarten males and females performed equally, leading us to conclude that the overall poor reading performance of our nation's students can be effectively addressed by beginning the reading and writing process using a multisensory approach such as Zoo-phonics.

Because of the playful, vervistic, physical and academically well-rounded nature of the Zoo-phonics curriculum and methodology, it appears to meet the cultural needs of all children, especially boys, who may need more communal, oral, physical and musical expression and verve.

Program Description

The *Zoo-phonics Multisensory Language Arts Program* is a developmental, sequential and comprehensive, phonics- and literature-based language arts program for early and primary education: toddlers, preschoolers, kindergarten and first grade, inclusive of Special Education students and English Language Learners.

Zoo-phonics uses three different sets of mnemonics as triggers for memory. 1) **Pictorial Mnemonics:** Children first learn through the *Lowercase Animal Alphabet,* where animals are drawn directly into the shape of each lowercase letter (Ehri, 1984). 2) **Auditory Mnemonics:** Each Animal Letter has an alliterative name that helps children master the sounds of the letters. 3) **Physical Mnemonics:** animal-related movements, called Body Signals, are given to each Animal Letter, connecting the shapes and sounds of each lowercase letter into long-term memory. According to Ratey (2014),

> "Big brains and intricate physical movement go together . . . . Movement places demands on the brain, just as it does on muscle, and so the brain releases BDNF (Brain-derived neuro-trophic factor), which triggers the growth of cells to meet the demands of increased mental demands of movement. BDNF floods throughout the brain, not just to the parts engaged in movement…the whole brain flourishes as a result of movement. It provides the environment that brain cells need to grow and function well."

The *Uppercase Animal Alphabet* uses the same *Animals* as the lowercase alphabet, providing an **associative affect** for easy mastery. These playful, physical and novel mnemonics transform abstract symbolism into concrete letter shape and sound information for both alphabets. Because of the physicality, playfulness and vervistic methodology (Boykin, 2001), all students have access to learning, including special needs and English Language Learners. Research demonstrates that it decreases achievement gaps in learning for ethnic and low income groups and between genders (Griffith, 2016). Zoo-phonics provides a socially engaging environment where

children interact with both teachers and classmates in a positive and playful manner.

Once the alphabet is mastered, initial, ending and medial sounds are taught. These letters can then be strung together to form simple vowel-consonant (VC) and consonant-vowel-consonant (CVC) words. Children are taught to segment, blend, and rhyme at this time. Children continue to use their bodies to Signal out the sounds in words, inputting new information into long-term memory. Soon, more complex phonetic concepts are sequentially taught (the schwa sound, double consonants, blends, digraphs, long vowels, r controlled vowels, diphthongs, silent letters and soft sounds) still using the Body Signals, until mastery and independence is achieved.

Zoo-phonics is so much more than an alphabet or phonics program. Zoo-phonics teaches children to “closely” read through decodable readers as well as through literature. Children learn to write as they successfully learn to read and spell. Grammar, capitalization, punctuation and critical thinking skills are taught daily.

Study One: Three-Year-Old Head Start Students' Alphabetic Knowledge Participants

Cohort #1 was comprised of 108 Head Start three-year-olds. The cohort consisted of two groups, one in 2014-2015 and the second in 2015-2016 school years. All enrolled students participated in the study regardless of ability or language. All students attended the half-day Audubon Head Start/Preschool in Ohio County School District, Hartford, Kentucky. Because many children in the Head Start/Preschool Program live in rural areas, many did not attend their schools with regularity.

Assessment and Methodology:

The assessment instrument used in these studies was the *Zoo-phonics Beginning Reading Assessment, Version 3 (Z-BRA3).* All students were assessed in the first two weeks of school, at mid-term in January, and at the end of the school year, in late May. The data were analyzed using Paired Samples T-tests with a p-value set at $p \leq 0.05$.

Children were asked to identify the letters by letter name, letter sound, the Zoo-phonics Alliterative Animal Names and Body Signals.

The January assessment was used to test the hypothesis that students using the *Zoo-phonics Multisensory Language Arts Program* learn the sounds and shapes of the lowercase alphabet within the school year of preschool and are near mastery during this period.

Uppercase letters are not taught to this age-group, but some 3-year-olds did recognize commonalities between lower- and uppercase letters. Also, three- and four-year-olds share the same classes, leading to naturally occurring but unintentional learning of uppercase knowledge by three-year-olds. Parents may teach these skills to their children.

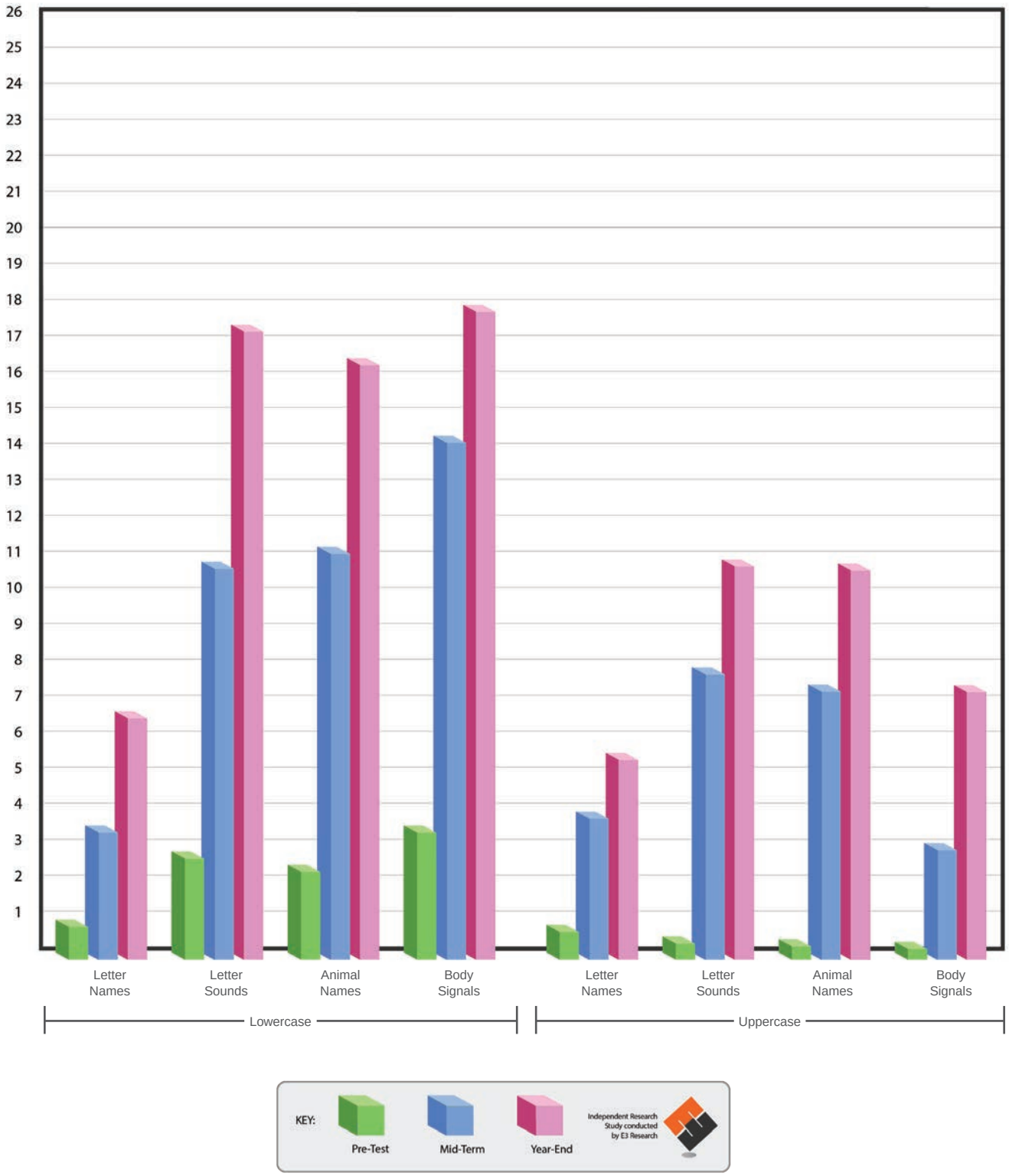
Teachers in the study were state-certified to teach preschool and were trained in the methodology and curriculum used in the *Zoo-phonics Program*. At the outset of this study, teachers, aides, and principals agreed to use the *Zoo-phonics Multisensory Language Arts Program* with fidelity.

Findings:

Three-year-olds were initially taught lowercase letter shapes and sounds through the Lowercase Animal Alphabet Cards, Alliterative Animal Names and Body Signals. Capital letters and letter names are not emphasized in the *Zoo-phonics Program* for this age group. Letter names are not taught until the sounds of the letters are fully mastered. When letter names are pronounced, they also make sounds which are different than the sounds of the letters, and may interfere with learning the sounds of the letters if taught at the same time. As evidenced by Figure 1, lowercase letter sounds, Alliterative Animal Names and Body Signals were learned at essentially the same levels. Each skill shows significant growth between the pre-test and the mid-term assessment in January. Most growth over the year happened in that time period. Children continued to develop alphabet skills as seen in the post-test. Uppercase alphabetic learning was a collateral function of attending the class with four-year-olds and the home environment.

The data demonstrated that whenever the three-year-olds saw the *Zoo-phonics Merged Animal Letter Cards*, they had strong recall of the shapes and sounds of the letters, could recall the Alliterative Animal Names and the animal-related Body Signals for each letter with proficiency. It also showed that usage of the Animal Letters, the Alliterative Animal Names, and Body Signals helped them to remember less emphasized alphabet information, such as letter names and capital letters, because the children made associations with the Zoo-phonics Animal Letters. Although not assessed at this time, three-year-olds also were able to identify the initial letter sounds in names and object words and could transfer this skill to their own names and environment.

