

**Qualitative Evaluation of Hartford Grow Professional Development Model
Designed to Improve the 'Talk Environment' in Early Childhood Care Settings**

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January 17, 2023

Center for Social Research

UNIVERSITY OF HARTFORD

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January 13, 2023

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Center for Social Research
University of Hartford

Prepared for

The City of Hartford
Department of Families, Children, Youth and Recreation
Division of Young Children

We want to thank Magdalene Garcia, Hartford Talks Coordinator, City of Hartford, Department of Families, Children, Youth & Recreation, Division of Young Children, and Katie McGinnis and Shyleen Lopez, Mayor's Cabinet for Young Children, for their ongoing support. We especially want to thank the teachers, administrators, and family childcare providers for volunteering their time, and for their support and interest in the evaluation effort.

Background

Growing out its replication of Providence Talks, the City of Hartford's LENA Grow program (LENA Grow 2.0) is a professional development model designed to improve the 'talk environment' in early childhood care settings using 'talk pedometer' technology to understand, measure, and increase conversations with children.¹ Adult-child conversational turns are tracked with Language Environment Analysis (LENA) devices that are unobtrusively worn by the children. Conversational turns are back-and-forth alternations between an adult and a child; specifically, the LENA technology counts a turn when an adult speaks and a child follows or vice versa, with no more than five seconds in between. Objective, automated measurement and analysis of adult-child conversational turns with LENA software has been effectively used to estimate language experience in studies that altogether point to conversational turn-taking in the first three years of life as highly predictive of important, interrelated child outcomes. These include: concurrent growth and functioning in language, reading, and social processing regions of the brain (Merz et al., 2020; Romeo et al., 2021; Romeo et al., 2018a; Romeo et al., 2018b); growth in vocabulary and language development (Donnelly & Kidd, 2021; Duncan et al., 2022); increased social-emotional development and communication (Gómez & Strasser, 2021); and higher verbal ability and IQ scores in middle school (Gilkerson et al., 2018).

A major aim of the professional development model is to intentionally incorporate what is known about adult-child conversational turn-taking, and how it works to effect change, in to day-to-day practices and routines in early childhood care settings. Throughout implementation of the approximate 10-week program, the device is safely and securely worn by the children in a vest one day each week, referred to as a 'LENA Day.' The resulting data on number of conversational turns are translated into feedback reports that are used for reflection in coaching sessions that also occur weekly across the 10 weeks. The weekly coaching sessions provide teachers with an opportunity to use objectively measured talk data to reflect on children's experiences in their classroom. LENA days occur prior to the start of the program (i.e., two days of baseline data) and as noted above, continue one day a week throughout the approximate 10 weeks of coaching. Beginning with the first session, with guidance from a trained coach, teachers use insights gleaned from the data to set room- and child-level goals, as well as strategies for achieving their goals. As 'Talking Tips'² are put into practice over the course of the ten weeks, teachers continue to use the data gathered by the talk pedometer during coaching sessions to evaluate their progress, and identify new goals as applicable, along with corresponding strategies or Talking Tips.

As described in the program's implementation materials, teachers' goals range from simply increasing the average number of conversational turns per day (i.e., across all children), or the number of 'interactive' hours per day, to increasing the average number of conversational turns for a specific hour or routine. More often, goals focus on increasing the number of conversational turns for individual children who are initially experiencing the least interaction. Similar to room-level goals, teachers' goals for individual children can include increasing the number of conversational turns per day, per hour, or during a specific daily routine. Introducing and practicing new LENA Talking Tips for engaging children in conversational turn-taking in itself can be a goal. Talking with young children, particularly infants and

¹ The inception and development of LENA grow and the talk pedometer technology are reported in detail at [LENA Grow - LENA - Building brains through early talk](#) and [Conversational Turns \(lena.org\)](#).

² The 14 Talking Tips are simple, research-based strategies for increasing adult-child connections and talk that easily and naturally fit into daily routines. See details on LENA Talking Tips at [How to have a conversation with a baby even before they can talk \(and how LENA measures it\) - LENA](#) and [The 14 Talking Tips are now available in 12 languages! \(lena.org\)](#)

toddlers, can be more or less comfortable for teachers: conversational turn-taking is not about talking to (or at) the child, but rather it is talking *with* the child that shifts the conversation to a quality interaction (Mundy et al., 2007; Vaughan Van Hecke, 2007).

