

# Child TRENDS<sup>®</sup> FACT SHEET

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## WHAT WORKS FOR EARLY LANGUAGE AND LITERACY DEVELOPMENT: Lessons from Experimental Evaluations of Programs and Intervention Strategies

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### OVERVIEW

Early childhood represents a critical period in the development of young children's language and literacy skills. Children's experiences both inside the home and in early care and education settings play a significant role in the development of their emerging language and literacy skills. Early childhood interventions and curricula have been designed to promote children's development in language and literacy. Results from experimental evaluations of approaches have suggested that children's literacy skills can be influenced by effective early childhood programs. Given the importance of the early childhood period as a time when the foundation is laid for later language and literacy, it is important to determine what activities and experiences lead to positive language and literacy outcomes in early childhood.

This Fact Sheet reviews fifteen experimentally-evaluated programs and intervention strategies that were primarily focused on improving early language and literacy skills. The review does not include comprehensive early childhood programs or early intervention strategies that may produce literacy and language outcomes, such as Even Start, Head Start, the Carolina Abecedarian Project, Tools of the Mind, or Ready to Learn. In addition, this Fact Sheet is not an exhaustive list of effective early language and literacy programs and interventions. Rather, it is an overview of experimentally evaluated programs and intervention strategies that have been identified for Child Trends' database of random assignment, intent-to-treat studies of social interventions for children and youth – LINKS (Lifecourse Interventions to Nurture Kids Successfully).<sup>1</sup>

The interventions presented in this review focus on strategies to directly improve specific aspects of young children's language or literacy skills (e.g., vocabulary development, print knowledge, listening skills). A table summarizes literacy and language interventions that have been found to be effective, or not, in producing results for specific outcomes. It is important to note that some interventions may have been successful in producing growth in one area of development (e.g., expressive vocabulary development<sup>2</sup>), but less effective in affecting change in other areas (e.g., phonological awareness<sup>3</sup>).

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<sup>1</sup> <http://www.childtrends.org/links>

If programs evaluated with a random assignment, intent-to-treat evaluation have been overlooked, please submit the evaluation at <http://mercury.charlesworks.com/~admin23/LINKS/PS/index.php>.

<sup>2</sup> See Appendix A for a glossary of terms.

<sup>3</sup> See Appendix A for a glossary of terms.

## INTRODUCTION

In this Fact Sheet, findings from fifteen random assignment experimental evaluations of literacy and language programs and intervention strategies are presented to examine the impact these programs and intervention strategies have on children's development of language and literacy skills. All of the identified programs and intervention strategies were drawn from LINKS.<sup>4</sup> *Table 1: Experimental Evaluations of Programs and Intervention Strategies to Enhance Early Language and Literacy Outcomes* identifies which programs were *found to work*, which programs had *mixed findings*, and which programs were *not proven to work* for specific outcomes. The definitions for these categories, defined for Table 1, are offered below. In addition, for descriptions of each program see *Table 2: Glossary of Programs*:

- **Not Proven to Work.** Programs and intervention strategies in this category have *non-significant* or *marginally significant* impacts (and sometimes negative impacts) on particular child outcomes.
- **Mixed Findings.** Programs and intervention strategies in this category have *varied impacts* either on particular outcomes or at different times or for varied subgroups. For example, a program that works for one subgroup of participants but not for another subgroup (on a particular outcome) would receive a "mixed findings" rating.
- **Found to Work.** Programs and intervention strategies in this category have *positive and statistically significant* impacts on a particular child outcome.<sup>5</sup>

## RESULTS<sup>6</sup>

- **Programs and intervention strategies that aimed at improving children's receptive/expressive vocabulary development had mixed results.** Out of the ten programs/intervention strategies that aimed to improve receptive and/or expressive vocabulary development, one<sup>7</sup> was found to significantly improve children's vocabulary skills, six had mixed results, and three were found not to work. Components in the successful program included interactive reading (either one-on-one or in small reading groups) and encouraging vocabulary use. It should be noted that some programs and strategies were effective at producing gains in some

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<sup>4</sup> <http://www.childtrends.org/links>

If programs evaluated with a random assignment, intent-to-treat evaluation have been overlooked, please submit the evaluation at <http://mercury.charlesworks.com/~admin23/LINKS/PS/index.php>.

