

# Teaching and Coaching Caregivers in a Guatemalan Orphanage to Promote Language in Young Children

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## Abstract

Providing evidence-based early intervention (EI) to caregivers is an effective way to promote development in young children. EI services in the United States have decreased risk factors associated with language impairment (LI) as they help improve both short and long-term outcomes for both caregivers and children. The positive results for EI services in the U.S. may generalize to Latin American countries, namely Guatemala. Guatemala has one of the weakest education systems in its region as well as poor access to early childhood services for low-SES and other disadvantaged groups. The purpose of this study was to provide brief EI services to a Guatemalan orphanage by training caregivers to implement naturalistic language support strategies with the young children they care for who are at risk for language impairment. Results indicate a brief caregiver-implemented intervention program was effective for teaching caregivers to implement language support strategies. Recommendations are made for future research as well as implications for policy and practice. Additional research is needed to determine how to facilitate maintenance over time.

*Keywords:* Naturalistic Strategies, Early Childhood, Caregiver-Implemented, Language Intervention, Guatemala

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Early intervention (EI) programs are an effective means of support for children with developmental disabilities and their families, as they improve both short and long-term outcomes for caregivers and children and decrease risk factors associated with developmental disabilities. Most EI programs include delivery of allied health services and sharing of essential information with families to enrich growth and development in children birth to three or five years of age. Early intervention programs in the U.S. emphasize a family-centered approach to service delivery in an attempt to maximize intervention efforts for children with or at risk for developmental disabilities (DEC, 2014;

Dunst, Trivette, & Hamby, 2008). Families, especially a child's primary caregivers, are in a position to be the primary agents of positive change in the overall development of their child. Research has consistently demonstrated that a primary caregiver's involvement in early intervention is crucial and that the earlier a family is involved, the better the outcomes for the child (Bronfenbrenner, 1986; Head & Abbeduto, 2007; Powell & Dunlap, 2010). Caregiver-implemented interventions, also referred to as parent-implemented interventions, closely align with a family-centered approach and are considered evidence-based practice (DEC, 2014; Hendricks, 2009; Kaiser & Roberts,

2011). Caregiver-implemented interventions typically involve training caregivers to learn and apply specific support strategies into everyday routines and activities as they interact with their children (DEC, 2014; Friedman, Woods, & Salisbury, 2012; Wolery & Hemmeter, 2011). Research on caregiver-implemented interventions has frequently focused on language or social communication skills, showing mostly positive effects on caregiver and child language outcomes in both home-based and clinical settings, as well as early childhood center-based programs (Girolametto, Weitzman & Greenberg, 2003; McConachie & Diggle, 2007; Roberts & Kaiser, 2011).

Research shows dramatic and positive long-term effects of supporting children and their families through EI and early childhood education (ECE) programs in the United States and these results may be generalized to children and their families in Latin America (Halpern, 1986). Quality early childhood care and education programs result in significant and positive outcomes for individuals, families, communities and societies at large, especially in underprivileged settings (Britto et al., 2017; Karoly, Kilburn, & Cannon, 2006; UNICEF, 2012). Unfortunately, Latin American countries, namely Guatemala, have made slow progress with making early childhood care and pre-primary education accessible to young children, due primarily to lack of financial resources and concentration on other critical issues related to poverty (Reimers, 1992; UNESCO, 2014). The population of Guatemala is over 16 million, with approximately half living below the poverty line or in extreme poverty (UNICEF, 2015). This low/middle-income country has some of the highest poverty, malnutrition and maternal-child mortality rates in Latin America, especially in more rural and indigenous areas (World Bank, 2017). Guatemala City, the location of the current study, is the country's largest city and capital with a reported population over 3 million people.

For the purpose of this manuscript, the term early childhood care and education is used to refer to what is known in the U.S. as EI services and ECE programs. Early childhood care and education programs vary immensely around the world, even within one country, regarding ages of children served, focus on the area(s) of child development and settings in which these programs take place (Nores & Barnet, 2010). In Guatemala, there are three types of early care and education services available for children eight months to 12 years of age, with or without disabilities: 1) Ministry of Education programs; 2) Secretary of Social Well Being of the Presidency of the Republic programs; and 3) private childcare programs (Hardin, Vardell, & Castañeda, 2008). Pre-primary education programs in Guatemala typically serve children 4 to 6 years of age, with focus on child growth and development and school readiness. Unfortunately, access to early childhood care and education is difficult for much of the population in Guatemala, especially children living in urban, low socio-economic

status (SES) environments and those in rural and indigenous areas (UNESCO, 2003). Compulsory primary education in Guatemala typically begins at age 7, with age guidelines being somewhat lenient (Bastos, Bottan & Cristia, 2017). This contributes to lost opportunities for growth and progress during the early childhood years, which is a critical period of cognitive-language, socio-emotional and physical development in children. Children in Guatemala are entering primary school unprepared, increasing the likelihood of poor school performance, grade repetition and early withdrawal or drop out (Bastos, Bottan, & Cristia, 2017; Wolff, Schiefelbein, & Valenzuela, 1994). Therefore, providing support to disadvantaged families and young children in Latin America through quality early childhood care and education in Latin America is critical (Hardin, Vardell & de Castañeda, 2008).