The quality of early child care environments varies widely with respect to teachers' and other caregivers' training, credentials, salaries, and ratio of adult to child. As a result, children experience wide variability in language and interaction across early learning environments. In fact, a recent LENA analysis of early childhood care settings indicates that one in five children spend most of the day in 'language isolation,' i.e., fewer than five conversational turns per hour with the exception of daytime routines such as arrival time or lunch time when the most conversation turns occur.³ According to the program model, LENA Grow provides a solution to this with data-driven coaching that builds on caregivers' strengths, and has a singular focus of increasing interactive talk. Importantly, the reflective feedback cycle and practice-based approach are based on principles of adult learning. An adult learning framework recognizes that adults come to the table with their own set of life experiences and motivations, they can direct their own learning, tend to learn better by doing, and will want to apply their learning to concrete situations sooner than later. Learning experiences should therefore be designed so that they are actively involved in the planning and evaluation of their instruction, and taught about things they find useful to their work and show immediate or quick results (Bordeianu & Morosan-Danila, 2014; Kearsley, 2010; Knowles, 1984). In short, adult learners want to see their efforts as worth their time.

Evaluation Purpose, Methods, Analysis

The purpose of this evaluation was to explore the effectiveness of Hartford Grow in influencing practices and work culture within participating early childhood care settings. Were there changes in teachers' day-to-day practices and interactions with children? Did the program influence teachers' beliefs about their impact and role in promoting children's development? If so, how did participation in the program bring about these changes?

We examined the processes and impact of the program model "on the ground" mainly by conducting semi-structured interviews with participating teachers, administrators, and teacher assistants at three center-based programs, one of which had implemented Hartford Grow multiple times most recently in the spring 2022, one which had implemented Hartford Grow for the first time in the spring 2022, and one which had implemented the program in 2021).⁴ We additionally interviewed providers at two family-based programs (i.e., Family Child Care, FCC providers)⁵. The interview inquired about participants' experiences and beliefs related to program implementation of the different components (i.e., use of technology, data, coaching, goal setting and Talking Tips, and parent engagement) and the effects of the training on their practice and professional development.⁶ In total, 14 one-to-one interviews were conducted from May through November 2022. As will be shown, the program gains much meaning when understood within the professional experiences of teachers and caregivers, and gives readers a more in-depth understanding of the program in context.

³ For more details on recent LENA analysis of language environments in early childhood care language environments, see the blog at <https://www.lena.org/child-care-language-isolation-data-analysis/>.

⁴ See a summary quantitative analyses of these 3 program sites in Appendix A; also see [LENA Grow Impact Report](#).

⁵ Hartford Grow is being newly piloted with Family Child Care providers; as such, data on the pilot are incorporated minimally, only where applicable, and are mostly used for recommendations in planning the next implementation stage.

⁶ See interview protocol in Appendix B.

In addition, prior to conducting the interviews, we observed seven of the approximate ten virtual coaching sessions separately for two center-based programs and for a group of six FCC providers during the months January through April 2022. While our analysis incorporates some of our observations, the main purpose of observing coaching was to have an understanding of implementation and use this understanding as a framework for conducting interviews.

We analyzed interview data primarily using a narrative approach. The stories of the program as told by the teachers and caregivers become the raw data from which we identified concepts and themes that spoke to the effects of coaching and other program components on adult-child interactions. We used their collective stories to both infer and illustrate the successes and some of the challenges of the model and its implementation (i.e., in purple font). When applicable, elements and principles of adult learning, as described above, were used to frame our findings.

Evaluation Findings

As observed, coaching sessions begin by explaining the direct impact teachers can have on promoting brain development and readiness for kindergarten through increasing talk and conversational turns with children. However, the teachers' background experiences in the early childhood field, as well as their hands-on knowledge of the learning context and of individual children were critical resources as they reflected on what the data showed at a given time of day or for a given child. The below excerpts from interviews and observation notes illustrate how teachers were engaged and reflective during coaching as described in 12 of the 14 interviews.

1. Teachers are engaged and reflective during coaching, and are actively involved in their instruction.

A teacher who had been working in early childhood care and education for 15+ years discusses how they **used the individual child data to set goals** during coaching by looking at the time of day that showed the most and least amount of talk and which children experienced the most and least number of interactions. *We looked to see where the child was and we looked at what we were doing throughout the day and the timing and [figured out that] at this time of day, we are going to target that child and either give him one-to-one attention or pair that child with someone who talks more.*

The following observation during a coaching session illustrates how teachers **use data to gain insights into each child's language experience as well as to get feedback from family**. *Teachers report that they made a home-school connection by reviewing a child's feedback report with a parent. They discovered that Vanessa is very verbal at home and shares all her school day thoughts with her mom. Now teachers support Vanessa to begin to use that language at school... As a result, Vanessa's conversational turns are up this week as the team used their new lens to support her conversational turns.*

The below excerpts further illustrate **how data are used by teachers to evaluate progress** including some of the challenges as well as the successes.

