





## **Introduction**

The purpose of this pilot was to explore the effectiveness of using *The Creative Curriculum®* together with LENA Grow™ to provide high-quality experiences that increase language interactions between young children and their teachers/caregivers.

## **LENA Grow™ Background**

LENA Grow™ provides professional development for early childhood educators. It follows an innovative approach to increasing interactive talk in early childhood education and child care settings. Through LENA's "talk pedometer" technology and short coaching sessions to help educators increase verbal interactions and build children's language skills, teachers receive regular feedback on the frequency and quality of the talk in their classrooms.

Based on extensive research and experience working with thousands of children, LENA Grow™ supports large-scale outreach to educators of children from birth to age 3 through four integrated elements:

1. The LENA System™, which measures the amount of talk in a classroom environment via a wearable digital device and special software
2. The LENA Online™ portal, a program management and administrative tool that supports data management, reporting, and access to educator-focused tools and resources to use during coaching sessions
3. Coaching sessions that leverage easy-to-implement skills designed to increase interaction and provide an opportunity for reflection
4. Training, analysis, and technical assistance, which includes software configuration, help with data analysis, and ongoing calls to ensure successful implementation

## **How LENA Grow™ Works**

In classrooms where an educator is using LENA Grow™, children wear a small device in the pocket of a vest for one full day each week. The educator (or other trained staff member) turns the device on when the child arrives, presses "Record," places the device into the vest, and puts the vest on the child. The resulting audio is processed into data on the number of adult words (words spoken by adults) and conversational turns (strong measures of interactive talk) that a child experiences throughout the course of one "LENA Day." To ensure users' privacy, the device does not have a playback feature and the audio is deleted as soon as it is processed. No one can retrieve or listen to it.

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Every other week, educators meet with a coach to review and reflect on feedback reports that show the talk environment in the classroom. During this discussion, the coach and educator work together to set one or two goals for the educator to focus on during the next LENA Day. In parallel, a LENA staff member works with the center to answer any questions that come up and to ensure that everything runs smoothly.

### ***The Creative Curriculum®: Background***

Nearly 20 years ago, Teaching Strategies developed *The Creative Curriculum® for Infants, Toddlers & Twos* to help teachers of children from birth to age 3 create responsive daily routines and meaningful learning experiences in ways that support optimal development and learning. The third edition was published in 2015.

According to the National Research Council and Institute of Medicine (2000), the development that occurs from birth to age 3 lays the foundation for all future learning. Research has also shown that children under age 3 benefit most from teaching and caregiving experiences that are nurturing, consistent, and loving. Toward that end, *The Creative Curriculum®* helps teachers plan developmentally appropriate experiences that challenge young children to the edge of their ability while retaining the flexibility to respond to children’s changing interests and abilities in the moment.

### ***The Creative Curriculum®: Components***

*The Creative Curriculum® for Infants, Toddlers & Twos, Third Edition*, consists of three foundational volumes and a variety of classroom resources for daily practice (the *Daily Resources*).

The foundational volumes present the theory and research behind the curriculum, help teachers set up the learning environment, and describe strategies for supporting young learners at every developmental level.

The *Daily Resources* provide expanded daily guidance in the form of *Intentional Teaching Cards™*, *Mighty Minutes®*, *Highlights Hello™*, *Book Conversation Cards™*, and *The Creative Curriculum® LearningGames®*. These resources help teachers fill the program day with meaningful and engaging routines and experiences. Five types of *Daily Resources* were included in the pilot:

- *Intentional Teaching Cards™*—engaging experiences that teachers can individualize to meet the unique needs of one or more children, typically in small groups of 2 to 3 children
  - *Mighty Minutes®*—brief activities that promote language, literacy, math, science, social studies, and physical skills during transitions and other “in between” moments
  - *Highlights Hello™*—a publication featuring stories, poetry, and simple activities that help inspire a love for reading and support the development of language and literacy skills
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- *Book Conversation Cards™*—quick-reference resources designed to help teachers/caregivers actively engage young children in conversation during read-alouds and guide them through learning experiences related to *Highlights Hello™*
- *The Creative Curriculum® LearningGames®*—a series of award-winning, research-validated early learning activities for classroom and home use with young children that help families use common household materials and everyday interactions to engage in meaningful at-home learning that strengthens their relationships with their children