One disadvantaged population of concern in Guatemala is children living in institutionalized care. In 2013, it was estimated that 5,800 children in Guatemala were living in orphanages with little access to families or other forms of childcare (UNICEF, 2013); undoubtedly this number has continued to grow in spite of governmental efforts. Children growing up in institutionalized care are at risk for physical, cognitive-language, and socioemotional developmental delays, due to inadequate care and limited caregiver interaction (Juffer & Series, 2008; Rosas & McCall, 2009). Few studies have emphasized caregiver-child interactions in institutions that provide orphan care in international contexts (Sparling, Dragomir, Ramey, & Florescu, 2005; Zeanah, Smyke, & Dumitrescu, 2002). Researchers along with Whole Child International, a non-profit organization intent on improving orphanages worldwide, implemented a caregiver-based intervention targeting caregiver-child interaction in a Latin American orphanage and reported positive effects such as increased caregiver responsiveness and gains in overall child development (McCall et al., 2010). Many private organizations and various researchers have investigated alternative orphan care situations in Guatemala, such as family-style children's homes (McCall & Groark, 2015). This type of orphan care complements the cultural worldview of family and community in Latin America and has been reported to foster a sense of belonging and improve caregiver-child relationships thus potentially decreasing common risk factors associated with institutionalized care (Kim, Hynes, & Lee, 2016).

Even outside of institutionalized care in Guatemala, multiple biological and psychosocial risk factors are experienced in children as young as 3-years-old, negatively impacting overall child development (Walker et al., 2007). One psychosocial risk factor of concern is lack of cognitive-language stimulation and caregiver responsiveness. Nurturing early childhood activities are lacking in early childhood experiences in Guatemala, due in part to low quality education of caregivers, and lack of professional

development for teachers and caregivers. Lack of cognitive-language stimulation and limited caregiver responsiveness often contributes to developmental language disorder or language impairment (LI; Cusson, 2003; Lasky & Klopp, 1982). Language Impairment may present in young children as receptive, expressive or mixed receptive-expressive language deficits with the presence or absence of a co-occurring cognitive disability (Stark & Tallal, 1981). Young children with LI are at increased risk for difficulties with school-readiness, literacy skills, academics, socio-emotional functioning and persistent language problems later in life (Prior, Bavin & Ong, 2011; Snowling, 2005). Therefore, early care and education programs should focus on cultivating cognitive-language and literacy development, not only to prevent later impairments, but to help children reach their developmental and academic potential. It is also critically important for programs to focus on quality, specialized training for caregivers to alleviate caregiver stress, enhance professional development of caregivers and improve caregiver-child interactions.

The purpose of this study was to investigate a brief caregiver-implemented naturalistic language intervention used to train caregivers of young children at risk for LI who reside in a family-style orphanage in Guatemala City, Guatemala. Components of the intervention included teaching, coaching and feedback, in order to train caregivers to use evidence-based language support strategies. This specially designed intervention was provided by the authors in association with a university-based, short-term education abroad program involving faculty and students in interdisciplinary early childhood education (IECE) and allied health or related disciplines. Due to the critical need for caregiver training, improved caregiver responsiveness and language learning opportunities for young children at risk for LI in Guatemala, provision of a caregiver-implemented language intervention is desirable. Caregiver-implemented interventions have not been studied before in this particular international context. The intervention used in this study takes a non-traditional approach to enhanced milieu teaching (EMT) in that the intervention was adapted to better fit the cultural context and the caregivers. EMT is a naturalistic language intervention using a hybrid approach in that it combines characteristics of both behavioral and social interactionist approaches to early language intervention (Hancock & Kaiser, 2006; Hancock, Ledbetter-Cho, Howell, & Lang, 2016; Roberts & Kaiser, 2012). EMT is evidence-based and the most commonly studied caregiver-implemented language intervention (Hemmeter & Kaiser, 1994; Roberts, Kaiser, Wolfe, Bryant & Spidalieri, 2014). Unfortunately, the majority of studies on caregiver-implemented language interventions have been limited to American families in the subgroups of middle to high socioeconomic status (SES) with highly-educated parents and caregivers (Cable & Domsch, 2011; Girolametto, Pearce & Weitzman, 1995;

McConachie & Diggle, 2007; Roberts & Kaiser, 2011). Therefore, research on caregiver-implemented interventions for caregivers from culturally and linguistically diverse backgrounds is clearly needed (Roberts & Kaiser, 2015). To our knowledge, there is no published research on a caregiver-implemented language intervention with Spanish-speaking caregivers in an institutionalized setting in a Latin American Country. The specific research question for the study was: Can caregivers in a family-style orphanage in Guatemala be trained to implement caregiver-implemented naturalistic language interventions with fidelity?

## METHOD

### Participants and Setting

Two caregiver/child dyads participated in this study. Caregivers were included in the study if they were a) English-speaking or Spanish-speaking caregivers who were employed and cared for young children (18-60 months old) at a family-style children's home in Guatemala City; and b) able to attend training over the course of the 2-week intervention program. Initial contact with participants was made through the children's home director who also served as the full-time interpreter over the course of the study. Children were included in the study if they (a) were 24-48 months-old at the time of recruitment; (b) spoke Spanish as their primary language; (c) had at least 10 productive words as measured by caregiver report; (d) had the ability to verbally imitate single words as reported by caregivers; (e) had lived at the children's home for at least 3 months; (f) had a suspected language delay due to previous abandonment & neglect; and (g) had no apparent concerns regarding hearing, as reported by caregivers. The director and authors met with the caregivers prior to the study to provide them with an overview of the study, answer any questions and secure informed consent. Caregivers were assured that their participation in the study was completely voluntary and would not affect their employment at the children's home. Pseudonyms for both caregivers and children were used to ensure participant anonymity.