In an interview with a lead teacher, who had experience implementing Hartford Grow with children across all developmental stages, from infants to preschoolers, she enthusiastically discussed **how she and assistant teacher(s) would set goals and track their progress**. *Me and my team would set a goal: 'In 30 minutes to one hour, how many connections or conversational turns can we make with that one child?' We made almost 29 connections for one child, one-to-one! For those who were quiet, we tried to get them talking. It was fascinating!*

Another teacher who also worked with different developmental age groups recalls **how the data on patterns of talk provided insight on where teachers should direct their efforts**: *When the score for a child was low, we asked ourselves, 'What was wrong that day? Do you remember what happened?' And we would try to find out why... This same teacher also reported how she gained insight about herself. It helped me too! It's just a little thing to help them [children] to talk more, and [while talking] they are playing and learning too...[Hartford Grow] is nothing extra for us, [talking to children] is my job, [the coaching] is a support for us.*

The below reflections during interviews further illustrate how teachers' ownership of their own learning, planning and evaluation readily evolved into teamwork, as discussed in eight of the 14 interviews that were conducted.

2. Teachers' ownership of their own learning, planning, and evaluation readily becomes teamwork.

One administrator highlighted, *it's what you do to aid in the process. You have to find the time to meet with the coaches, and the **teachers are all in it together at the same time**. We made it work, we had to invest time wisely to make it work...I was able to describe the data [to the teachers], and the teachers were excited for coaching. We just 'went at it.'*

One of several teachers who reported having an additional perspective as a participating parent (i.e., their child was in a classroom with Hartford Grow), recalls the **planning and thoughtfulness between her and her co-teacher that continued between coaching sessions and even after the program was completed**. *Me and my co-teacher would talk about it [goals and strategies] at nap time: How to get children more engaged, or split it up, how many times should we talk with this child and we would check on each other; after [coaching] was over, we continued to check in on how children were talking and the next day we would follow up on children who weren't speaking.*

This same teacher highlighted that **coaching was a place to share perspectives and learn from others** ways to interpret the data and relate it to daily behaviors. *Coaching helped us think on what was done, what worked and what didn't work and to get new perspectives. It was good to get that extra feedback especially since we did coaching with other classrooms and we would learn what they did to encourage certain children to speak too. [For example], at nap time, it is perfectly fine that you aren't going to get back and forth conversations but for those children who don't sleep, how to engage them?*

The following excerpt from an interview with a center leader illustrates the **critical role and commitment of the administration in establishing an infrastructure for implementing the program and building team work**. *I met with [the coach] every two weeks to go over strategies with teachers and progress they were making. I also talked about how to provide reassurance to teachers in the beginning; we did not want them to think they were doing anything wrong... any trouble with devices we would troubleshoot... I was being more intentional about small [child] groups and who you put in groups aiming at diversity: talkers with nontalkers so that the nontalkers would shine as well.*

Another administrator shared her observations of how coaching impacted teacher interactions between sessions. *Teachers did a lot amongst themselves, they would have **joint groups together**, for example my toddler teachers would share with each other...there was a lot of collaboration.*

3. Teachers were able to see their progress and saw coaching as a valuable support that helped them learn new skills.

In 13 of the interviews, participants highlighted how much they benefitted from weekly coaching.

A lead teacher, who had started at the early childhood center as an assistant teacher, highlighted that it was important for her to be prepared for the coaching sessions. *It helped me a lot [just] **preparing for coaching**... 'She [coach] is going to ask me all these questions? What am I going to say? I have to be back from lunch on time.'* **It was very informative, it gave me lot of strategies**, even when I [participated in the program as] an teacher assistant.

A teacher who had been working in a toddler classroom for approximately five years enthusiastically shared how she began implementing talking tips learned in coaching to talk *with* children instead of to children. **When we had the coaching days– she really gave me tips on how to get those kids to talk and it worked; she would give me the tip and next week I would [see improvement].** [Teacher further discussed her strategy using Lullabies]: *You pause, they [children] continue.* Additionally, she recalled the talking tip she learned to increase conversation turns with a toddler during diaper change. **I remember that from the coach: taking turns...don't do all the [talk] turns, try to get the kids to talk, and it worked.** *We had some talkers! Especially if you talk about things that they are interested in.*

Another teacher who also worked with toddlers called out the **strengths-based coaching**. *I liked that they had not just me and the coach, but also another team because you can **feed off of each other**, as well as the coach's ideas, what we can add to the classroom. The coaching was definitely positive; she **pointed out all the good things**, not just where we needed support, 'here is where you did really good, here is your score, how can I help you, what's your goal for next week?*

A lead teacher who has been working at the early childhood center for approximately two years expresses how beneficial it was to have **a coach who actively listened**. *That support was very helpful, to talk to someone about my day, to go throughout your whole day and **just have someone listening...that was very helpful and supportive.***

4. Teachers are more thoughtful and intentional in understanding and valuing each child's language experience and customizing strategies to meet the unique temperament, behavior and learning styles of each child (i.e., 'meeting them where they're at').

As a result of the coaching and feedback loop, teachers became **more goal oriented and intentional** in their teaching, trialing and **implementing new strategies** (i.e., Talking Tips). This was discussed directly or indirectly in all 14 interviews.