### ***The Creative Curriculum®* and LENA Pilot Training**

One center director and four teachers (pilot participants) received training on the use of both LENA Grow™ and *The Creative Curriculum®*. The participants who piloted the LENA technology participated in a 60-minute training session delivered in person by LENA staff. The interactive session gave participants an opportunity to become familiar with the technology, to get hands-on practice using LENA devices and vests, and to ask questions about the program. The center director and Teaching Strategies staff received additional training on how to upload data from the devices, access reports in LENA Online (LENA's web-based program- and data-management system), and review and interpret report data. LENA also worked with Teaching Strategies staff to provide guidance for delivering coaching session content and discussing report data with teachers.

A certified Teaching Strategies trainer delivered to participating teachers a 6-hour training session on *The Creative Curriculum® for Infants, Toddlers & Twos*. The session was highly interactive and focused on helping teachers at all levels implement *The Creative Curriculum®* effectively in their classrooms. Teachers first examined the 38 objectives for development and learning that form the basis of the curricular resources. They then worked in small groups to explore the foundational volumes, to learn best practices for creating meaningful routines and experiences, and to practice using the *Daily Resources*, which included a selection of *Intentional Teaching Cards™*, *Mighty Minutes®*, *Highlights Hello™* magazines, *Book Conversation Cards™*, and *Learning Games®*.

### **Pilot Summary and *The Creative Curriculum®* and LENA Coaching Plan**

The LENA Grow™ pilot ran from February 2017 to May 2017. Two classrooms with a total of 12 children (5 infants and young toddlers in Classroom 1, and 7 older toddlers and 2-year-olds in Classroom 2) participated in the pilot. Children in the pilot classrooms wore the LENA vests one day a week for the entire day. At the end of each recording day, the center director uploaded the data collected by the device. The Teaching Strategies coach then analyzed weekly LENA data and tailored each coaching session accordingly.

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After the initial product training session, the coach began biweekly visits to support the teachers implementing *The Creative Curriculum®*. The coach delivered individualized coaching based on teachers' current level of implementation (beginning, progressing, or refining).

In addition to the biweekly onsite coaching visits, teachers received interim support through newsletters and phone calls. Teachers responded to these emails, which helped the coach tailor a coaching plan for each teacher based on his or her specific needs. The purpose of this informal communication was to give teachers a way to ask questions that arose prior to a formal check-in with a coach. Implementation support visits were scheduled with each teacher to continue increasing their understanding of the curriculum components and to improve their fidelity of curriculum implementation.

### Link Between *Daily Resources Usage* and LENA Report Data

Pilot teachers received instruction on how to use *The Creative Curriculum® Daily Resources* with children during everyday routines and experiences to increase the number of words children hear throughout the day.

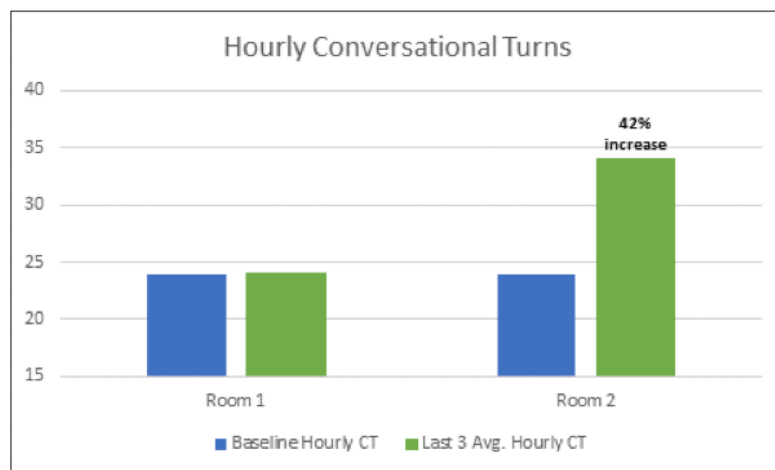
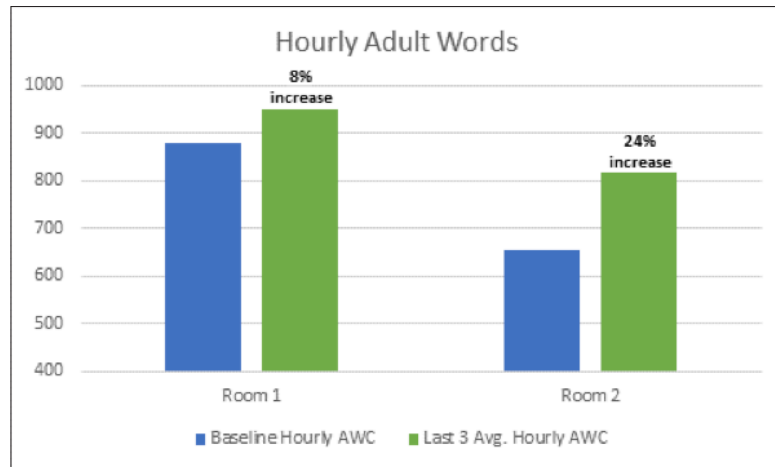