<sup>5</sup> Where evaluations have assessed three or more measures of a particular construct or assessed a particular outcome three or more times, we have calculated the proportion of the potential impacts that are positive and statistically significant. For example, if 4 of 7 or 5 of 9 measures for an outcome are positive and statistically significant, this would be defined as a statistically significant impact on a particular outcome. The purpose is to avoid putting programs with multiple measures either at an advantage or at a disadvantage.

<sup>6</sup> The results section focuses on child outcomes. However, some programs and intervention strategies also focused on parent and teacher outcomes. For example, Dialogic Reading, Hear and Say Reading with Toddlers, and Reach Out and Read provided parents with guidance in reading aloud to children which then positively impacted parents' literacy practices. In addition, training teachers to utilize instructional tools that focus on language and literacy can positively influenced literacy practices in early care and education settings. This finding was observed in Building Early Language and Literacy, Interactive Book Reading, and Learning Language and Loving It.

<sup>7</sup> [Interactive Book Reading](#)

vocabulary outcomes, but not others (e.g., gains in expressive vocabulary, but not receptive vocabulary<sup>8</sup>).

- **Programs and intervention strategies that target verbal fluency and auditory comprehension demonstrated mixed results.** Out of three programs/intervention strategies aimed at improving verbal fluency and auditory comprehension, two programs had mixed reviews, and one<sup>9</sup> program that used dialogic reading techniques was found to positively impact verbal fluency.
- **There were mixed results from approaches that targeted children’s phonemic awareness<sup>10</sup> and phonological awareness.<sup>11</sup>** Out of nine programs/intervention strategies that aimed to improve phonemic and phonological awareness, only one<sup>12</sup> produced gains in children’s phonological skills, five produced mixed results, and three were found not to work. The program that was found to be effective was targeted specifically to teaching and promoting phonological awareness.
- **Mixed results were found among programs and intervention strategies that aimed to improve print and letter knowledge,<sup>13</sup> letter and word identification, and print concepts.<sup>14</sup>** Two<sup>15</sup> of the eight programs/intervention strategies that aimed to improve letter and word recognition or print concepts significantly improved print knowledge and skills, four programs demonstrated mixed results, and two programs were found not to work. Of the two programs that worked, one program/intervention strategy integrated phonological awareness techniques when helping children improve their printing skills,<sup>16</sup> while the other focused on early literacy techniques.<sup>17</sup>
- **Early childhood programs and intervention strategies that developed emergent literacy skills<sup>18</sup> demonstrated mixed results.** Of the two programs/intervention strategies that focused on emergent literacy skills, one<sup>19</sup> was effective in developing early literacy skills while the other demonstrated mixed results. The successful program utilized curricula that used a variety of literacy teaching strategies such as listening, comprehension activities, and vocabulary development.

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<sup>8</sup> See Appendix A for a glossary of terms.

<sup>9</sup> [Dialogic Reading](#)

<sup>10</sup> See Appendix A for a glossary of terms.

<sup>11</sup> See Appendix A for a glossary of terms.

<sup>12</sup> [Sound Foundations](#)

<sup>13</sup> See Appendix A for a glossary of terms.

<sup>14</sup> See Appendix A for a glossary of terms.

<sup>15</sup> [Early Literacy and Learning Model](#), [Phonological Awareness Training and Letter Knowledge Training](#)

<sup>16</sup> [Phonological Awareness Training and Letter Knowledge Training](#)

<sup>17</sup> [Early Literacy and Learning Model](#)

<sup>18</sup> See Appendix A for a glossary of terms.

<sup>19</sup> [Early Literacy and Learning Model](#)