A teacher working for over five years in the field shared how she **connected her goal for increasing talk with children to specific daily practices**. *Once we were given talking tips, I would see what area I am lacking in and used those talking tips at that time. For instance, at the changing table, you can comment on what they're wearing and comment on what they are saying –it helped me during times that I saw I needed more interaction with the kids.*

An FCC provider highlighted how **just one talking tip made a dramatic difference in making connections** with children in her day care. *There were 2 specific children who wouldn't talk much [as shown in the data]. One child was diagnosed with autism, and the other was maybe shy. Eventually they started talking more. I focused on taking turns, for example, during circle time. **Talking tips helped me with circle time: making silly faces and taking turns [emphasis] helped me out dramatically.** Before everyone was just talking all the time at once; now they are taking turns. **This was life changing for me.** I*

saw individual children able to express themselves, they developed in terms of expressing their self and talking.

A teacher who had been employed at the center for over 15 years reflected on gaining more **knowledge and understanding of how to engage individual children with a wide range of needs and interests**. *During coaching we looked at data for each child and came up with strategies for specific children- maybe a bathroom activity, or singing a song, and we saw improvement. There was one child in particular who had zero conversation turns, very quiet, then on a one-to-one we talked about dinosaurs and we can get him to talk. Another child wasn't using words but we were able to do sounds by just asking him questions throughout the day versus just saying something to him. I would get him to repeat back and would get him to make a sound.*

A lead teacher who works with preschoolers emphasized that the regular reviews of objective data made sure that you **couldn't leave anybody out**. *Getting to each one, making sure you got to each child; you wouldn't notice if you were leaving someone out without the device or the data. As soon as they come in, you have to start talking to them. The biggest challenge was getting a specific child to talk – there was at least one child that didn't say much and not because she didn't have the language...One child right now would be a challenge – he's a gesture kind of kid.*

The following excerpt, from a teacher who had been working in early childhood care for close to 20 years, highlights the talking tips as most helpful for figuring out how to engage specific children thereby **increasing equity in the classrooms**. *When we had the coaching that was very helpful itself because we reviewed [individual data on conversational turns] and what we could do to better the kids. 'What can we do to help them communicate more?' The tips are amazing because sometimes you might not know how to help a child, especially if the child is non-verbal, some of the tips were very helpful: repeating [what the child stated], waiting for the kids' response, also naming things, talking to them about what you are doing and having them respond to me.*

Several teachers spoke on **how to engage children with autism**, in the following excerpt, the teacher saw improvement in the child's behavior. *In my class, I had a child with autism and he used to have tantrums. I kept repeating words back to him, using hand signals and his [disruptive] 'behaviors' went down.*

The following excerpt is from an interview with a teacher who also has a child participating in Hartford Grow. She describes how the program is important for engaging and connecting with children at all developmental stages, capacities, and preferences. *...also moving between different age groups, it makes you more versatile, you don't 'dumb down' for infants - you keep looking for eye contact, and they get used to it and they will babble back...we will pause and they will say something. Your expectations become higher; you realize that you can have high expectations even for those children who don't talk. Like that one child I had to engage him when arriving in the morning with his family but eventually we moved beyond his family to him developing a teacher preference. I made sure he was with the teacher he felt most comfortable with and we focused on his interest in blocks – doing something with him that he liked helped with his language too.*

5. Teachers delight in seeing improvement in children's interactive talk, which in turn validated their efforts, and further increased their enthusiasm, commitment, and use of program practices.

Although teachers, teacher assistants, and providers were more or less expressive, and had more or less to share during interviews, all 14 evaluation participants had at least one success story to share.

In an interview with a FCC provider, she shared her 'success story.' *She [child] didn't really talk much throughout first half of the program but halfway through, she started talking more and I showed the parents her weekly progress reports. I have to ask her questions, and then wait for her to respond is what I learned. Her parents were concerned about needing B-3 but by the end of [Hartford Grow], she was doing fine.*

An administrator who regularly reviewed the data reports with the teachers joyfully shared how the **children responded to quality interactions with teachers.** *Especially the infant room, they don't speak but they verbalize, one of our most successful rooms was the infants. They are still singing and talking so much, it cracks me up...very nice to see the infant results. **The teachers will run to me and tell me about it, they liked when the results came back so quickly showing the things they did and how they made changes.***

A 15-year veteran teacher who **professed to not talking as much prior to participating in the program** - herself, humorously discussed, *getting them ready for kindergarten – talk, talk, talk, always encouraging them to talk... 'What happened to this one? He never talked before!' At lunch I have to tell them to eat [not talk] and they respond... 'you said to talk.'*

A lead teacher who has been working in the field for approximately eight years excitedly shares how she **saw children's vocabulary increase within weeks.** *I love seeing them grow. I have a couple of children with autism and I can see where they were to how they are now. They are speaking words. I like it, it is fascinating to me!*