Graph 1 – Alphabetic Knowledge of Three-Year-Old Head Start/Preschool Students



Three-year-olds made significant lowercase gains in each trimester, making the strongest gains mid-year (January). Children continued to make progress as demonstrated by post-test scores. In the Zoo-phonics curriculum, capital letters and letter names were not taught to this age group, and gains in this area were expected to be delayed. However, uppercase alphabetic learning was a collateral function of attending the class with four-year-olds.

Study Two: Four-Year-Old Head Start Students' Alphabetic Knowledge Through Zoo-phonics (Half-Day Program Participants)

Cohort #2 is comprised of 217 four-year-old preschoolers who attended the Audubon Head Start/Preschool Program in Ohio County School District, Hartford, Kentucky. Students attended half-day classes between two and five days a week and attended the Head Start/Preschool Program during the 2014-2015 and 2015-2016 school years. Because many children in this Head Start Program live in rural areas, many did not attend their schools with regularity. The demographic mix included a majority of students of Caucasian descent, in the low-socio-economic range (SES). This study also included a number of Hispanic children from low-income families who self-identify as English speakers.

Methodology:

This cohort consisted of one group assessed in 2014-2015 and the second group assessed in 2105-2016. Prior to introducing the *Zoo-phonics Multisensory Language Arts Program* to the students, teachers conducted the pre-test during the first two weeks of school (September). Additional assessments were conducted at mid-term in January and at the end of the school year in late May. The Zoo-phonics Basic Reading Assessment, Version 3 (*Z-BRA 3)* test instrument was used to assess alphabetic knowledge of lower- and uppercase letters (letter shapes, names, and sounds, Alliterative Animal Names and Body Signals). All students enrolled in the Head Start/Preschool Program were included in the study.

The January assessment was used to test the hypothesis that students using the *Zoo-phonics Multisensory Language Arts Program* learn most of the lowercase alphabet within the first trimester of preschool and reach mastery by the end of the school term.

Teachers in the study were state-certified to teach preschool and were trained in the methodology and curriculum used in the *Zoo-phonics Program*. At the outset of this study, teachers, aides, and principals agreed to use the *Zoo-phonics Multisensory Language Arts Program* with fidelity.

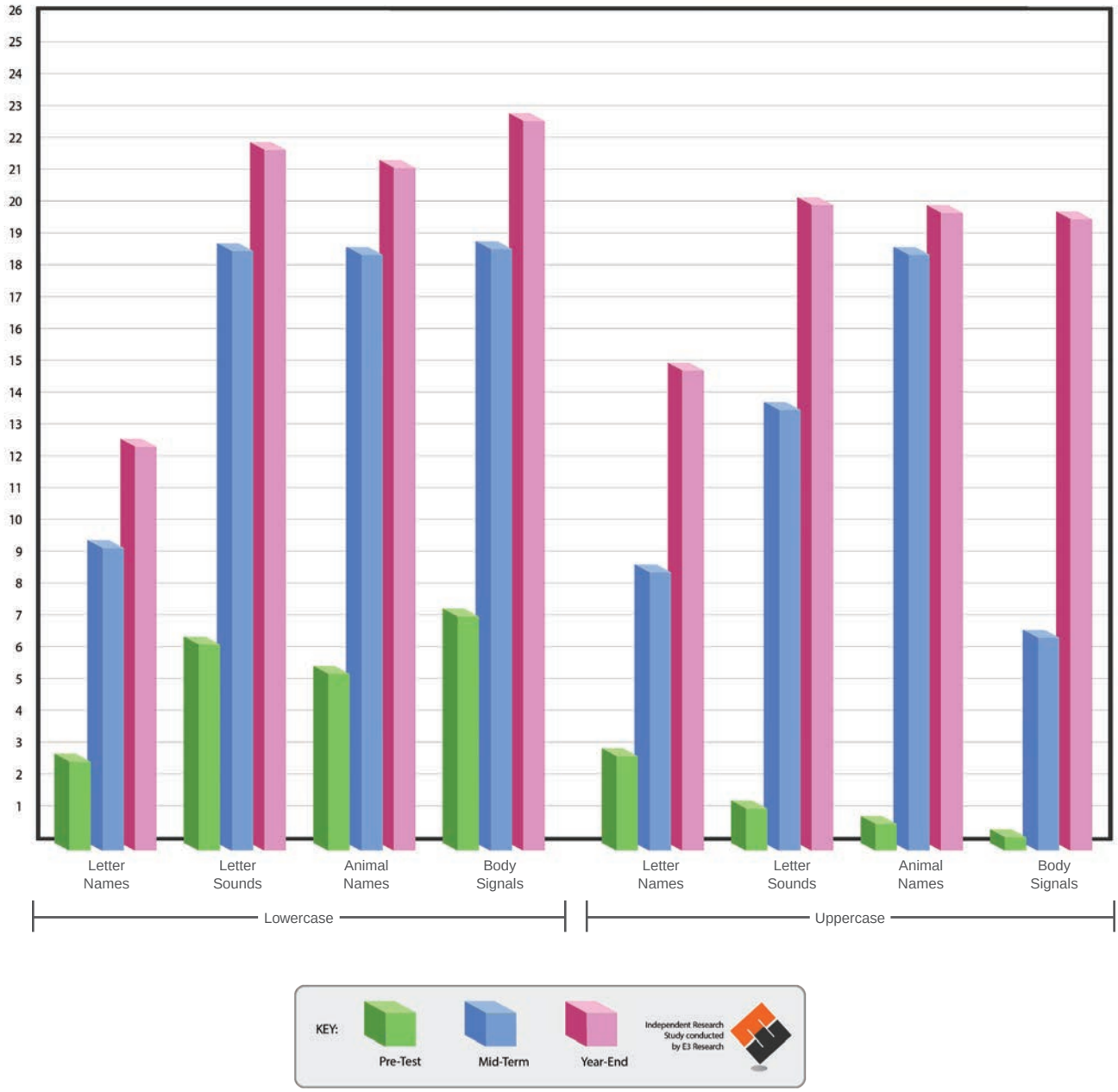
Findings:

A general pattern emerged showing consistent growth initially in lowercase letter names, sounds, Alliterative Animal Names and Body Signals, and, later, in uppercase information. The mean scores for lowercase letter sounds, Alliterative Animal Names and Body Signals showed a significant increase of about 14 letters by the end of the school year. Letter names also showed a significant increase of about 10 letters, even though they are not emphasized.

In *Zoo-phonics,* lowercase letter sounds and shapes were stressed over letter names leading to positive proficiency differences. The uppercase alphabet was introduced subsequent to mastery of the lowercase alphabet. Whereas significant growth in uppercase knowledge was made, it was not complete. It appears that not all teachers tested children on the Zoo-phonics Capital Letter Signal. The findings in Figure 2 represent mean scores for two years.

The 2015-2106 school term scores were notably stronger because of improved teacher proficiency and the large inclusion of students who received Zoo-phonics as three-year-olds in their preschool and Head Start Program.

Graph 2 – Four-Year-Old Head Start/Preschool Students' (Half-Day Program) Alphabetic Proficiency



Strong increases in proficiency levels indicated significant growth in both lowercase and uppercase letters, sounds, Alliterative Animal Names and Body Signals during each trimester, with the mid-term (January) showing the greatest gains.

The half-day preschool students in this study showed strong growth in the alphabetic domain, demonstrating that the letter shapes and sounds of the lowercase alphabet can be learned easily and quickly, even in a half-day program. Strong associations among letter sounds, Alliterative Animal Names and Body Signals provided a consistent base for rapid recall and strategies for early reading without a total reliance on letter name-sound memorization, as is taught in other programs. The Uppercase Letter Body Signal, used to designate and reinforce capital letters, was under-reported by some teachers. A slightly lower reported mean score for this group was the result. Acquiring this alphabetic knowledge prepared preschool children for more advance academic concepts earlier. These concepts included initial, ending and medial sounds, rhyming, sound segmenting and blending, reading of words, and word building, although not assessed at this time.

Study Three: Four-Year-Old Students' Alphabetic Knowledge Through Zoo-phonics (Full-Day Participants)

Cohort #3 was comprised of 179 four-year-old preschoolers who attended one of four district-operated preschool programs in the Putnam City School District, Oklahoma City, Oklahoma during the 2015-2016 school year. The majority of the students were identified as having a low socio-economic status. Students in this cohort attended full-day classes daily. The ethnic demographics were mixed, with 40% Caucasian, 27% Black, 22% Hispanic, 7% Native American, and 4% Asian.

Methodology:

The *Zoo-phonics Multisensory Language Arts Program* was used to teach lower- and uppercase alphabets during the 2015-2016 school year. Cohort #3 was assessed in the fall during the first two weeks of class, at the end of November, and in the spring. The mid-November assessment was used to test the hypothesis that students using the *Zoo-phonics Multisensory Language Arts Program* learn and lower- and uppercase alphabets within the first trimester of preschool and reach mastery by the end of the school term.