Two caregivers gave informed consent to participate in this study. The first caregiver included Maria, a 33-year-old female with a high school degree, who has been a caregiver for 3 years at the children's home. Maria was paired with Lydia, a 36-month-old female who was identified with LI. Lydia was received by the orphanage at 11-months-old and diagnosed by healthcare professionals in Guatemala, as developmentally delayed in all areas, most likely due to malnourishment and caregiver neglect. Lydia was assessed again during the course of the intervention by a professional not affiliated with the study, and was determined delayed in the area of social-communication using the *Assessment, Evaluation, and Programming System, 2nd edition* (AEPS; Bricker, 2002).

Lydia was observed to primarily communicate with gestures, imitate words with minimal cues and prompts, and use less than 50 different words to communicate; however, Lydia consistently used words in her vocabulary and often used two-word utterances. Lydia resided in the children's home and attended the preschool affiliated with the children's home five days a week, four hours a day. The second dyad included Jessenia, a 36-year-old female caregiver in the children's home with a sixth grade education who has been a caregiver for 6 years. Jessenia was paired with Alicia, a 24-month-old female, who was received by the children's home when she was six months old. A local pediatrician and a child psychologist considered Alicia to be in good health with no apparent developmental concerns at the time she arrived at the children's home. Alicia was re-assessed over the course of the intervention by a professional not affiliated with the study; it was determined that Alicia was delayed in terms of social-communication and social-emotional development using the *Assessment, Evaluation, and Programming System*, 2nd edition (AEPS; Bricker, 2002). Alicia was observed to primarily communicate with gestures and occasionally one-word utterances, but only with a primary caregiver or her 3-year-old sibling. Alicia was not consistently combining words, used at least 10 different words regularly to communicate to caregivers and her older sibling and demonstrated severe separation anxiety from her primary caregivers. Alicia resided in the children's home and attended the preschool affiliated with the children's home five days a week, four hours a day.

The study took place at a private children's home and preschool, co-founded by the second author in Guatemala City, Guatemala. Sessions occurred in a playroom either at the children's home or at the preschool nearby. No other caregivers or children were present during the baseline and intervention sessions. The playroom included a variety of early childhood materials, including books, play-dough, blocks, and stacking toys. Furnishings in the room included child-sized tables and chairs, a bean bag chair, a small child-size bench, and open shelving units were used to place materials in view. Many materials were within reach of participants in small toy bins, other materials were out of reach. Both caregivers attended separate, one-hour training sessions with the instructor, which occurred three times for each caregiver, over the course of 2 consecutive weeks. The first author, also a Doctoral level student and nationally certified SLP trained in milieu teaching procedures and experienced with working with families and children with LI, served as the instructor for all sessions. The director of the children's home, who had served in that capacity for eight years, served as the interpreter for all training and coaching sessions.

## Data Collection and Measurement

Caregiver behaviors were measured using event recording in which all occurrences of the target behaviors are tallied by data collectors (Ayres & Ledford, 2014). All sessions were video-recorded and then analyzed by the first author to determine the number of steps of each naturalistic support strategies that caregivers correctly implemented and when criterion was met for each strategy. The following naturalistic language support strategies were taught to caregivers: 1) Environmental Arrangement; 2) Expansions; and 3) Time Delay with Prompting. Criterion levels for all caregiver's implementation of steps of each strategy were set at 20% above baseline.

**Environmental arrangement.** Environmental arrangement (EA) included the caregiver practicing more active control over preferred materials within the context of the environment. Caregivers were taught that the purpose of arranging the environment was to increase opportunities for the child to communicate. Four EA procedures were taught to the caregivers in order to help them learn how to arrange the environment. These procedures were: 1) In view/ Out of reach, 2) Needing Help, 3) Not Enough, and 4) Being Silly. For the *In view/Out of Reach* procedure, caregivers were taught to arrange materials by having items where the child could see them but could not reach them. This might include the caregiver placing materials on a shelf or on a cabinet that was too high for the child to reach. For the *Needing Help* procedure, caregivers were taught to set up materials in a way that would require the caregiver's help to access the material, beyond that of being "out of reach". This included teaching the caregivers to put materials in clear bags or storage containers that the child could not open without adult assistance. This procedure also included the caregiver providing a material to the child and not opening the package or assembling a certain toy so it would work properly. For the *Not Enough* procedure, caregivers were taught to provide an inadequate number of items or materials to create an opportunity for the child to ask for more. This included teaching the caregivers to avoid providing all desired items at once (e.g., candy, crayons, beads). For the *Being Silly* procedure, caregivers were taught to interrupt a common routine by doing something in a different or unique way. This included using a common item in a nontraditional way (e.g., placing a toy on top of the head or turning a book upside down instead of turning a page during joint storybook reading). Each procedure was first taught with a verbal description including the importance of facing the child and making eye-contact, followed by specific examples of how to implement the procedure. Additionally, caregivers were asked to model a target word that labeled the item that the child wanted, especially if the child did not vocalize but used nonverbal communication. No other training on specific language support strategies was provided. A correct response was coded when a caregiver utilized one

of the described EA procedures and provided a one-word verbal model when the child showed communicative intent, followed by giving the child access to the desired item (e.g., utilizing an EA procedure but not providing a verbal model was scored as incorrect).