One teacher specifically points out how she **became more attuned with children who are shy.** *The talking tips really helped [me to get to know] my shy children. I would greet them when they showed up at the door and have their parents get engaged in back-and-forth conversations with us while putting the vest on, 'what are you going to learn today,' and that would help for them to continue throughout the day. I would get to know them better...*

An assistant teacher who has been working in early childhood for over 20 years readily spoke on the **social-emotional benefits children gain from the increased conversation with (and attention from) caregivers.** *It helped a lot of children, it really did...get them to say something, that experience of talking back and forth, I don't care if it is babbling but just respond to me. The talking tips helped – getting down to their level, and face-to-face and just to see what response they're going to have. **'I see you and you see me.'** Using gestures, taking turns, 'I said something, now you say something.' Sometimes they would repeat after me but I thought that was good too. Talking all day long, I got tired but it was good!*

6. Intentionality, immediate feedback and structure leads to teachers persisting when challenged.

As already indicated in many of the above illustrations, teachers became more open and positive about the dynamic nature of building interactive talk, connections and relationships with young children (discussed in 8 of the 14 interviews).

A teacher with 10 years of classroom experience talks about the effectiveness of the weekly coaching structure in setting and following through on goals. *I became mindful about the goal for the day: I tried*

to stay focused on each child throughout the day – see the [number of interactions] move a little but at least for each child, that was the goal. We are still doing it [focusing on each child] but **I do miss [the data/feedback]. It was nice seeing that goal, seeing the data, it keeps you on your toes...** There are so many ways for talking turns; during coaching we would find ways to talk throughout the day – bathroom, snack, outdoors, not just circle time. You can always see where you can get that back and forth...**Able to help each child and help those who keep to themselves. Figure out what they like, go down face-to-face with specific activity that they like to get them talking...** 'I like it here, I am going to move it here ...' How come?' Instead of just saying 'okay, follow their lead... Biggest way to get them to talk – all of them want to talk about their day.' Anything learned in coaching I would let [teacher assistant] know, **'this is my goal, my target'** – get him to speak more, use his words, what is something that he likes?

A lead teacher employed for two years pointed out that, **even now I set goals: me and (another teacher) will recap and do a reflection on the day and set new goals for the next day.** There is an opportunity to talk every second of the day, opportunity to teach more, for them to talk more...the more talk, the more you get to teach them, the more you get to build on their likes and their dislikes, if they need something, what they know or don't know, introduce something new or challenge them.

7. Teachers' experiences involving parents varied.

In nine of the 14 interviews, teachers, administrators, and providers gave specific details on how they engaged parents in their efforts. There were almost as many different perspectives and approaches.

One administrator immediately noted that, **we focus on the whole family [here at our center], and the families turn to us for help. All we had to do is say this is going to be helpful and they were on board.**

One seasoned teacher showed mother how much cooing went on in the classroom (with data): 'I hope you're talking a lot more at home too,' and reflected that **you can't dive into everything with a parent, but show a little something that they can absorb.**

A teacher who had worked mainly with toddlers for most of her teaching career stated, **I showed these two parents because they had the most increases in turn-taking. One parent was shocked because their child was more relaxed at home. [In fact], this parent worried about child not being [expressive enough]. I had a conversation with this parent about it and I think it really helped with this particular child, the child seemed more open with us as teachers, some of his shyness went away.**

Another teacher who mainly worked in toddler classrooms, **showed parents the individual [data] sheets, just to see how much their child is engaging and using language in the classroom; I also shared talking tips during conferences, and ways that it's helped us in the classroom.**

While a teacher working for 10+ years in early care stated, **I don't think parents really understood but they all signed off,** pointing to the fact that **only one to two parents asked what we did.** She nonetheless highlighted that **we always put LENA Talking Tip in the weekly lesson plans and our newsletter 'theme' for the month, 'Just FYI, did you know this?'**

A teacher who is also a parent of a child in a Hartford Grow classroom was particularly enthusiastic about involving parents for children in her classroom. **I went over the Talking Tips regularly. I used data**

with more apprehensive parents about their child's language – there was **a lot of back and forth** [and reassurance] to not alarm parents...

A seasoned teacher assistant shared her belief that, *the only challenging part was talking to parents because some of the children weren't talking...but then you see a lot of progress because now I'm talking more, and getting them to respond.*

A lead teacher with over 15 years of experience reported that **we would encourage parents to communicate with their child**, and send home activities that they would like...For some it was helpful, for some, they needed more understanding...One parent was concerned about her child, language-wise, and then her child picked up with more language. **It wasn't immediate but gradual and the mother was excited when we showed her [the data] and she pointed out that she noticed it too.**

8. Teachers and providers stated they became better teachers, are more confident, and inspired.

In 13 of the interviews, teachers, providers, or administrators highlighted that the training had significant impact on their own professional growth.