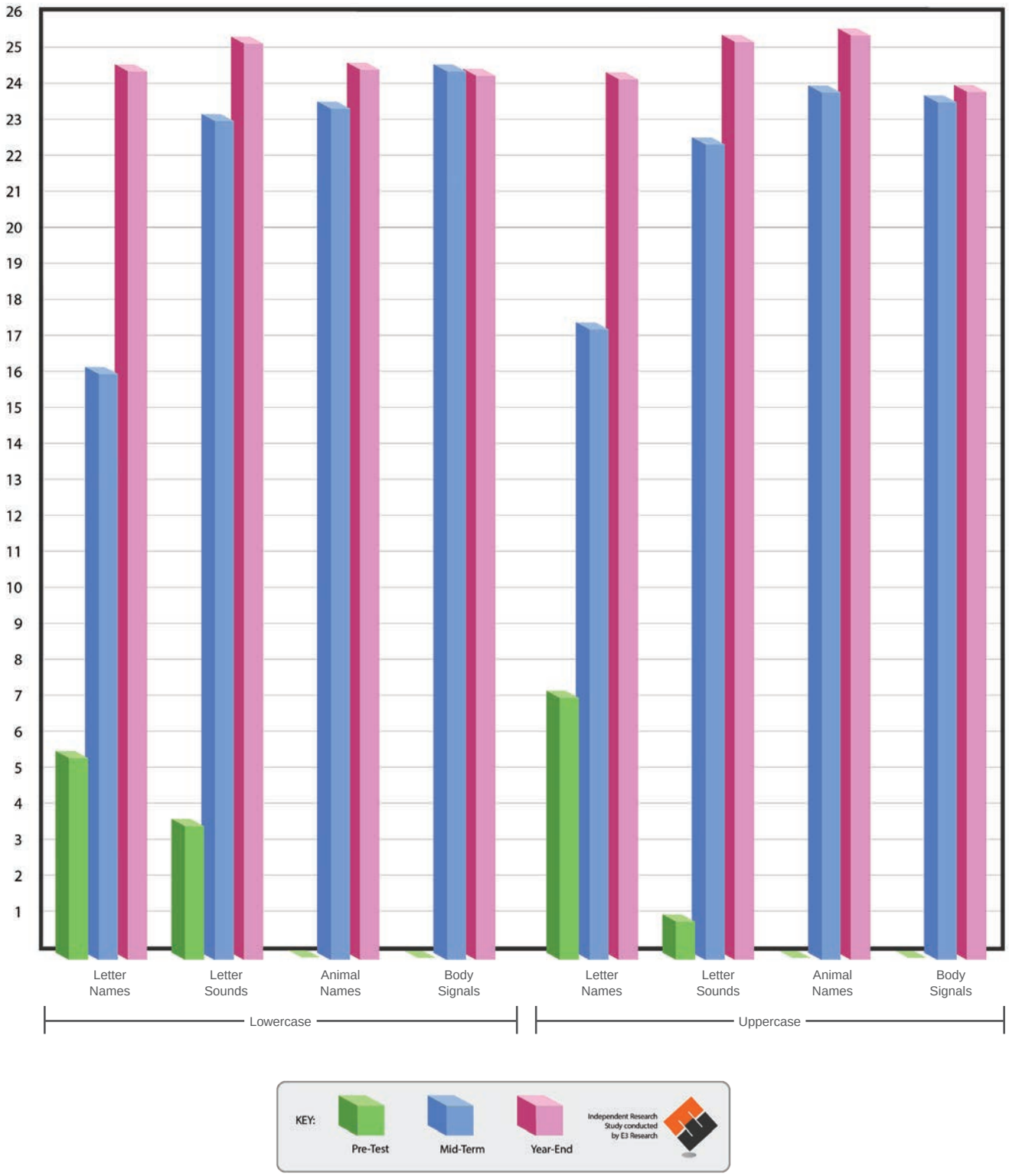
The alphabetic portion of the *Z-BRA3* test instrument was used to assess alphabetic knowledge of lower- and uppercase letters (letter shapes, names, and sounds, Alliterative Animal Names and Body Signals).

Teachers in the study were credentialed to teach in Oklahoma and were trained in the methodology and curriculum used in the *Zoo-phonics Program*. Prior to the commencement of the study, teachers, aides, and principals agreed to use the *Zoo-phonics Multisensory Language Arts Program* with fidelity.

Findings:

A significant pattern emerged showing consistent growth in both lower- and uppercase letter names, sounds, Alliterative Animal Names and Body Signals. The mean scores for lowercase letters were 24 letters in one measure and 25 in the remaining three measures. Similarly, uppercase letters ranged between 23 and 25 in each measure. Letter sounds were stressed over letter names leading to the positive proficiency differences. The uppercase alphabet and letter names are taught later in the year after lowercase information is mastered. At the beginning of the year, Alliterative Animal Names and Body Signals were reported as zero because these students had no prior exposure to Zoo-phonics methodology. In both lowercase and uppercase alphabets, near mastery was evident for this cohort at the mid-term (November). From this point on, children continued to gain alphabet knowledge and were able to use it in daily word play.

Graph 3 – Four-Year-Old (Full Day Program) Alphabetic Proficiency



This cohort began the school year with no exposure to Zoo-phonics. By the end of the first trimester (November), mean scores indicated near mastery of lowercase and uppercase alphabetic components. This knowledge allowed this age group to use the letters in locating initial, ending, medial sounds, segmenting and sound blending, and word building.

Study Four: Kindergarten Students' Alphabetic Knowledge Through Zoo-phonics (First Trimester Assessment Participants)

The Kindergarten Cohort group was comprised of 1,115 kindergarten students from Quail Valley Elementary, Menifee, California, Goldenrod Elementary, Kerman, California, Alta Vista Community Charter, Auburn, California, Ohio County School District, Hartford, Kentucky and the Putnam City School District, Oklahoma City, Oklahoma. The composition of districts provided a diverse ethnic mix of Caucasian, Black, Hispanic, Asian, and Native American students as well as inclusion of a large number of second language learners. The majority of students in this study participated in Free or Reduced-cost Meal Programs, indicating low socio-economic status.

Methodology:

This cohort included students from the 2014-2015 and 2015-2016 school years. Students were not duplicated in multiple cohorts. The *Z-BRA3* test instrument was used to assess alphabetic knowledge of lower- and uppercase letters (letter shapes, names, and sounds, Alliterative Animal Names and Body Signals).

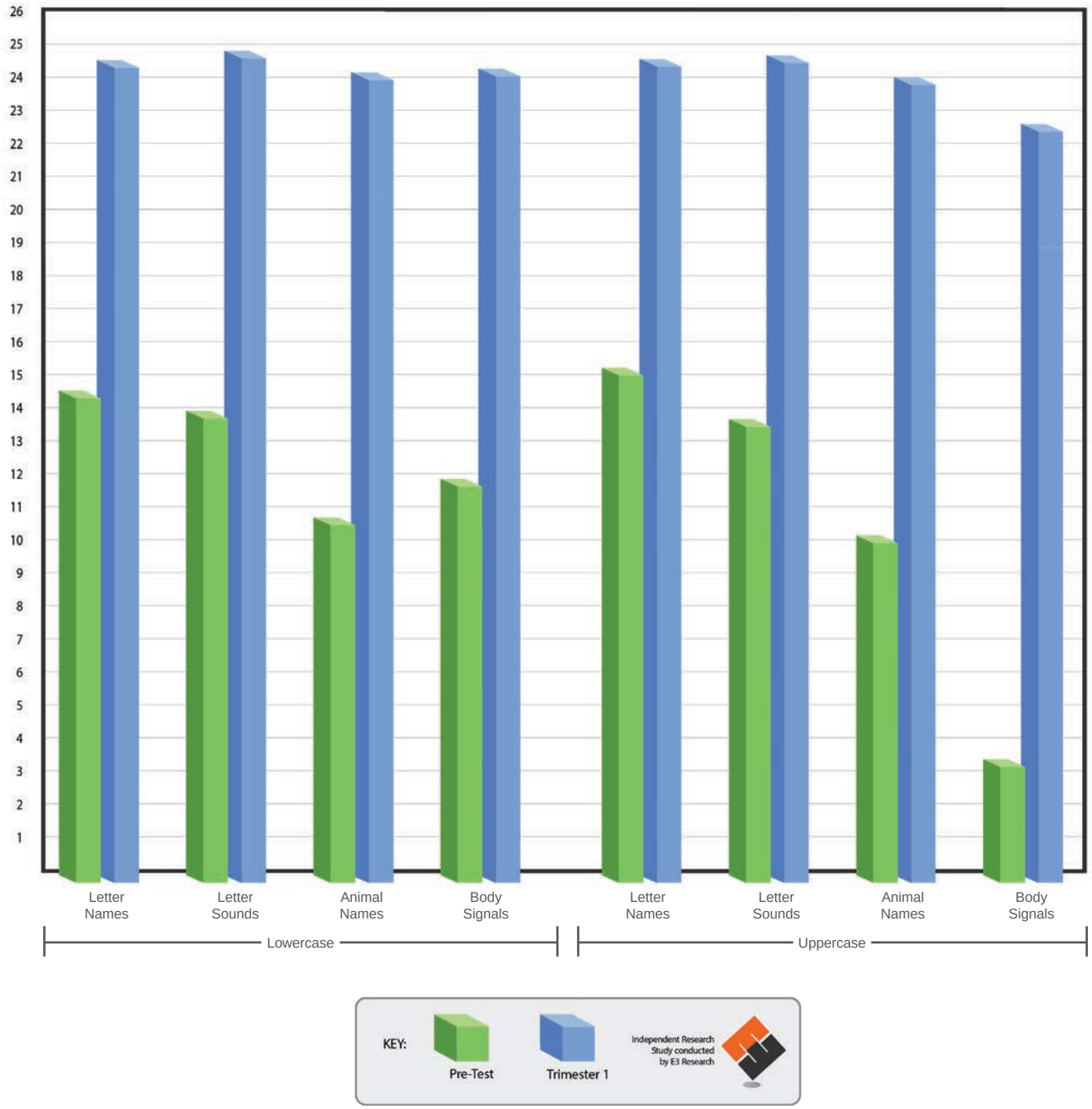
Teachers in the study were credentialed to teach in their home state and were trained in the methodology and curriculum of the *Zoo-phonics Multisensory Language Arts Program*. At the outset of this study, teachers, aides, and principals agreed to use the *Zoo-phonics Program* with fidelity.