**Expansions.** Expansions were taught to caregivers as adding one or two content words to the child's previous utterance. Content words were defined as words that specifically corresponded with the child's utterance. Caregivers were also taught they could replace child utterances that were not grammatically correct either by replacing a word or changing the verb tense. A correct response was coded when a caregiver added words to what the child said, or replaced a non-grammatically correct word. Adding too many words or adding an incompatible word to the child's utterance was counted as incorrect responses.

**Time delay with prompting.** Time delay with prompting was defined as attempts to actively wait in order to signal to the child that the caregiver expects the child to make a request. Additionally, caregivers were taught to provide three specific types of milieu teaching prompts, in a sequential order, based on the progress of the interaction. The milieu teaching prompts were: question prompts ("what do you want?"), talk prompts ("tell me what you want"), and say prompts ("say [target word]"). The prompts were taught as a way to signal the child to communicate if there was no vocal response from the child after waiting. A correct response was coded when a caregiver completed at least the first four steps of the time delay procedure correctly, which included: 1) waiting up to 5 seconds for child to verbally or gesturally communicate after setting up a request; 2) facing the child to make eye contact and looking expectantly; 3) keeping active control over the item(s) of interest to the child; and 4) providing a question or talk prompt if the child seemed interested but did not vocalize after the first wait time. Controlling access but failing to wait 5 seconds before providing a prompt, or failing to give a question or talk prompt if the child was not vocalizing were incorrect prompts.

## Experimental Design

This study used a single-case, multiple-baseline, across behaviors design (Gast, Lloyd & Ledford, 2014) that was replicated across two caregivers to examine the effects of a brief coaching intervention on caregivers' use of naturalistic language support strategies with young children with LI. The target behaviors included EA, expansions and time delay with prompts. To avoid threats to internal validity, the procedures were taught to caregivers who worked on opposite days of each other. The multiple baseline design within this study allowed for evaluation of a functional relation between caregiver training procedures (independ-

ent variable) and caregiver use of naturalistic language strategies (dependent variable).

## Procedures

**Baseline.** The first author conducted the initial baseline sessions prior to beginning the intervention for each of the three naturalistic language support strategies. Baseline sessions occurred for three sessions in three different routines before intervention began. The routines were snack time, book reading and a play activity. These sessions lasted 5-8 minutes. During baseline sessions, caregivers were instructed to interact with the child as they typically would in during that particular routine. Only the caregiver interacted with the child as the investigator watched the session. No teaching or coaching was provided during baseline sessions.

**Teaching session.** Caregivers were taught three specific naturalistic language support strategies following the baseline condition. Each strategy was taught one at a time and in a prescribed order (see Table 1). Details regarding the strategies are described above. Power Point presentations were used to help teach the caregivers about each language support strategy. The instructor utilized the translator during all training, coaching and review portions of the sessions. Once a caregiver learned a strategy, practiced it with their child during coaching sessions and reached criterion level, training was provided on the next strategy.

**Coaching sessions.** Following teaching sessions, caregivers participated in coaching sessions and received feedback following the sessions. During the coaching session, caregivers were asked to practice the language support strategy with their child in three different contexts that were naturally occurring in their daily routine including snack time, joint storybook reading and play time. The caregiver had the freedom to select items and materials for each context, unless coached by the instructor to change materials during an interaction. All coaching from the instructor included specific praise (e.g., "nice waiting") and constructive feedback (e.g., directing the caregiver's attention to opportunities to use the language support strategy). Caregivers were encouraged regularly to comment, ask questions or voice concerns about how they believed the sessions were going. The second author recorded sessions using a smartphone video camera.

Immediately following each coaching session, the instructor provided post-session feedback. First, she mentioned 2-3 correct use of strategies to the caregiver that were demonstrated during the coaching session and answered any questions from the caregiver. The instructor played back portions of the video using the smartphone as necessary if the caregiver could not recall what the instructor had referenced. Next, she suggested novel ways of how the caregiver could use the target behavior in the

Table 1  
Description of Caregiver Training

Component	Description	Duration
Caregiver training <sup>a</sup>	Describe the purpose of the session Summarize previous session; when applicable Instructor explains the naturalistic language strategy Environmental Arrangement Expansions Time Delay with Prompting Instructor shows presentation on PowerPoint Instructor and caregiver discuss child language target(s) Instructor and caregiver role-play for practice (initial teach session only)	30 min
Practice session with feedback	Caregiver is instructed to practice the naturalistic language strategy with their child Instructor provides specific praise as needed regarding correct use of strategies Instructor suggests use of a strategy when/if caregiver misses an opportunity Instructor gives specific feedback on <i>how to</i> use a specific strategy (if the simple suggestion does not suffice or if it is ineffective, [i.e. over use of strategy])	5-8 min
Post-session feedback	Instructor gives specific praise for caregiver use of strategies Caregiver is encouraged to comment and ask questions Instructor suggests modifications or ideas (if needed) regarding strategy use in the future Instructor answers any questions from the caregiver	3-5 min

<sup>a</sup> Caregiver Training was conducted prior to the hands-on practice session with the target child; practice continued until caregiver met criterion level in which training on a new strategy began. All components were conducted with the interpreter present and participating.

future (e.g., “when Alicia says, ‘Plasticina’ [playdough], you could expand the word to ‘Quiero plasticina’ [I want playdough]”). Post-session feedback was approximately 2 to 3 minutes in duration and immediately followed the coaching session.