Interestingly, there were a number of caregivers, teachers and providers at all levels of experience, who highlighted how they themselves began to talk more. One teacher stated, *I liked LENA...It helped me professionally because I'm not really the talking type but LENA has taught me ways to talk with the children.* Another teacher pointed out, *I definitely see myself talking more in the areas where I had not before, when changing their diapers or washing their hands, while just playing outside...the training supported us in becoming more interactive and engaged with the kids. It definitely stuck with me.* A third teacher noted that the Talking Tips *helped me during times that I saw I needed more interaction with the kids.* A fourth teacher simply stated, **it helped me too, helped me to teach more, helped them to talk more.**

The following excerpts illustrate that **teachers came to understand how much influence they have in their role, and how much their interactions matter for each and every child.**

I am always making sure to give that child 1:1 time instead of rushing because they have the same thoughts as us –that back and forth, now we all wait [for child's response]. They are little people with the same needs as us...Makes you think I have never heard anything from this child all day, let's see what's going on, you need to know your students and where they are comfortable engaging.

In this illustration, the teacher talks about the influence she has with engaging parents as part of being a teacher as well as her positive influence with the children. ***I used the Talking Tips a lot, I would get parents one-to-one and give them to parents because sometimes parents wouldn't know that they can talk to children in this way...[discusses different examples]: Repeat and Add for the autistic children; for the talkers, we would follow their lead; being silly that's all we use with the infants – part of being a teacher is having fun and being silly – gets a lot of verbal responses as well as physical responses....I think the talking tips are really helpful for parents – I myself didn't realize I wasn't talking enough for the kids but rather just hovering over them.***

A veteran teacher with years of experience highlighted, ***sometimes we want to communicate for the kids but it has to come from them, and building on it too. I really liked it because it shows you how much intake the child is taking – how much information and how they are responding to you...Now I try to***

listen to the kids more, not speaking out and always talking – I input my part but most of the time now, the children are doing the speaking.

The following comments further illustrate how teachers showed increased commitment to the program principles as their efforts were continuously reinforced with the data and coaching sessions.

My only goal was to [see improvement in the data] and another thing, when it is not our LENA day, we still have to have our conversations like it is LENA day and to continue to reach those children who were not having as many conversations.

A teacher with a dual role as a parent with a child in a Hartford Grow classroom spoke on how participation in the program *has me more aware of how often I am talking with children or focused on just a few children or figuring out how to get one child to open up – metacognition: think about your thinking, think about what you are doing...Whether long term outcome or short-term...I started off [focused on seeing improvement in the data] but [now] ‘how can we get this in place long term?’ Our [Hartford Grow] class moved up to the 4-year-old classroom this year, and I hear [from the teacher] ‘this group won’t stop talking.’*

An enthusiastic teacher, still relatively new to the field reflected, *For me, it’s excellent, I’m more focused, more dedicated to the children’s growth. Before I would just look, but now I hear and listen to what they are asking or requesting, and what they like or don’t like...The program was too short.*

An administrator immediately noted that *for teachers, it reinforces and highlights their worth, take credit where credit is due...As an early childhood educator, talking and developing children’s expressions is a must. If we don’t do it, who else is going to? It’s our job!*

9. Teachers want to continue LENA Grow and expand on it.

The overriding perception that Hartford Grow was worth their time is the final theme well worth noting as it was raised in 11 of the 14 interviews - without teachers / assistants ever being asked about it.

Teachers asked, *is it coming back? It should be ongoing; if we don’t see the vests, we tend to fade.*

An administrator spoke on the importance of the data, *the data makes you aware of what you’re already doing...the data shows that we’re doing it, it makes teachers more aware of what they’re doing, [it reinforces] talk as much as you can, read as much as you can, and also talk more to parents, ‘Wow, we did all that!’*

Another teacher who inquired about when the program is coming back reflected on different coaching strategies- *the program is teacher friendly, child friendly, parent friendly.*

Several teachers who participated in a refresher course stated how helpful it is when starting a new classroom and recommended a refresher every time that a teacher is starting in a new classroom with a new children. ‘Was I talking to them enough, was I getting their interest geared toward conversation? With children on the spectrum, ‘how was that going to work?’