## FURTHER RESEARCH NEEDED

- **More programs and intervention strategies that focus on emergent literacy skills, narrative development, and peer interaction/communication need to be evaluated experimentally.** Of the two programs that examined emergent literacy skills, only one reported statistically significant findings on emergent literacy skills.<sup>20</sup> One program/intervention strategy reported statistically significant findings on narrative skills,<sup>21</sup> and another program/intervention strategy had mixed findings on peer interaction skills.<sup>22</sup> However, no other experimentally-evaluated programs/intervention strategies focus on those areas of early language and literacy development. More programs that focus on areas of literacy development need to be identified for experimental evaluation.
- **Current research does not provide evidence regarding which programs and intervention strategies work the best, or better than others, for particular subgroups of interest or in different types of early care and educational settings.** For example, the role of oral language and the socio-cultural context are important considerations in the development of literacy among dual language learners.<sup>23</sup> However, only two programs<sup>24</sup> primarily focused on the language and literacy development of dual language learners have been identified. Furthermore, very little research is conducted in home-based care settings.
- **There is little evidence on whether long-term gains from early language and literacy interventions persist.** Most impact studies do not follow children over multiple years. It is important to determine what types of interventions are most effective at producing long-term impacts. Also, it is necessary to examine how long a program needs to be (e.g., duration) and how much of an intervention (e.g., dosage) is necessary to produce sustained results.<sup>25</sup>
- **More information is needed about specific components of interventions and training on language and literacy techniques.** More research needs to focus on the intervention model and framework, and the level of training that is used when implementing these programs, as well as the level of adherence to the model over time.

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<sup>20</sup> [Early Literacy and Learning Model](#)

<sup>21</sup> [Arthur Television Program](#)

<sup>22</sup> [Learning Language and Loving It: The Hanen Program for Early Childhood Educator](#)

<sup>23</sup> Castro, D., Espinosa, L., Paez, M. (2011). Defining and measuring quality early childhood practices that promote dual language learners' development and learning. In M. Zaslow, I. Martinez-Beck, K. Tout, & T. Halle (Eds.), *Quality measurement in early childhood settings* (pp. 257-280). Baltimore, MD: Paul H. Brookes Publishing.

<sup>24</sup> [Arthur Television Program, Phonological Awareness Training and Letter Knowledge Training](#)

<sup>25</sup> Halle, T., Calkins, J., Berry, D., & Johnson, R. (2003). *Promoting language and literacy in early childhood care and education settings*. New York: Child Care & Early Education Research Connections.

## **ACKNOWLEDGEMENTS**

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**TABLE 1. EXPERIMENTAL EVALUATIONS OF PROGRAMS AND INTERVENTION STRATEGIES TO ENHANCE EARLY LANGUAGE AND LITERACY OUTCOMES**

AREAS FOR TARGETED INTERVENTION ACTIVITIES	NOT FOUND TO WORK	MIXED REVIEWS	FOUND TO WORK
<p><b>Expressive/ Receptive Vocabulary Development</b></p>	<p>- <a href="#">Breakthrough To Literacy</a> had no impact on children’s vocabulary development.</p> <p>- <a href="#">Building Early Language and Literacy</a> had no impact on children’s vocabulary development.</p> <p>- <a href="#">Phonological Awareness Training and Letter Knowledge Training</a> did not demonstrate improvements in vocabulary development.</p>	<p>- <a href="#">Dialogic Reading</a> improved children’s expressive and receptive vocabulary in one study. In additional studies, the children’s expressive vocabulary improved. However, scores on receptive vocabulary were either marginally significant or showed no improvements.</p> <p>- <a href="#">Doors to Discovery</a> improved children’s vocabulary development. However, there were greater gains in the Head Start classes than the Title 1 and universal pre-K classes.</p> <p>- <a href="#">Let’s Begin with Letter People</a> improved children’s vocabulary development. However, there were greater gains in the Head Start classes than the Title 1 and universal pre-K classes.</p> <p>- <a href="#">Reach Out and Read</a> improved the vocabulary scores of toddlers (18-25 months old) but not younger toddlers (13-17 months old).</p> <p>- <a href="#">Ready, Set, Leap</a> improved one cohort’s vocabulary development but did not demonstrate gains in another study.</p> <p>- <a href="#">Sound Foundations</a> improved receptive and vocabulary development but impact was not sustained at the end of 1<sup>st</sup> and second grade.</p>	<p>- <a href="#">Interactive Book Reading</a> improved children’s Peabody Picture Vocabulary Test-III scores and knowledge of target vocabulary words.</p>
<p><b>Verbal Fluency/ Auditory Comprehension</b></p>		<p>- <a href="#">Doors to Discovery</a> improved children’s auditory comprehension. However, there were greater gains in the Head Start classes than the Title 1 and universal pre-K classes.</p> <p>- <a href="#">Let’s Begin with Letter People</a> improved children’s auditory comprehension. However, there were greater gains in the Head Start classes than the Title 1 and universal pre-K classes.</p>	<p>- <a href="#">Dialogic Reading</a> increased children’s use of multi-word phrases and mean length utterances.</p>