**Generalization sessions.** Generalization sessions were conducted following the same procedures as those used during baseline sessions in that the instructor did not provide any coaching or feedback during or after the session. The caregivers were instructed to interact with the child as they typically would in that particular context. A child different from the one matched to caregivers during intervention, was selected for a pre- and post-intervention generalization session for each caregiver. Maria was paired with Alicia during her generalization session. Alicia was the same child matched to Jessenia during the intervention. Jessenia was paired with Michael, a 38-month-old male who resided in the children’s home. Michael also attended the preschool affiliated with the children’s home five days a week, four hours a day. Michael was identified with LI and was received by the orphanage at 34-months-old with a diagnosis by healthcare professionals in Guatemala of developmental delay due to malnourishment and neglect.

Michael was assessed in all five developmental areas during the course of the intervention by a professional not affiliated with the study, and was determined delayed in the area of social-communication using the Assessment, Evaluation, and Programming System, 2nd edition (AEPS; Bricker, 2002). Michael primarily communicated with gestures, had at least 10 productive words and demonstrated the ability to imitate single words with moderate prompts. There was one generalization session using a play activity for each caregiver that occurred after the intervention sessions and data were collected on all three strategies. The caregivers had to reach criterion levels for all target behaviors prior to the generalization session.

**Interobserver Agreement and Procedural Fidelity**

Point-by-point agreement was used to calculate mean IOA for caregiver target behaviors for 20 percent of the total sessions. For both caregivers, the PI and second author tallied language support strategies from self-recorded time stamped video recordings. Mean agreement was calculated by dividing the number of agreements by the number of agreements plus disagreements and multiplying by 100. Overall inter-rater reliability was

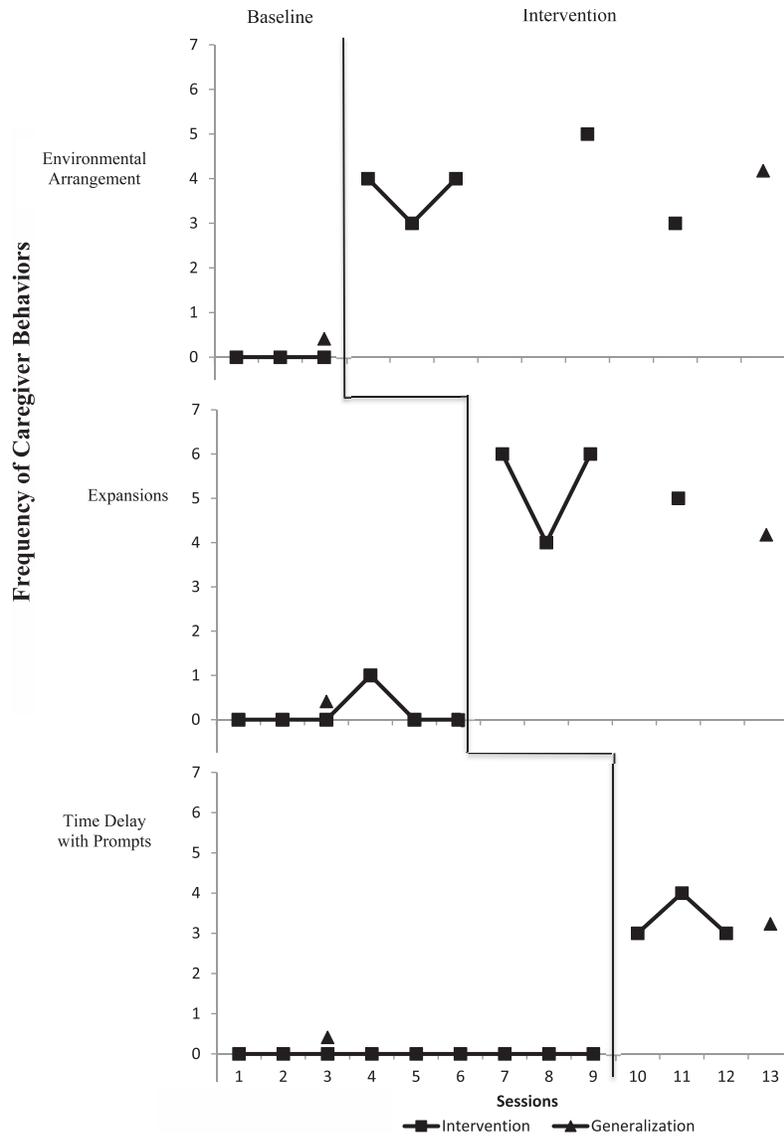


Figure 1. Number of Times per Session Maria Correctly used Environmental Arrangement, Expansions and Time Delay with Prompts

88.8% (range = 67%-100%). Procedural fidelity of the coaching and feedback sessions were calculated by dividing the number of planned coaching behaviors by the number of implemented coaching behaviors in 20 percent of coaching and feedback sessions. Coaching behaviors included: 1) giving verbal descriptive verbal praise; 2) citing 2-3 examples of when language support strategies were used; and 3) give novel ideas of how to use the strategies. Procedural fidelity was calculated at 100% for all sessions.