Several teachers suggested implementing in coordination with parents at home:

- *I think there should be LENA ‘Home’ Day!*
- *It [interactive talk] is my goal in school but I want to talk with the family. ‘How do you talk to your children at home? How do you get him or her to express herself?’*

- *We introduced it to parents and told them it was something we are doing but could we get parents to do it with us?*

Summary

In this evaluation we explored the effectiveness of Hartford Grow in influencing practices and work culture within participating early childhood care settings by collecting and analyzing interview data from teachers, administrators, teacher assistants, and family child care providers. We identified concepts and themes that spoke to the effects of coaching and other program components on adult-child conversational turn-taking. Teachers and other caregivers described their increasing awareness of how to intentionally engage children, the new skills they learned, the ways in which they connected with children through interactive talk, and how they developed deeper understandings of individual children. They learned to value each child's language experience, customizing strategies to meet individual needs. Either directly or indirectly, many teachers spoke on experiencing a transformative experience. With excitement, they shared how they saw children grow and develop as a result of their interactions, and highlighted that they became better at teaching as a result. In some instances, teachers shared what they learned about themselves, openly and non-defensively talking about their own personal and professional challenges. In sum, they gained confidence in the classroom and became aware of their influence and their role in promoting children's development.

As designed, principles of adult learning employed in the model helped bring about change in teachers' practices and beliefs about their role. The coaching directly involved teachers in planning and goal setting; their experiences provided the basis for introducing strategies to increase conversational turns; and their efforts had immediate application. While the importance of the weekly coaching sessions perhaps goes without saying, it is also true that the value coaching offered cannot be overstated. Note that the coach for the center-based programs had been providing training on LENA Grow and other early childhood programs for many years, and is highly skilled at what she does. As the teachers described, the coach always pointed out the positives in their weekly review of the LENA reports (strengths-based), and facilitated group discussions in such a way that teachers were able to openly reflect on areas where they could enhance their efforts and reach new goals - as well as see all the progress they were making. Teachers' efforts were validated and reinforced. Their role matters.

Challenges and Recommendations

- 1. Programs need support and infrastructure for learning and implementing logistics of technology, and coordinating all the program components.** While the center-based programs have an advantage of already having infrastructure built-in for implementing the model (i.e., administrative support), the FCC providers, with a wide range in capacity, were in charge of the entire implementation from introducing it to parents and learning the technology and software, to participating in coaching and increasing interactive talk with the children in their home care. As a result, a sizable portion of coaching time (and between coaching time) for the FCC providers focused on concerns related to the technology and software for obtaining reports. However, even at the center-based programs, administrators and support staff who were in charge of the logistics highlighted the learning curve at first start-up of the professional development model: *a lot of coordinating, a lot of moving parts., making sure children's data was entered correctly, and then also had new children starting, assigning them to a device, etc.*

- 2. The focus on data and how to increase the amount of ‘stars’ received on a weekly report, for example, can lend itself to surface learning (extrinsic motivation).** Several interview participants were open about *mostly talking with children on the day they wear the vest [LENA Day]*. Four interviewees noted how even children associated the vests with more interaction (e.g., *even the children get excited about singing and dancing when they see the vests*). By recognizing that this is an understandable response to workplace evaluation, messaging by program administrators and coaches can intentionally and consistently emphasize the inherent meaning in the data on conversational turns (i.e., language development and social and emotional connections) to ensure better integration in day-to-day practices (intrinsic motivation). As already noted, and described in the above section, the value of having a well-trained coach for such purposes cannot be overstated.
- 3. Without ongoing intentionality, the effects on teachers’ practices and work culture begin to fade.** Build on teachers’ feedback during interviews to have refresher courses for new teachers, new classrooms, and also include teacher assistants whenever possible (all teacher suggestions!) This would also build stronger integration in day-to-day practices (intrinsic motivation). Here again, the value of having a well-trained coach cannot be overstated.
- 4. Although interview participants often spoke on the ways in which they involved parents, there were many different perspectives and approaches which can dilute effectiveness in reach.** Using tried and true models for engaging families (e.g., LENA Home⁷, LENA Start⁸), bring interested stakeholders together (e.g., directors and other center leaders and FCC providers) to develop a more systematic and deliberate approach for involving parents of children across all early childhood care settings (center-based programs, family child care provider services, and ‘kin and friend’ home grown services). As highlighted by an interview participant, *teachers and parents could come together through LENA Grow*. Once again, having well-trained coaches is critically important.

⁷ <https://www.lena.org/lena-home/>

⁸ <https://www.lena.org/lena-start/>

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Appendix A: Quantitative Analyses of Hartford Talk’s LENA Grow Program

Research Question: How did Grow children’s turns per hour (TPH) at select Hartford Talks sites change between the beginning and end of their programs?

Sample: The sample included n=102 children who participated in LENA Grow 2.0 at Program Site 1 in 2022, at Program Site 2 in 2021, and at Program Site 3 in 2022.

Summary:

The analysis sample consisted of 86 children in 9 classrooms across 3 centers that met evaluation criteria⁹ (**Table 1**). Many of the classrooms were pre-school rooms, with average ages above 36 months; only a handful of rooms would be considered infant or toddler.