AREAS FOR TARGETED INTERVENTION ACTIVITIES	NOT FOUND TO WORK	MIXED REVIEWS	FOUND TO WORK
<p><b>Phonological Awareness/ Phonemic Awareness</b></p>	<p>- <a href="#">Breakthrough To Literacy</a> had no impact on children’s phonological awareness.</p> <p>- <a href="#">Building Early Language and Literacy</a> had no impact on children’s phonological awareness.</p> <p>- <a href="#">Phonological Awareness Training</a> did not improved children’s phonological awareness.</p>	<p>- <a href="#">DaisyQuest</a> increased children’s phonological awareness in two studies. However, in three other studies, one group demonstrated gains in two measures but not overall in phonological awareness, and the other two study samples did not differ from the control groups.</p> <p>- <a href="#">Doors to Discovery</a> improved phonological awareness. However, there were greater gains in the Head Start and Title 1 than the universal pre-K classes.</p> <p>- <a href="#">Let’s Begin with Letter People</a> improved phonological awareness. However, there were greater gains in the Head Start and Title 1 than the universal pre-K classes.</p> <p>- <a href="#">Phonological Awareness Training and Letter Knowledge Training</a> improved the phonological processing of children in one study but not in another study.</p> <p>- <a href="#">Ready, Set, Leap</a> improve children’s phonological awareness in one study but did not demonstrate gains in another study.</p>	<p>- <a href="#">Sound Foundations</a> improved children’s phoneme recognition.</p>
<p><b>Print and Letter Knowledge/ Letter and Word Identification/ Print Concepts</b></p>	<p>- <a href="#">Breakthrough To Literacy</a> had no impact on children’s print knowledge.</p> <p>- <a href="#">Building Early Language and Literacy</a> had no impact on children’s print knowledge.</p>	<p>- <a href="#">Doors to Discovery</a> improved children’s letter and word identification. However, there were greater gains in the Head Start classes than the Title 1 and universal pre-K classes.</p> <p>- <a href="#">Let’s Begin with Letter People</a> improved children’s letter and word identification. However, there were greater gains in the Head Start classes than the Title 1 and universal pre-K classes.</p> <p>- <a href="#">Ready, Set, Leap</a> improved children’s print knowledge and letter naming in one study but did not demonstrate gains in another study.</p>	<p>- <a href="#">Early Literacy and Learning Model</a> improved children’s letter recognition.</p> <p>- <a href="#">Phonological Awareness Training and Letter Knowledge Training</a> demonstrated improvements in print knowledge across both studies.</p>

AREAS FOR TARGETED INTERVENTION ACTIVITIES	NOT FOUND TO WORK	MIXED REVIEWS	FOUND TO WORK
<b>Print and Letter Knowledge/ Letter and Word Identification/ Print Concepts (continued)</b>		- <a href="#">Sound Foundations</a> improved children’s print concepts but at the one-year follow-up of one study, the impacts were not sustained.	
<b>Emergent Literacy Skills (e.g., early reading and writing skills)</b>		- <a href="#">Phonological Awareness Training and Letter Knowledge Training</a> demonstrated improvement in all except one measure of early reading/writing in one study but in another study, no differences were found between the control and treatment were found.	- <a href="#">Early Literacy and Learning Model</a> improved children’s scores on measures of emerging literacy (Test of Early Reading Ability).
<b>Narrative Skills</b>			- <a href="#">Arthur Television Program</a> improved children’s narrative outcomes.
<b>Peer Interaction/ Communication</b>		- <a href="#">Learning Language and Loving It: The Hanen Program for Early Childhood Educators</a> increased both the uptakes (the child follows the adult’s suggestion to interact with the peer) and overrides (the child ignores the adult’s suggestion to interact with the peer).	