Data were collected during the first two weeks of school and at the end of the first trimester in November. The mid-November assessment was used to test the hypothesis that students using the *Zoo-phonics Multisensory Language Arts Program* learn and lower- and uppercase alphabets within the first trimester of kindergarten and reach mastery during this period.

Findings:

A general pattern emerged showing consistent and significant growth in lower- and uppercase letter shapes, names, sounds, Alliterative Animal Names and Body Signals. The mean scores for upper- and lowercase measures were about 24 letters in each category with the exception of nearly 22 uppercase Signals. There is an ancillary Body Signal that designates and reinforces capital letters. This score may be under-reported because teachers may have not taught it, or teachers may have not tested for the ancillary Body Signal.

Graph 4 – Kindergarten Alphabetic Proficiency. A Comparison of Pre-test and Post-test Alphabetic Scores for 1,115 Kindergarten Students



Graph 4 indicates that many students arrived in kindergarten knowing at least some of the alphabet and many had earlier exposure to *Zoo-phonics* in Head Start/preschool or through contact with older siblings. By the end of the first trimester, mean scores on all measures indicated significant growth and proficiency levels, approaching mastery in both lower- and uppercase alphabets. High achievement in letter name recognition and sound knowledge are preparatory to early reading while strong skills in the Lowercase Animal Alphabet, Alliterative Animal Names, and Body Signals gave students key learning strategies for sound blending, segmenting, reading, spelling and writing words. Notably, students from all demographic groups and starting points achieved high levels of proficiency, indicating that the *Zoo-phonics Multisensory Language Arts Program* is an effective language arts approach for all students.

Conclusions

The **three mnemonics** (the lower- and uppercase Animal Alphabets, the Alliterative Animal Names and Body Signals) cement the shapes and sounds of the letters for both the lower- and uppercase alphabets and are used for spelling, reading and phonics skills development. The playful, physical, vervistic, novel, and concrete curriculum reduce risk, create camaraderie, increase attention, stimulate cognitive awareness, establish memory, and motivate children to keep learning. As seen in the data, three-year-old children were able to address sounds to shapes of the lowercase letters, and to identify initial, ending and medial sounds in words. Four-year-old children were able to master lower- and uppercase alphabetic information, which enabled them to begin to locate initial, ending and medial sounds, rhyme, segment and sound blend, read, and word build.

As the *Zoo-phonics* reading, spelling and writing curriculum becomes more complex throughout the year, students continue to use the Merged Animal Alphabet and Body Signals as a scaffolding strategy and a memory-trigger. These skills are then transferred to other academic subjects.

This study of 1,619 students included male and female preschool and kindergarten children from low SES environments, multi-ethnic groups, and was inclusive of special education children, non- to limited-English Language Learners, and those needing additional educational support. The data shows that there is strong evidence that students of all ages, stages, abilities, and demographics can develop solid early literacy skills which will establish the foundation to support children throughout their school careers. It is hoped that this study stimulates a discussion with other researchers and educators, and hopefully more studies on the efficacy of the *Zoo-phonics Multisensory Language Arts Program* for young children will ensue.

References

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The Efficacy of Zoo-phonics with Boys and Girls

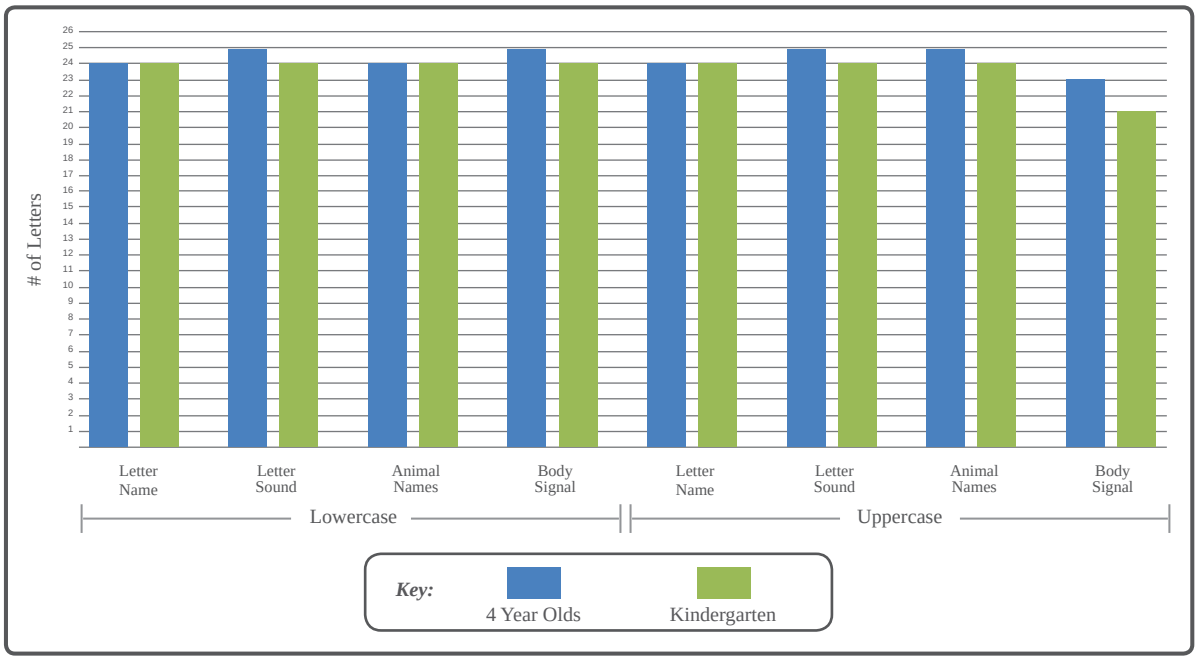

Figure 3. **Four-Year-Old Head Start/Preschool Boys' and Kindergartners' Comparisons. This graph compares the relative year-end proficiency levels of boys in full-day preschool programs with the first trimester scores of kindergartners in a two year study.**

Boys. Four-year-old Head Start boys were compared with kindergarten boys in their first trimester of school. Interestingly, the four-year-old cohort slightly outperformed their older counterparts. One key factor was that the four-year-olds received *Zoo-phonics* for an entire school year, while the kindergarten students were assessed at the end of the first trimester (in November). Additionally, the analysis included all students in each cohort without regard to previous alphabetic learning, demographics or individual learning needs.

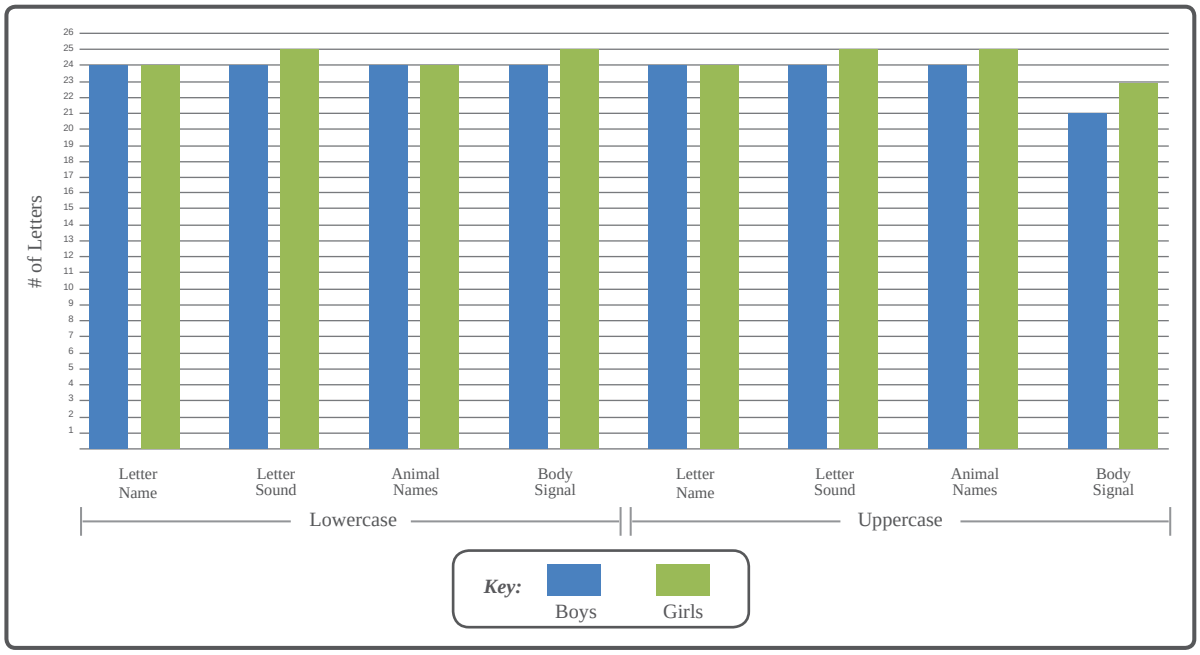

Figure 4. **Kindergarten - Boys and Girls - Alphabetic Proficiency. This graphs shows year-end alphabetic proficiency using four lower- and uppercase measures in the first-trimester of school in a two year study.**

In the first-trimester (November) of the kindergarten, the differences in alphabetic performance between boys and girls were minimal. Less than one letter separates the two groups across all measures. Additionally, since all students in the study population were included, a case can also be made that by the end of the first trimester in kindergarten, all students, no matter what their gender, SES, ethnic background or other demographic characteristics, quickly learned the alphabet through the *Zoo-phonics Multisensory Language Arts Program.*

An Independent Study Conducted by E3 Research

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RESEARCH SUPPORT

On Phonemic Awareness and Phonics:

"Teaching children to manipulate phonemes using letters produced bigger effects than teaching without letters." (In answer to, "Should we teach phonemic awareness first and only through the ears or utilize the *Zoo-phonics Animal Alphabet* to reinforce phonemic awareness skills?) National Reading Panel, Alphabetics, Part I, Phonemic Awareness Instruction, Reports to Sub-Groups, page 2-4.