**Results**

**Caregiver behaviors.** Results are illustrated in Figures 1 and 2 and represent the frequency of caregiver behaviors, or use of the naturalistic language support strategies, during baseline, intervention and generalization sessions. Data presented in the graphs for intervention are from

coaching sessions. Visual analysis of the data illustrated a low, stable trend at baseline, followed by an immediate change in a therapeutic trend direction upon introduction of the intervention for all three language strategies, for both caregivers. Each caregiver participated in a total of 14 sessions (3 baseline sessions, 9 intervention sessions and 2 generalization sessions). During baseline, prior to training on each strategy, both Maria and Jessenia did not demonstrate any target behaviors with their intervention child or with their generalization child. However, following the training session on EA, Maria demonstrated one use of Expansions during a baseline session prior to training on Expansions. Jessenia demonstrated one use of Time Delay with Prompts, following training on Expansions. Otherwise, caregivers demonstrated 0 use of strategies during remaining baseline sessions. Following training, and with the implementation of coaching sessions, there was an

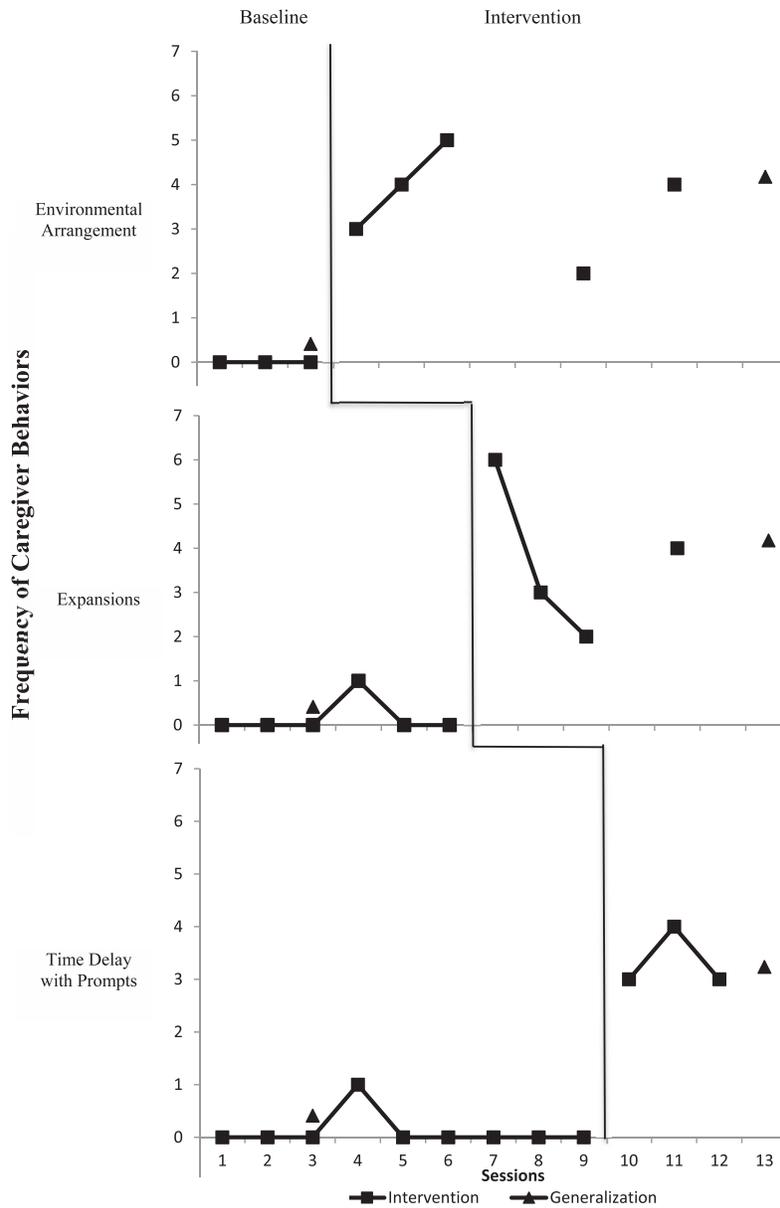


Figure 2. Number of Times per Session Jessenia Correctly used Environmental Arrangement, Expansions and Time Delay with Prompts

immediate change in frequency with which each caregiver implemented for all naturalistic language strategies. Both caregivers reached criterion (i.e., 20% increase in frequency) on use of all procedures in three training sessions. Performance was evaluated intermittently for previously learned strategies using probe procedures after criterion had been met. Caregivers were able to remain at or above criterion for all previously learned strategies (EA and Expansions). Maria exhibited use of EA 3 to 4 times following training; use of Expansions 5 to 6 times; and 3 to 4 times for Time Delay with Prompts. Jessenia exhibited use of EA 3 to 5 times following training; use of Expansions 2 to 6 times; and use of Time Delay with Prompts 3 to 4 times. Generalization data were collected on both caregivers during a play activity. Caregivers were asked to interact

with a child different from the child that was paired with them for the intervention. Both caregivers generalized their use of naturalistic language strategies as follows: Maria demonstrated use of EA 4 times; use of Expansions 4 times; and use of Time Delay with Prompts 3 times during the generalization session; and Jessenia demonstrated use of EA 3 times; use of Expansions 2 times; and use of Time Delay with Prompts 3 times with the generalization child.

**Discussion**

The purpose of this study was to evaluate a brief caregiver-implemented naturalistic language intervention program designed to train caregivers in an orphanage in Guatemala to use specific language support strategies during common daily routines. The strategies selected for

this study were chosen because they are commonly recommended for promoting language skills in young children with language impairment (DEC, 2014; Roberts & Kaiser, 2012). Results from the current study show immediate changes in caregiver behaviors over the course of the intervention. Most of the instructor's feedback followed the coaching sessions meaning that most of the target behaviors that caregivers demonstrated were independent. However, feedback was provided during coaching sessions when the caregivers missed consecutive opportunities for demonstrating a target behavior or when a caregiver was overusing a target behavior, such as EA procedures during subsequent training sessions. Occasional interruptions were made when a caregiver failed to address mild behavior management issues (i.e. on two separate occasions a child attempted to stand on a chair and play at the table).