**TABLE 2. GLOSSARY OF PROGRAMS**

<a href="#"><u>Arthur Television Program</u></a>	A television program that impacted English narrative skills.
<a href="#"><u>Breakthrough To Literacy</u></a>	An interactive computer program that uses pictures and sounds to teach reading.
<a href="#"><u>Building Early Language and Literacy</u></a>	A Pre-K literacy curriculum that consists of 15-20 minute long lessons twice a day using a variety of literacy activities such as shared reading, poetry, and songs.
<a href="#"><u>DaisyQuest</u></a>	A computer software program that uses instructional activities to teach phonological awareness.
<a href="#"><u>Dialogic Reading</u></a>	An interactive method of reading picture books where adults encourage children to be involved in reading by asking questions and allowing children opportunities to be storytellers.
<a href="#"><u>Doors to Discovery</u></a>	An early childhood curriculum designed to enhance early literacy development, with a focus on vocabulary development and expressive/receptive language development.
<a href="#"><u>Early Literacy and Learning Model</u></a>	A curriculum that provides children with daily emerging literacy experiences, such as oral language, listening, vocabulary development, reading aloud, emergent comprehension activities, and independent reading activities.
<a href="#"><u>Learning Language and Loving It: The Hanen Program for Early Childhood Educators</u></a>	A teacher training program that promotes children’s social, language, and literacy development in early childhood settings.
<a href="#"><u>Let’s Begin with Letter People</u></a>	An interactive literacy focused preschool curriculum covering 26 units which include 7 different areas: oral language and listening, alphabetic/story knowledge and writing, science and math, personal and social development, motor skills, art and music, and taking learning to the home.
<a href="#"><u>Interactive Book Reading</u></a>	A reading strategy where teachers read in an interactive manner to a preschool class using discussions, open-ended questions, vocabulary from books, extension activities, and providing children opportunities to talk and be heard.
<a href="#"><u>Phonological Awareness Training</u></a>	A supplemental curriculum designed to increase the phonological awareness of children.
<a href="#"><u>Phonological Awareness Training and Letter Knowledge Training</u></a>	A supplemental activity to classroom activities designed to teach phonological awareness and letter knowledge.
<a href="#"><u>Reach Out and Read</u></a>	A literacy promotion service based in pediatric primary care offices where volunteers model reading in waiting rooms and pediatricians encourage parents to read to children and provide guidance in reading aloud.
<a href="#"><u>Ready, Set, Leap</u></a>	A comprehensive preschool curriculum that utilizes children’s books grouped thematically and uses interactive electronic technology to engage children in developing early reading skills in addition to other literacy-focused activities.
<a href="#"><u>Sound Foundations</u></a>	Curriculum designed to promote phonological awareness by introducing phonemes using posters, activities, and games.

## APPENDIX A: GLOSSARY OF TERMS

Term	Definition
Auditory comprehension	"A child's attention to people, sounds, and objects in the environment," as well as the "understanding of complex language forms (e.g., structure, grammar, and syntax)." <sup>1</sup>
Dialogic reading	A method where "the child learns to become the storyteller. The adult then assumes the role of an active listener, asking questions, adding information, and prompting the child to increase the sophistication of his or her description of the material in the picture book. As the child becomes more skillful in the role of storyteller, the adult is encouraged to ask open-ended questions and to avoid yes/no or pointing questions." <sup>2</sup>
Emergent literacy skills	The "skills, knowledge, and attitudes that are developmental precursors to reading and writing." <sup>3</sup> Examples of these skills include holding books and turning pages, reading from the pictures in picture books, reciting a story from memory, drawing, scribbling, and holding a writing tool such as a crayon, marker, or pencil.
Expressive vocabulary	"Children's ability to use words appropriately in different contexts." <sup>4</sup> Sometimes the number of different words produced is measured also.
Letter knowledge	Knowing or recognizing the "distinctive features and names of individual letters." <sup>5</sup>
Letter and word identification	Recognizing and being able to say words and letters.
Narrative speech/skills	Children's ability to "not only produce multiple sentences but to knit them together in a coherent whole." This type of speech does not "describe the here-and-now but rather the there-and-then." <sup>6</sup>
Phonemic awareness	"The ability to isolate and manipulate the sounds of spoken words." <sup>7</sup>
Phonological awareness	"Understanding of the sound structure of spoken language." <sup>8</sup>
Print concepts	"Children's understanding of letters, words, sentences, punctuation, and directionality of reading." <sup>9</sup>
Print knowledge	A "multidimensional construct that describes children's emerging knowledge of the forms and functions of written language." <sup>10</sup>
Receptive vocabulary	"Children's ability to recognize and understand word meanings" that are spoken orally. <sup>11</sup>
Verbal fluency	The rate at which a child can produce words. Sometimes the use of multiple word phrases (or mean length of utterances) is measured.

## ENDNOTES

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