"Phonemic awareness a precursor to phonics, is important to teach from the very beginning…there are high correlations found by others between preschooler's phonological awareness and later reading skills." The Alphabet Principal and Learning to Read, by Isabelle Y. Lieberman, Donald Shankweiler and Alvin M. Liberman.

Marilyn Jager Adams states: "low readiness pre-readers can hear the difference between phones as well as a high-readiness pre-reader can. (Cronnell, B.A. 1970) The difference is that the low-readiness pre-readers are simply unprepared to think consciously about the sound structure of words in this way." Beginning to Read: Thinking and learning About Print.

"Quite apart from anything the teacher does…the student, being human, is a pattern finder, and a pattern maker…" David Bronson (1977).

"It is wise for a teacher to take advantage of the natural inclination to seek patterns when teaching reading." Frank B. May, *Reading as Communication,* Merrill Publishing Co. (1990).

On Body Movements and Learning (or, "When the Body Moves, The Brain Remembers.")

Children learn by touching and doing. Eric Jensen says this: "For younger students, learning has simply got to be hands on, experiential, and relevant for patterns to develop." Teaching with the Brain in Mind.

"Bodily-Kinesthetic Intelligence is the using of one's mental ability to coordinate one's own bodily movements. This intelligence challenges the popular belief that mental and physical activity are unrelated." Howard Gardner, Theory of Multiple Intelligences (1983).

*Arnold Gesell says, "mind manifests itself in everything the body does."

*Jean Piaget reinforced this when he pointed out that "the highest forms of logical intelligence can be traced back to the origins in the body."

"It may seem ridiculous to say this, but children take their bodies with them wherever they go…As more parents and teachers begin to recognize the ignorance of the body in learning, we're likely to see a sharp decline in the number of so-called disabled learners." Thomas Armstrong, Ph.D., In Their Own Way.
*Piaget and Gesell's comments are included in this text.

James Asher states this, "My book Brainswitching is all about how to use both sides of the brain for

learning, problem solving, counseling, motivation and so on. I can offer you three ideas for persuading the ever-vigilant and blatantly suspicious gatekeeper which is the left brain to swing open a huge cathedral door on the right brain to let information gallop in unimpeded. The first strategy is **body movement.** The student's body is our best ally for transmitting and receiving messages on the first exposure." Brainswitching, A Skill for the 21st Century, James J. Asher.

"Caretakers communicate with the infant when spoken language is uttered to direct physical behavior. We have discovered that the language-body communication also works for students…When the instructor skillfully uses the target language to direct the student's behavior, understanding of the utterance is transparent, often in only one exposure. Also, the understanding is achieved without stress and then retained for weeks, months, and even years." Learning Another Language Through Actions, James J. Asher.

"Most educators know the vale of 'crawl time' in developing learning readiness. Yet many of today's children don't get the early motor stimulation needed for basic, much less optimal, school success. Today's infant is 'baby-sat' by television, seated in a walker, or strapped in a car seat for hundreds of precious motor development hours. In 1960 the average 2-year-old spent an estimated 200 hours in a car. Today's 2-year-old has spent an estimated 500 hours in a car seat!…Considering the tomes of evidence on the impact of early motor stimulation on reading, writing, and attentional skills (Ayers 1972, 1991; Hannaford 1995) it is no wonder many children have reading problems."

"The Body Signals, as taught in Zoo-phonics, give access to the brain for decoding in reading and encoding in spelling. When a child is reading and is stuck on a word, s/he gives Sounds and Signals, simultaneously, and then connects them into a word (f-a-s-t = fast). When that same child is practicing the words on the weekly spelling list, each word is put into the brain by means of the Sounds and Signals, and then the letters are connected (qu-i-ck-ly = quickly). Because of the Body Signals, reading and spelling become one and the same process." Georgene E. Bradshaw, 1984.

The Animal Picture Letters and Body Movements act as the perfect instructional and retrieval system. Together, they put new information into the brain, and provide access to that information that is now stores." Charlene A. Wrighton, 1984.

"Contamination occurs when you have too many events or materials embedded in the same location (like months of learning in the same seat, in the same classroom in the same school)…the information is there, but it's nearly useless. This often happens to students who really do know their material but lack the specific "hooks" or mental "file names" to retrieve all their learning…Forgetting occurs because such cues are rarely present when the recall is needed." Eric Jensen, Teaching with the Brain in Mind.

A related sidebar: "An astonishingly high 64 percent of K-12 American students do not participate in a daily physical education program (Brink 1995). In William Greenough's experiments at the University of Illinois, rats who exercised in enriched environments had a greater number of connections among neurons than those who didn't. They also had more capillaries around the brain's neurons than the sedentary rats (Greenough and Anderson 1991). In the same way the exercise shapes up the muscles, heart, lungs, and bones, it also strengthens the basal ganglia, cerebellum, and corpus callosum, all key areas of the brain…aerobic conditioning also has been known to assist in memory (Brink 1995). Researchers James Pollatscheck and Frank Hagen say, "Children engaged in daily physical education show superior motor fitness, academic performance and attitude toward school as compared to their counterparts who do not participate in daily physical education. Brink (1995)

says that physical exercise is still one of the best ways to stimulate the brain and learning. (Kempermann, Kuhn, and Gage 1997). Dustman's research (Michaud and Wild 1991) revealed that among three test groups, the one that had the vigorous aerobic exercise improved short-term memory, reaction time, and creativity. All K-12 students need 30 minutes a day of physical movement to stimulate the brain, says the President's council on fitness and sports. The Vanves and Blanshard projects in Canada revealed something even more dramatic." Eric Jensen, Thinking with the Brain in Mind.

On Pictorial Mnemonics

Rohwer (1996) investigated various kinds of associative mnemonics in young children and found that the best connectives for remembering pairs of pictures or words were meaningful "actor-action-object" relations…many other studies confirm that paired-associate learning in children is much improved when learners create or are provided with concrete, meaningful, interactive, and imaginable connections that link the stimulus and response terms in memory. (Davidson & Adams, 1970; Ehri & Rohwer, 1969; Lippman & Shanahan, 1973; Rohwer & Levin, 1968; Rohwer, Lynch, Levin & Suzuki, 1967).

Research also states, "The task of learning letter-sound associations is not an easy one for beginners. Difficulties arise from several sources. The number of associa-tions to be mastered is considerable: more than 40 sounds for 52 visual figures, plus sounds for combinations of letters (i.e., digraphs). Many of the lowercase letters are visually similar and hard to discriminate. The phoneme sounds as well as the visual letter symbols are meaningless. Although the phonemes occur in normal speech, they are difficult to recognize when pronounced alone because their form in isolation is quite different from their form when blended with other sounds. Furthermore, the associations between letters and sounds are totally arbitrary, as there is nothing inherent in the visual symbol that suggests its name or sound…first graders had much trouble learning pairs of arbitrarily associated, meaningless terms. Pictorial Mnemonics for Phonics, Linnea C. Ehri, Nancy D. Deffner, and Lee S. Wilce, *Journal of Educational Psychology,* 1984, Vol. 76, No. 5, 880-893.

"The superiority of the integrated picture group over the disassociated picture group indicates that only one type of picture works, namely, one that links the shape of the letter with the way it sounds." Ehri, Deffner & Wilce, Pictorial Mnemonics for Phonics, Journal of Education Psychology (1984).

On Teaching Lowercase Letters and Letter Sounds First

When teaching reading, Zoo-phonics believes in first teaching the two things that have the most to do with reading – lowercase letters and letter sounds. When a firm base is in place, capitals and letter names are added.

Marilyn Jager Adams says this: "When working with children who have little or no recognition, teachers should not try to teach all 26 letters at the same time."
Beginning to Read: Thinking and Learning About Print, The Reading Research and Education Center, University of Illinois (1990).

"In Zoo-phonics, the children are responding to three things almost simultaneously. They are shown Animal pictures, one at a time, based on the 26 lowercase letters that make up the English alphabet. As they look at each Animal picture, the letter Sound comes through the Animal's name and a Body Signal is given in association with that Animal. Here is an example: "I see a cartoon picture of an

alligator and I reach out my arms in front of me, giving a clap to illustrate an alligator's snapping jaws. At the moment that I clap, I give the letter sound, 'a' for allie alligator." Georgene E. Bradshaw, 1984.

On Teaching Young Toddlers

"Do today's children get the necessary stimulation for school readiness?" "Not usually," says Lyelle Palmer, professor of special education at Winona State University in Minnesota. "The human brain is the most responsive organ you could imagine. But even with a universe of learning potential awaiting us, we usually don't even get around to doing the basics." (1997). Teaching with the Brain in Mind, by Eric Jensen.

"The brain is fully ready for thinking through tactile learning as early as nine months. …And some researchers suggest that it is very sophisticated in its learning capacity." (Greenfield 1995). Teaching with the Brain in Mind, by Eric Jensen.

"Children need a flood of information, a banquet, a feast," says neuroscientist Martha Pierson of the Baylor College of Medicine (in Kotulak 1996). Teaching with the Brain in Mind, by Eric Jensen.

Patricia Kuhl of the University of Washington (Begley 1996) says that "…infants develop in their first year a perceptual map of responsive neurons in the auditory cortex. As a result, the brain dedicates special neurons to be receptive to those particular sounds [in their language]…the greater the early vocabulary children are exposed to, the better."