### Pilot Findings (Outcomes)

The pilot found an increase in adult words spoken per day and an increase of conversational turns, increasing the overall amount of interactive talk in the pilot classrooms. An analysis of the LENA Grow™ data showed that Classroom 2 had the largest room-level gains, with an overall increase of 161 adult words per hour from baseline to the average of the last three recordings, and an overall increase of 10 conversational turns per hour from baseline to the average of the last three recordings. The average of the last three recordings is used to account for day-to-day variability and fluctuation that is typical in a classroom environment.

Classroom 1 showed an overall gain of 73 words per hour from baseline, but did not show any change in conversational turns overall. When looking at the child-level data, 37.5% of the children in Classroom 2 experienced an increase in both words *and* turns, and 87.5%


experienced an increase in words *or* turns. The 42% increase in conversational turns for Classroom 2 is impressive and noteworthy. In Classroom 1, which had fewer than half the children in Classroom 2, only 1 out of the 3 children experienced an increase in either words or turns. It should be noted, however, that the baseline hourly counts for words in Classroom 1 were on average much higher than those in Classroom 2 (879 vs. 656), which may indicate a stronger observer (“Hawthorne”) effect for those educators. There are several strategies known to mitigate those effects, such as increasing the number of LENA Days prior to educators viewing reports or letting educators know that they will not see their initial report. One or more of those strategies could be employed in future implementations.



The pilot showed that teachers who have access to a coaching plan and ongoing implementation support are able to effectively implement curriculum products.

Throughout the pilot, participants shared that they were previously unaware of the gaps in their day during which children had few opportunities to talk with adults and peers. The reports provided by LENA brought this to their attention, highlighting the times of day when children were receiving fewer verbal interactions. Coaching the teachers to use curricular resources to enhance those times of day and to ensure that all children received the same language opportunities enabled the teachers to intentionally increase the quality and frequency of the verbal interactions taking place in their classrooms. Teachers reported that the ability to individualize instruction was key to being successful.

In conclusion, the pilot highlighted areas of need for the participating teachers, provided valuable coaching opportunities, and further enhanced the pilot participants' implementation of the curriculum. Further research is needed to explore the long-term effects of using *The Creative Curriculum®* with LENA technologies.



**We thought this program was an eye-opener for us, and even though we do work hard to increase the communication we share with children at our center, we see that our efforts are validated by research. The immediate results encouraged us to communicate more and to engage with families. The research results from the Teaching Strategies curriculum/LENA pilot program proves that children learn not just through our lesson plans, but also through our conversations about what we are doing while we do it.**

**We are so grateful for this program at CCLC and to both companies for putting children first, and for providing teachers with the resources necessary to enhance learning.”**

**–Lisa Pendleton, Director, The Child Care & Learning Center**

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## **References**

National Research Council and Institute of Medicine. (2000). *From neurons to neighborhoods: The science of early childhood development*. (J. P. Shonkoff & D. A. Phillips, Eds.). Washington, DC: National Academy Press.

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