For both caregivers, a decrease in the use of the time delay with prompts strategy was observed during the coaching sessions. The time delay steps were lengthy compared to the other strategies and with coaching sessions being only 5 minutes, it may have been difficult for the caregivers to remember all of the required steps. Similar studies have prescribed longer sessions ranging from 10 min (Roberts et al., 2014) to 15 minutes per session (Roberts & Kaiser, 2012) that may allow more time for use of strategies with multiple steps. Sometimes the children would verbalize immediately after a caregivers' use of a question or talk prompt, which would interfere with the caregiver demonstrating a 3-5 second wait time. Maria failed to use a question or talk prompt first during her coaching session for time delay and instead used a "say" prompt first, causing the behavior to be coded as incorrect. On another occasion, during the same coaching session at snack time, Maria was not face to face with her child and used question prompts when Lydia clearly did not have joint attention within the context of the interaction. Establishing joint attention is a foundational component in other caregiver-implemented language interventions that teach adults to connect with the child first prior to the use of other language support strategies (Girolametto et al., 1995; Hancock et al., 2016; Roberts & Kaiser, 2012).

Jessenia overused the EA procedure "Not Enough" with Alicia during her coaching session on time delay with prompts at a snack time. Alicia's immediately began to cry after the second attempt at Jessenia's effort to withhold her cookie followed by the question prompt, "What do you want?" ("¿Qué quieres?"). Alicia's change in emotions was most likely due to the change in the snack time routine since she usually has full access to the food. Furthermore, caregivers were observed prior to the start of the intervention to be less interactive with children during snack times.

Implementations of all target behaviors for both caregivers were highest within the contexts of play and

joint storybook reading. Perhaps play and book reading were easier for caregivers to embed opportunities to use the language support strategies they had been trained to use. In a similar study by Roberts and Kaiser (2014), results from generalization sessions at home (as opposed to a clinical setting) showed that caregivers had the most difficulty generalizing learned strategies during book reading. Results from this study support that caregivers may be more likely to implement strategy use to criterion levels following adequate training across activities (e.g., play, book reading, and snack time). Caregivers reported that the expansions strategy was the easiest to learn and implement; especially after feedback in which the instructor gave more examples of how to expand child utterances but still remember the child targets that were discussed previously (i.e. two-word utterances to request or comment). Maria demonstrated use of expansions naturally on one occasion during play time with Lydia prior to training on this strategy. Both child participants were most interactive and vocal during joint storybook reading. Caregivers reported that book reading is not a common daily activity. This supports the literature which describes limited caregiver interaction in institutionalized settings such as orphanages (Rosas & McCall, 2009). Furthermore, when books are occasionally read to the children, it is done within a small group format and not one-on-one; so the individualized time with the caregiver may have increased the children's engagement and mood. In comparison, other trainings for caregivers have investigated a similar naturalistic language intervention called *Learning Language and Loving It*, in which they successfully trained early childhood educators and daycare staff to use language facilitation strategies and enhance early literacy skills using groups of children (Girolametto, Weitzman & Greenberg, 2003; 2007).

Both caregivers were very playful and comfortable with their children during all sessions. Both caregivers were observed to use moderate amounts of positive praise with their target child following the child's completion of a verbal direction that was given or the use of one-word utterances from the child after the caregiver had modeled the word ("Muy bien, [child's name]!"). Both caregivers were observed to use excessive amounts of "test questions" about objects regarding color or label prior to training and at moderate amounts during intervention sessions ("¿de qué color es?" or "¿Qué es esto?"). Both caregivers also repeatedly asked the same questions to their children prior to the training, with virtually no wait time if the child did not immediately answer the question.

Child behaviors were not measured during this single-case research study; however, both children demonstrated a slight increase in combining words when requesting and commenting in all three contexts. This may be due to caregivers' use of the language support strategies, especially

EA procedures and expansions. Results indicated that all caregivers were able to successfully learn all three language support strategies in a sequential manner to criterion levels over the course of the intervention. There was an immediate functional relationship between a brief caregiver-implemented language intervention and caregiver use of language support strategies across multiple contexts in a Guatemalan orphanage.

### Implications

The results from this study show that a brief caregiver-implemented naturalistic language intervention can be effective in increasing ethnically diverse caregivers' use of language support strategies with young children who are language delayed within multiple contexts such as play, joint storybook reading and snack time. For early childhood interventionists who work with ethnically diverse families, this type of intervention shows promising results in a relatively short amount of time. This study was within an international context (Latin America) and provided a unique circumstance in which an English speaking instructor used an onsite interpreter during the entire intervention program to translate to Spanish speaking Hispanic caregivers. Additionally, this study shows that caregivers with a limited education can learn and implement a somewhat complex, naturalistic language intervention in order to implement useful strategies that help the children they care for become more effective communicators. This nontraditional EMT intervention taught two caregivers three naturalistic language support strategies across three contexts of daily routines (i.e., play, joint storybook reading and snack) to promote generalizable effects as opposed to most naturalistic language intervention studies in which strategies are used primarily during caregiver-child play interactions.