On Meaning and Relevance and Memory

"When something is meaningful during reading, there's usually more activity (as measured by glucose consumption) in the left frontal, temporal, or parietal lobe," says University of Oregon's Michael Posner. Evidence suggests these factors are likely: relevance, emotions, and context and pattern making. Why and how do emotions engage meaning? Neurobiologist James McGaugh at the University of California at Irvine says that intense emotions trigger the release of the chemicals, adrenaline, norepinephrine, and vasopressin. He adds, "[T]hey signal the brain, 'this is important – keep this'" (Hooper and Teresi 1986.) Eric Jensen, Teaching with the Brain in Mind.

"Semantic [linguistic] learning is inaccessible because the original learning was…too complex, lacked relevance, or sufficient sensory stimulation, or was too "contaminated" with other learning. Our semantic memory lives in the world of words; it's activated by association, similarities, or contrasts. The capacity limitations are more strongly influenced by the strength of associations made than the sheer quantity of items. We remember best in chunks. Our 'working' memory is limited by chunks and is usually good for less than 20 seconds unless rehearsed, reviewed or reactivated. Unfortunately, this type of memory requires strong intrinsic motivation. This [type of learning] is often called 'book learning.' Student frustration and failure increases accordingly each year…at worst, they create discouraged learners who feel unnecessarily incompetent."

On Brain Overload and Stress

"The traditional way to teach the alphabet is to teach capital letters, lowercase letters, letter names and letter sounds *all at the same time.* This produces two different visual stimuli and two different auditory stimuli for the young brain. So the way one accomplishes this task is to teach only so many letters at a time, or one letter a week. The problem with this is that you now *fragment* the alphabet so

there is no meaning, no continuity. By teaching what is most essential for reading and spelling first *(lowercase letter shapes and sounds of the letters)*, through the Animal Letters and the Body Movements, the children quickly learn all the letters in a matter of a few days to a few weeks, AND they know what to do with them! No sensory-overload!"
Charlene A. Wrighton, 1984.

"While the brain is quite adept at learning, the amount of information criss-crossing our lives today may be a hundred- or thousand-fold compared to what it was just 50 years ago. This virtual avalanche of data can cause us to simply 'shut off' as a coping mechanism. In schools, more classes, more content, and more information to learn can have a negative effect on students' stress from information overload. One solution is to ensure the quality of information, not the quantity. We can do this by purposely orchestrating meaning. A delightful fringe benefit is that the exploration for meaning can be very intrinsically motivating."

On Game Format and Memory

Children stay on task longer when having fun. Delores Dickerson (1982), educational researcher, proved the effectiveness of using the game format as compared to learning from the worksheet approach. She discovered that the passive game approach brought about 30% greater gain than the worksheet approach; the active game approach, a 53% greater gain.

What made the difference?

- Game format provides more time on task (makes it fun…).
- Game format provides instant feedback ("Good job!" "Almost!" "Let's try again.")
- Game format encourages children to work cooperatively.

Delores Dickerson says, "Incorporating games into regular lessons and not as adjunct activities increases the value of the game since its objective reinforces the lessons." Frank B. May, Reading as Communication, Merrill Publishing Co. (1990).

On Cooperative Learning

Zoo-phonics allows for opportunities where the children may work in small groups, where they can talk together and learn from each other and can exercise strengths that might be as yet in the developmental stage.

Howard Gardner states in his Theory of Multiple Intelligences (1983), "Interpersonal relationships are activated by personal encounters in which such things as communication, working together with others for a common goal, and noticing distinctions among persons are necessary and important."

Gardner also states, "When people work together in situations of positive independence, achievement levels are higher, self-esteem and esteem of others is raised, motivation and enjoyment of the task is increased, and creative/higher order thinking processes naturally occur."

"Humans are not born instinctively knowing how to cooperate with others. Therefore, interpersonal and group skills must be explicitly taught and opportunities must be given to practice cooperation."

Right and Left Hemispheric Learning

"The left side of the brain processes rapid auditory information faster than the right. The skill is critical in separating the sounds of speech into distinct units for comprehension. The left hemisphere, usually responsible for language development, develops slower in the male brain. Thus, males usually develop more language problems than females." Teaching with the Brain in Mind, by Eric Jensen.

"Because males develop language skills at a later point in life than females, Zoo-phonics, because of its concrete, right hemispheric approach, learn to read, spell and write just as quickly as females." Charlene A. Wrighton, 1984.

E3 RESEARCH

AN INDEPENDENT RESEARCH STUDY

Preschool

Full Day Program - 4 year olds

Four-Year-Old Pre-kindergarten Students' Alphabetic Knowledge - Full-Day Program

Preschool Full Day - 4 year olds

A cohort comprised of 413 four-year-old preschoolers was used in this study. Students attended one of four district-operated preschool programs in the Putnam City School District (PCS), in Oklahoma and the Franklin County School District (FCSD), in Tennessee during the 2015-2016 and 2016-2017 school years.

Demographics

Grade Level	Preschool (Full Day Program)		
Population	413		
Boys/Girls	48% / 52%		
Assessment Instrument	Z-BRA3		
Reduced-cost Lunch	68%		
ELL	%		
	PCS	FCSD	Total
	21	2	10

Ethnicity	%		
	PCS	FCSD	Total
African American	22	11	16
Asian	3	2	2
Caucasian	47	82	66
Latino/Hispanic	25	5	14
Native American	3	0	2
Other	0	2	0

Methodology and Test Instrument

The *Zoo-phonics Basic Reading Assessment, 3rd edition (Z-BRA3)* was used to assess alphabetic knowledge of lower- and uppercase letters (letter shapes, names, and sounds, Alliterative Animal Names and Body Signals) in the fall during the first two weeks of class and in the spring prior to the end of the school year.

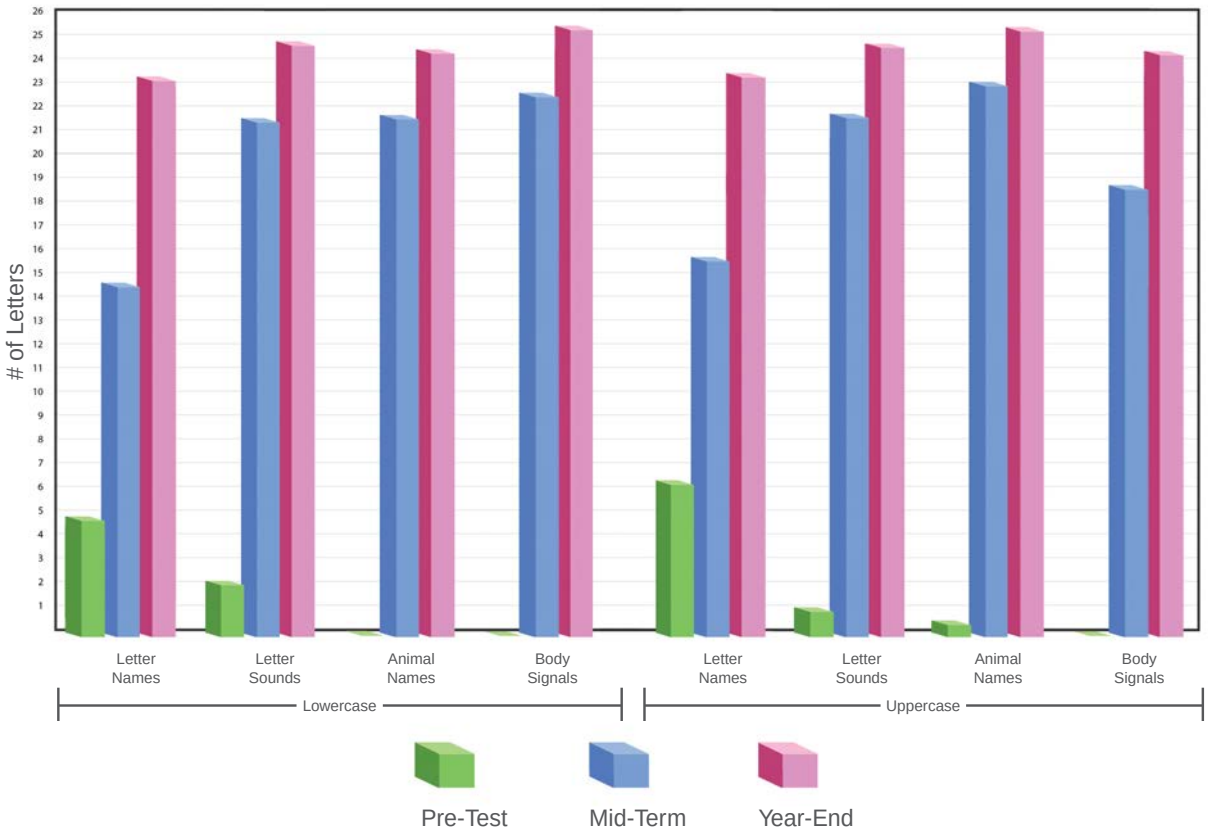

Figure 1. Lowercase and Uppercase Alphabetic Proficiency, Full-day Preschool

Zoo-phonics®
The Multisensory Language Arts Program

Analysis

A General Linear Model with Repeated Measures was used to determine proficiency levels and gains between assessment periods for all cohorts. The significance level for all tests was set at $p \leq .05$.

- Descriptive statistics were used to compare proficiency levels within each cohort and subsequently disaggregated into gender groups.
- T-tests were used to measure the differences between pre- and post-mean scores for each variable. Gains are reported by cohort and related gender groups.
- Data from two school years were aggregated for analysis.