With respect to participants’ changes in turns, the overall average remained steady at roughly 25 TPH between the baseline and endline periods (**Table 2**). The overall lower-talk subsample increased significantly by +2.8 TPH¹⁰, while the overall bottom third subsample had a trending increase of +2.6 TPH¹¹. In all three groupings – all participants, lower-talk, and bottom third – changes were consistently positive at Program Site 2. At that site, all participants increased significantly by +19%, and lower-talk participants increased significantly by +35%. Children at Program Site 3 started particularly high, at 35.4 TPH, and slipped slightly to 31.5 TPH by endline, but still ended higher relative to the other centers.

Table 1. Sample Distribution

	Classroom	Total Children	Evaluation Passers	Avg. Baseline Age (Months)	Grow Start	Grow End
Program Site 1	Room 1.1	13	12	45	2/17/2022	5/11/2022
	Room 1.2	11	10	30	2/17/2022	5/11/2022
	Room 1.3	9	7	18	2/17/2022	5/11/2022
Program Site 2	Room 2.1	9	8	14	3/11/2021	5/21/2021
	Room 2.2	16	15	46	3/11/2021	5/21/2021
Program Site 3	Room 3.1	10	8	55	2/22/2022	4/29/2022
	Room 3.2	9	7	51	2/18/2022	4/28/2022
	Room 3.3	12	9	52	2/17/2022	4/29/2022
	Room 3.4	13	10	53	2/18/2022	4/29/2022
		102	86			

⁹ To meet evaluation criteria, classrooms needed to have at least 8 LENA Days in a span of 16 weeks. Children needed to have 4+ valid recordings. Baseline is a child’s first 1-2 recordings while endline is a child’s last 1-2 recordings.

¹⁰ Lower-Talk refers to subset of participants who began below 15 TPH.

¹¹ Bottom Third refers to subset of participants whose baseline TPH placed them in the bottom third of their classroom’s starting distribution.

Table 2. Paired Sample T-Test, Comparing Average Baseline and Endline Turns

Note: † change is significant at the $p < 0.10$, * change is significant at $p < 0.05$, ** change is significant at $p < 0.01$

		Baseline		Endline		Changes							
		N	TPH	SD	TPH	SD	Ch.	%	Coh. D	t	df	Sig.	
All Centers	All Participants	86	25.2	14.3	25.0	12.1	-0.3	-1%	0.0	-0.242	85	0.809	
	Lower-Talk	23	11.1	2.5	13.9	5.9	2.8	25%	1.1	2.42	22	0.024	*
	Bottom Third	19	16.3	8.2	18.9	6.8	2.6	16%	0.3	1.929	18	0.070	†
		Baseline		Endline		Changes							
		N	TPH	SD	TPH	SD	Ch.	%	Coh. D	t	df	Sig.	
Program Site 1	All Participants	29	15.6	7.3	16.0	7.5	0.5	3%	0.1	0.364	28	0.718	
	Lower-Talk	15	10.9	2.8	12.1	6.1	1.2	11%	0.4	0.812	14	0.430	
	Bottom Third	4	8.9	3.6	12.0	3.6	3.1	35%	0.9	1.116	3	0.346	
		Baseline		Endline		Changes							
		N	TPH	SD	TPH	SD	Ch.	%	Coh. D	t	df	Sig.	
Program Site 2	All Participants	23	22.3	8.1	26.5	8.9	4.2	19%	0.5	3.429	22	0.002	**
	Lower-Talk	5	11.8	2.3	15.9	3.9	4.1	35%	1.8	3.885	4	0.018	*
	Bottom Third	7	16.1	6.8	18.4	5.3	2.3	14%	0.3	1.708	6	0.138	
		Baseline		Endline		Changes							
		N	TPH	SD	TPH	SD	Ch.	%	Coh. D	t	df	Sig.	
Program Site 3	All Participants	34	35.4	15.5	31.5	12.6	-3.9	-11%	0.2	-1.755	33	0.089	†
	Lower-Talk	3	11.3	1.3	19.7	2.9	8.4	74%	6.5	3.521	2	0.072	†
	Bottom Third	8	20.2	8.8	22.8	6.7	2.5	13%	0.3	0.91	7	0.393	

Appendix B: Interview Protocol

- 1) What was your experience with some of the logistics of the program? For example, putting vests on children, making sure the recording devices were appropriately placed and collected during Lena recording days, and the timing and the on-site organizational support for attending the sessions. What new protocols did you put in place, if any?
- 2) How did you use the data report to set goals? What new strategies did you put in place?
- 3) In what ways, if at all did you find the Talking Tips to be helpful? What new strategies did you put in place, if any? What Talking Tips did you find to be the most important?
- 4) What were some of the challenges?
- 5) As compared to what you knew or understood about talking with young children prior to participation in the Hartford Talks program, what do you now know or understand about language interaction with children? Why is language interaction with young children important?
- 6) Who engages parents in conversations about Hartford Grow? What feedback was provided to (or given by) parents on language interactions with their children.
- 7) How has what you learned – through the coaching, review of / feedback from data, and talking tips – affected your own professional growth, if at all?