The child participants were Spanish speaking children between 2 to 3 years of age with verbal imitation skills in addition to a vocabulary of ten or more words which closely aligns with the recommended characteristics from previous EMT studies (Kaiser & Roberts, 2013). The caregiver and child participant population in this study broadens the clinical use of EMT strategies as well as the international location and type of setting (preschool/institutionalized setting). This study also adds to the current research regarding practical applications for training naturalistic language support strategies to Spanish speaking Hispanic caregivers. Suggestions are made later in this manuscript on how future studies may adapt training for this specific population.

Despite nearly two decades of significant research in the area of caregiver-implemented language intervention, surprisingly little is known about language interventions provided to Spanish-speaking caregivers and children and the subsequent impact on children's language outcomes, especially in international settings. Findings in the current

study contribute to this area of research and may assist researchers and professionals in early childhood and special education, as well as other service providers who serve ethnically and culturally diverse families and children in the international community. Improving the quality of services to this population is an area of concern for many.

### Limitations and Need for Future Research

Although the data showed positive results for both caregiver dyads, there are several limitations that must be considered. First, both caregivers worked full time in the children's home and were highly motivated to participate in the intervention. Additionally, the children's home director was the professional interpreter over the course of the entire intervention. Future research in this type of setting may consider an interpreter that is impartial and has no personal connections to the caregivers. This may encourage caregivers to be more comfortable when asking questions or voicing concerns. Training the caregivers in a group may also be beneficial to avoid the instructor and interpreter from repeating the same information during teaching sessions which may also lend to caregivers learning from each another.

Second, the intervention in this study was delivered by caregivers in a one-on-one setting with their target child during selected daily routines (snack time, joint storybook reading and play). Since these activities typically occur in small groups in the children's home, the current intervention delivery model is not representative of the naturally occurring caregiver and child routines. Future research should investigate caregiver behaviors within the context of the daily activities with small groups of children.

Third, the current study was limited to a brief timeline which prevented the researchers from implementing a more traditional EMT intervention program that would have trained more components in a prescribed order. In recent research on EMT, it is recommended to include specific, multiple components that are taught sequentially (environmental arrangement, responsive interaction, language modeling, milieu prompting; Hancock & Kaiser, 2012). Previous research also teaches EA strategies to initially connect the adult and child as communication partners and later emphasize EA for child requesting (referred to as Time Delay; Roberts & Kaiser, 2015) while this study taught EA procedures initially to set up child requesting and commenting opportunities. Future research may consider training caregivers on specific strategies and give specific examples that connect the caregiver and the child (matched turns, mirroring and mapping) prior to training strategies that support language (language responsiveness, expansions; Hancock et al., 2016) and teach language (modeling, milieu teaching prompts) as in previous studies.

Fourth, this study attempted to adapt previously studied methods to meet the needs of the setting and suite the more culturally diverse participants. One adaptation involved the adult teaching method. The current study did not include the instructor/interventionist modeling for the caregivers during the teaching or coaching sessions. This adds to the research regarding caregiver skill acquisition in which previous research using a “Teach, Model, Coach, Review” method (Roberts et al., 2015) suggested future studies investigate teaching methods without the Model portion of caregiver training. Results from this research show that modeling by the interventionist may not be necessary in the event that caregivers are able to understand and demonstrate skills through teaching and effective coaching followed by a review.

Fifth, the current study did not teach or give specific examples to caregivers on types of verbal responses to avoid when communicating with their children, such as test questions, praise statements and yes/no questions; all of which were occasionally overused by the caregivers to prompt the children to take a turn in the conversation. These types of verbal responses inhibit a child response in that there may be only one word needed to respond (or no child response needed following a praise statement) which threatens the balance of the “conversation” between the caregiver and the child.

Sixth, the instructor failed to emphasize avoidance of overusing EA procedures during the first two teaching sessions for each caregiver; this may have prevented the previously noted episodes during coaching sessions (snack time), both caregivers overused EA procedures in an attempt to set up more requesting opportunities. This caused greater demands on the children in a short period of time which interrupted the natural flow of the adult-child interaction and also was a change in the normal routine, in which the children were expecting to have full access to their snack food. The instructor immediately provided recommendations to the caregivers in these instances to lessen the communication demands, help the routine be more natural by suggesting that caregivers implement other strategies to encourage child language use. Future research with this type of population needs to include more specific and descriptive examples of verbal responses for the caregivers to use. Perhaps the addition of interventionist modeling would be beneficial to help teach more effectively as previous studies have employed (Roberts & Kaiser, 2012; Roberts et al., 2014).

Last, with the duration of the intervention being quite brief and the primary focus being changes in caregiver behaviors, measures in child behaviors were not measured intentionally. The primary focus of the current study was to demonstrate that caregivers in a Guatemalan,

family-style orphanage could be trained to use language support strategies with fidelity prior to measuring specific child communication behaviors. Therefore, the current data represent only caregiver outcomes rather than the optimal condition of measuring both caregiver and child outcomes. Future research with this population should investigate whether or not there is a functional relationship between Spanish-speaking caregivers’ use of language support strategies and child communication outcomes. Although specific child communication behaviors were not measured during this study; both children demonstrated a slight increase in frequency for combining words when requesting and commenting in all three contexts. This may be due to caregivers’ use of the language support strategies; however, these results should be interpreted cautiously.

Although the results of this study add to the literature for ethnically diverse caregivers and children at risk for or with LI, the current intervention needs modifications. Additional research with this population is clearly needed regarding the parameters of treatment dosage, procedural methods and intervention contexts to determine whether positive caregiver outcomes and child outcomes can be achieved through this type of intervention.

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