Findings

A significant pattern emerged showing consistent growth in both lower- and uppercase letter shapes, names, sounds, Alliterative Animal Names and Body Signals, demonstrated in mid-term (January) mean scores. The mean scores for lowercase letters were 23 letters names and 25 letter sounds. Similarly, students recognized 23 uppercase letter names and 25 letter sounds.

The Zoo-phonics methodology emphasizes lowercase letters and letter sounds over uppercase letters and letter names and only begins to teach these latter skills when mastery of lowercase letters and sounds have been reached. Lowercase letters are used 95% of the time in text and the sounds are needed for segmenting and sounding out words in early literacy experiences.

Any early proficiency differences on these variables essentially disappeared by January and at the end of the school term. Even though many of these students had no prior exposure to both Zoo-phonics lower- and uppercase alphabets, near mastery of all alphabetic skills was evident for this cohort both early in the year (January) and at the end of the school year. Notably, the speed in which lower- and uppercase letter knowledge was learned in the first four months of school. This allowed children to utilize this new information with more advanced literacy skills.

Conclusion

The use of the *Zoo-phonics Multisensory Language Arts Program* in a full-day preschool program resulted in strong and rapid learning of the lower- and uppercase alphabets for all children. Significantly, most students reached high levels of proficiency while also gaining more advanced literacy skills including sound blending, segmenting needed for early reading, spelling and writing, although these skills not assessed in this study.

These preschool students were fully prepared to enter kindergarten with strong alphabetic and phonemic awareness skills. This study demonstrated that all children, regardless of Socio-Economic Status (SES) and other demographic characteristics, can learn and utilize the lower- and uppercase alphabets quickly and easily in a novel, fun, physical and playful way.

E3 RESEARCH

For more information view the full study at:

http://www.zoo-phonics.com/research

E3 RESEARCH

AN INDEPENDENT RESEARCH STUDY

Preschool

Full Day Program - 4 Year Olds

Zoo-phonics®

The Multisensory Language Arts Program

Instructional Areas

LOUISIANA

LANGUAGE | MATHEMATICS | READING | SCIENCE

Tests

- Growth: Language 2-12 LA 2016
- Growth: Math K-2 LA 2016
- Growth: Math 2-5 LA 2016
- Growth: Math 6+ LA 2016
- Growth: Reading K-2 LA 2016
- Growth: Reading 2-5 LA 2016
- Growth: Reading 6+ LA 2016
- Growth: General Science 2-5 LA 2004 V2
- Growth: General Science 6+ LA 2004 V2

Standards

- LA Science: 2004
- LA Student Standards Language Arts: 2016
- LA Student Standards Mathematics: 2016

Instructional areas and sub-areas are derived from the structure of state academic standards. The general content areas that appear across grade levels in a set of standards become the instructional areas. Instructional areas are further divided into common instructional sub-areas.

Content Specialists align items from the NWEA™ item bank to these standards. The MAP® Growth™ assessments and associated reports for teachers and students are based upon this alignment and grouping of standards.

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Growth: Language 2-12 LA 2016

1. Writing: Write, Revise Texts for Purpose and Audience
    a. Plan, Organize; Create Cohesion, Use Transitions
    b. Provide Support; Develop Topics; Conduct Research
    c. Establish and Maintain Style: Use Precise Language
2. Language: Understand, Edit for Grammar, Usage
    a. Parts of Speech
    b. Phrases, Clauses, Agreement, Sentences
3. Language: Understand, Edit for Mechanics
    a. Capitalization
    b. Punctuation
    c. Spelling

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Growth: Math K-2 LA 2016

1. Operations and Algebraic Thinking
    a. Represent and Solve Problems
    b. Properties of Operations
2. Number and Operations
    a. Understand Place Value, Counting, and Cardinality
    b. Number and Operations: Base Ten and Fractions
3. Measurement and Data
    a. Solve Problems Involving Measurement
    b. Represent and Interpret Data
4. Geometry
    a. Reason with Shapes and Their Attributes

Growth: Math 2-5 LA 2016

1. Operations and Algebraic Thinking
    a. Represent and Solve Problems
    b. Analyze Patterns and Relationships
2. Number and Operations
    a. Understand Place Value, Counting, and Cardinality
    b. Number and Operations in Base Ten
    c. Number and Operations - Fractions
3. Measurement and Data
    a. Geometric Measurement and Problem Solving
    b. Represent and Interpret Data
4. Geometry
    a. Reason with Shapes, Attributes, & Coordinate Plane

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Growth: Math 6+ LA 2016

1. Operations and Algebraic Thinking
    a. Expressions and Equations
    b. Use Functions to Model Relationships
2. The Real and Complex Number Systems
    a. Ratios and Proportional Relationships
    b. Perform Operations
    c. Extend and Use Properties
3. Geometry
    a. Geometric Measurement and Relationships
    b. Congruence, Similarity, Right Triangles, & Trig
4. Statistics and Probability
    a. Interpreting Categorical and Quantitative Data
    b. Using Sampling and Probability to Make Decisions

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Growth: Reading K-2 LA 2016

1. Foundational Skills
    a. Phonics and Word Recognition
    b. Phonological Awareness
    c. Print Concepts
2. Language and Writing
    a. Capitalize, Spell, Punctuate
    b. Language: Grammar, Usage
    c. Writing: Purposes: Plan, Develop, Edit
3. Literature and Informational
    a. Informational Text: Key Ideas, Details, Craft, Structure
    b. Literature: Key Ideas, Craft, Structure
4. Vocabulary Use and Functions
    a. Language: Context Clues and References
    b. Vocabulary Acquisition and Use

Growth: Reading 2-5 LA 2016

1. Literature
    a. Literature: Key Ideas and Details
    b. Literature: Craft and Structure
2. Informational Text
    a. Informational Text: Key Ideas and Details
    b. Informational Text: Craft and Structure
3. Vocabulary Acquisition and Use
    a. Context Clues and Reference
    b. Word Relationships and Nuance

Growth: Reading 6+ LA 2016

1. Literature
    a. Literature: Key Ideas and Details
    b. Literature: Craft and Structure
2. Informational Text
    a. Informational Text: Key Ideas and Details
    b. Informational Text: Craft and Structure
3. Vocabulary Acquisition and Use
    a. Context Clues and Reference
    b. Word Relationships and Nuance

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Growth: General Science 2-5 LA 2004 V2

1. Physical Science
    a. Properties of Objects and Materials; Measurement;
    b. Position and Motion of Objects; Motions and Forces
    c. Forms, Transformations and Interactions of Energy
2. Life Science
    a. Characteristics; Structure-Function; Behavior
    b. Life Cycles of Organisms; Reproduction, Heredity
    c. Organism-Environ; Interdependence; Matter-Energy
    d. Adaptations of Organisms
3. Earth and Space Science
    a. Earth Materials; Structure; Energy; Geochem Cycles
    b. Objects in the Sky
    c. Science and the Environment

Growth: General Science 6+ LA 2004 V2

1. Physical Science
    a. Properties; Structure; Changes; Measurement
    b. Position and Motion of Objects; Motions and Forces
    c. Forms, Transformations and Interactions of Energy
2. Life Science
    a. Characteristics; Structure-Function; Behavior
    b. Life Cycles; Reproduction, Heredity; Molecular
    c. Organism-Environ; Interdependence; Matter-Energy
    d. Adaptations of Organisms; Biological Evolution
3. Earth and Space Science
    a. Earth Materials; Structure; Energy; Geochem Cycles
    b. Objects in Sky; Solar System; Earth's History
    c. Science and the Environment

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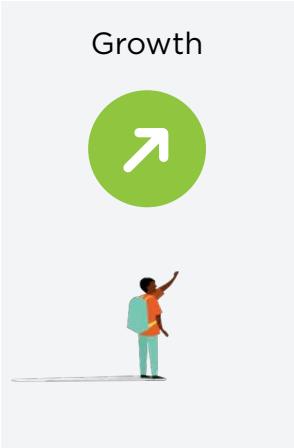
MAP GROWTH K–2

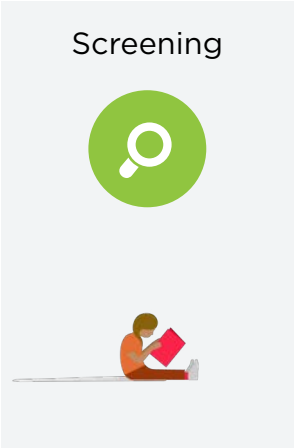
Accurately Measure Growth and Performance

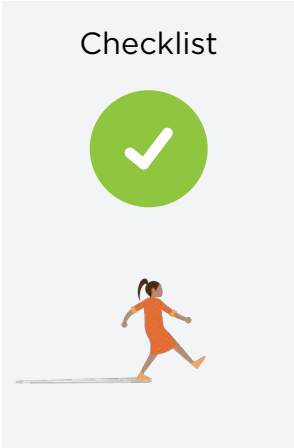
Support your youngest learners and maximize their potential. MAP® Growth™ K–2 enables educators to pinpoint where all students are on their learning paths. Identifying this starting point as early as possible and tracking growth over time on a reliable scale is essential to getting students on track and ensuring long-term academic success.

Designed to Support Young Learners

MAP Growth K–2 delivers three assessments that focus on the unique learning needs of your youngest students: growth, screening, and skills checklist. Special features, such as warm-up tests, audio instruction, and a visual interface, are specifically designed to engage young learners and assess what they know.







A Reliable Growth Measure

Our growth assessment measures each student's performance, regardless of whether they are on, above, or below grade level. Educators can use this data to inform instruction and track growth over time.

Assess for Placement

Screening assessments provide you with baseline information for students in the earliest stages of learning to support placement decisions. Educators can assess early literacy and early numeracy at the beginning and end of the school year.

Check for Skills

Use the skills checklists to assess how well your students know specific skills and concepts—before or after teaching them. This information can help you focus instruction to support student growth.

Interim Growth Assessment, Screener, and Skills Checklist

GRADE-LEVEL INDEPENDENCE

Measures performance of every student, whether on, above, or below grade level—even if standards change

SUBJECTS

Math
Reading

FREQUENCY

Fall · Winter · Spring · Summer

TEST TIME

Untimed

Students typically take less than 30 minutes per subject

STANDARDS ALIGNMENT

State standards
Common Core
AERO

ACCESSIBILITY

Audio instruction
Color contrast adjustment
Magnification

Answer Key Questions

Growth: Is each student growing as expected—whether they started at, below, or above grade level? MAP Growth K–2 adapts to each student's learning level. A stable, equal-interval scale tracks growth within and across grades.

Screening: What do my youngest learners know? Having this information in the beginning of the school year can help teachers better support students who are in pre–K and kindergarten.

Individual skill mastery: Has the student mastered specific reading or mathematics skills? MAP Growth K–2 includes short, non-adaptive skills assessments.

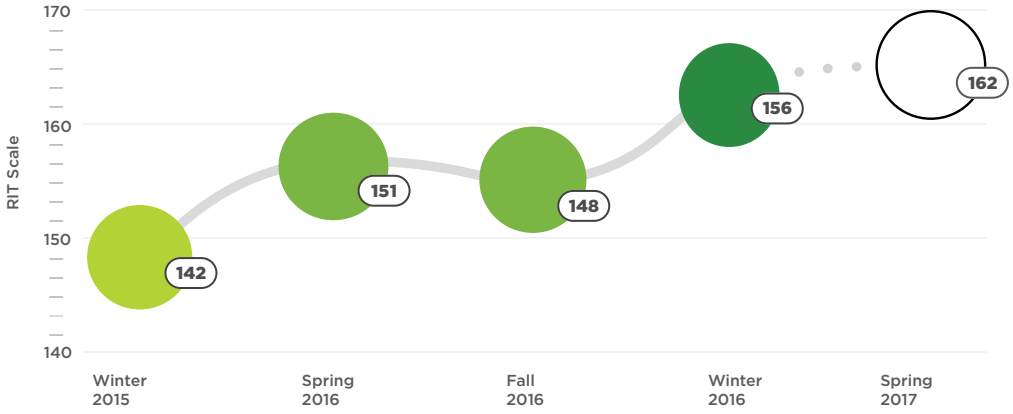
Make Data-Driven Decisions

Inform resource allocation: Administrators use MAP Growth K–2 data to determine program and resource needs.

Focus instructional planning: Teachers use MAP Growth K–2 data to identify growth targets and set goals for students and classrooms.

Growth Over Time

MAP Growth K–2 reveals how much growth has occurred between testing events and, when combined with our norms, shows projected proficiency. Educators can track growth through the school year and over multiple years.



RELIABLE TECHNOLOGY

Our online assessment platform is compatible with most popular operating systems, browsers, and devices—including iPads® and Chromebooks®. Because the assessment platform is stable, scalable, and reliable, schools can test on the schedule that meets their needs.

PROFESSIONAL LEARNING

NWEA offers a wide range of learning opportunities with flexible delivery—including self-paced online learning and workshops conducted on-site, regionally, or online. Educators can learn to use effective formative assessment practices, create a strong data culture, apply data to support student learning, and more.

ONGOING SUPPORT

Our knowledgeable specialists are here to help at every step, from comprehensive implementation to ongoing help via phone, email, live chat, and even on-site.

nwea

ABOUT NWEA

NWEA® is a not-for-profit organization that supports students and educators worldwide by providing assessment solutions, insightful reports, professional learning offerings, and research services. Visit NWEA.org to find out how NWEA can partner with you to help all kids learn.

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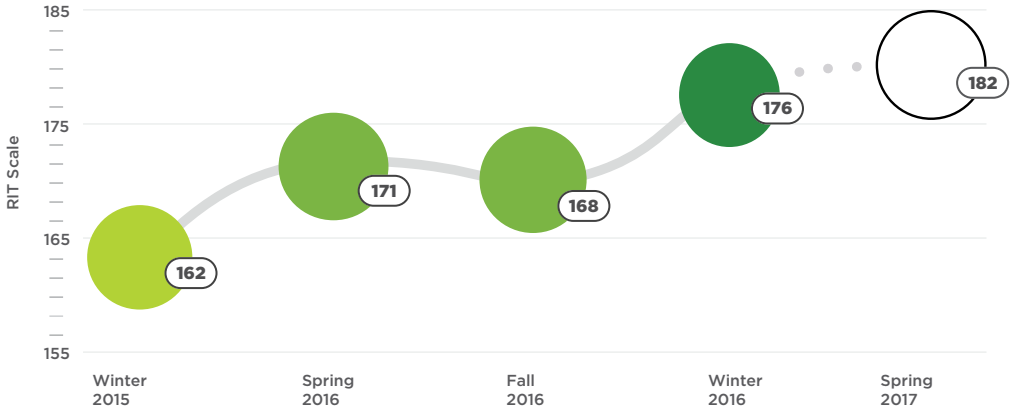
MAP GROWTH

Precisely Measure Growth and Performance

MAP® Growth™ measures what students know and what they're ready to learn next. By dynamically adjusting to each student's performance, MAP Growth creates a personalized assessment experience that accurately measures performance—whether a student performs on, above, or below grade level. Timely, easy-to-use reports help teachers teach, students learn, and administrators lead.

Growth Over Time

MAP Growth reveals how much growth has occurred between testing events and, when combined with our norms, shows projected proficiency. Educators can track growth through the school year and over multiple years.



The Most Stable Scale

Every question on a MAP Growth assessment is calibrated to our proprietary RIT scale, which is the most reliable in the industry. Because the equal-interval scale is continuous across grades, educators can trust it to track longitudinal growth over a student's entire career.

Reports Designed for Insight

MAP Growth reports transform raw data into insights that help educators take action. Teachers use them to differentiate instruction and pinpoint individual student needs. Higher-level reports give administrators the context to drive improvement across entire schools and systems.

Interim Assessment for Growth

GRADE LEVELS

Core
Remediation

K 1 2 3 4 5 6 7 8 9 10 11 12

GRADE-LEVEL INDEPENDENCE

Measures performance of every student, whether on, above, or below grade level—even if standards change

SUBJECTS

Math
Reading
Language usage
Science

FREQUENCY

Fall Winter Spring Summer

TEST TIME

45 minutes

Untimed. Approximately 45 minutes per subject

STANDARDS ALIGNMENT

State standards
Common Core
Next Generation Science Standards*
AERO

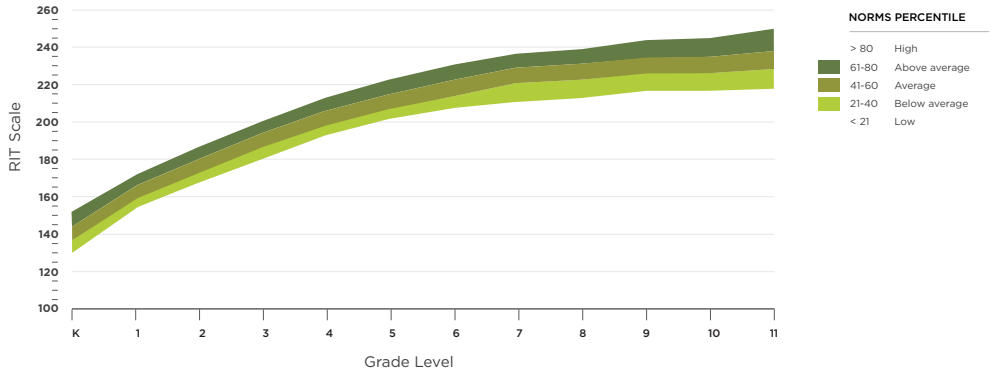
ACCESSIBILITY

Refreshable braille
Keyboard navigation
Screen reader (JAWS) compatible
Magnification
Color contrast adjustment
Test & item aids
Universal Design for Learning (UDL)
ARIA & WCAG compliant
Alt-tags

*Next Generation Science Standards is a registered trademark of Achieve. Neither Achieve nor the lead states and partners that developed the Next Generation Science Standards were involved in the production of this product, and do not endorse it.

Comparisons to Drive Insight

NWEA™ uses anonymous assessment data from over 10.2 million students to create national norms. Educators compare their students' performance against norms to evaluate programs and improve instruction—in individual classrooms and throughout school systems.



Professional Learning: A Foundation for Ongoing Success

Get the most out of MAP Growth data with powerful professional learning. Our MAP Foundation Series workshops help educators connect assessment data to a variety of needs—instructional, programming, and planning.

- Teachers and teacher leaders: Increase the ability to interpret MAP Growth data to inform instruction and goal setting
- Instructional coaches: Develop skills to support teachers in instructional applications of MAP Growth data
- School and district leaders: Gain expertise in using MAP Growth reports to build a data-informed culture and set long-term goals

RELIABLE TECHNOLOGY

Our online assessment platform is compatible with most popular operating systems, browsers, and devices—including iPads® and Chromebooks®. Because the assessment platform is stable, scalable, and reliable, schools can test on the schedule that meets their needs.

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ONGOING SUPPORT

Our knowledgeable specialists are here to help at every step, from comprehensive implementation to ongoing help via phone, email, live chat, and even on-site.

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ABOUT NWEA

NWEA® is a not-for-profit organization that supports students and educators worldwide by providing assessment solutions, insightful reports, professional learning offerings, and research services. Visit NWEA.org to find out how NWEA can partner with you to help all kids learn.

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