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Coaching Caregivers in Rural Communities on Naturalistic Strategies via Telehealth

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COACHING CAREGIVERS IN RURAL COMMUNITIES ON NATURALISTIC STRATEGIES VIA TELEHEALTH

THESIS

A thesis submitted in partial fulfillment of the
requirements for the degree of Master of Science in the
College of Education
at the University of Kentucky

By

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ABSTRACT OF THESIS

COACHING CAREGIVERS IN RURAL COMMUNITIES ON NATURALISTIC STRATEGIES VIA TELEHEALTH

Naturalistic strategies have been shown in research to promote expressive language in children by embedding opportunities for learning trials during routines and activities. Efforts to promote expressive language development are often focused on training caregivers in implementing naturalistic strategies in their child's typical daily routine. Coaching is a consistently effective training practice to prepare family members to implement the naturalistic strategies. While coaching has been shown to be effective, the recommended time requirement could be a barrier for most caregivers. Caregivers living in geographically remote areas also face additional barriers, such as higher rates of poverty and less access to adequate healthcare. Delivering services via telehealth, the use of technology to provide health care services from a distance, could bridge the gap between families located in rural areas and access to affordable health care.

I describe coaching caregivers who live in remote areas on implementing naturalistic strategies via telehealth. How the coach should prepare and implement the sessions is explained, along with a description of common naturalistic strategies used in research. Tracking adult and child progress, promoting generalization and generalization, and troubleshooting is also discussed.

KEYWORDS: naturalistic strategies, social communication, coaching, telehealth, geographically remote, rural area.

Stevie L. Ogburn

04/27/2021

Date

COACHING CAREGIVERS IN RURAL COMMUNITIES ON NATURALISTIC STRATEGIES VIA TELEHEALTH

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DEDICATION

To my father, Mark, and two aunts, Rita and JoJo. I could not have made it this far without your endless and unconditional support. Also, to my supervisor, Sara, for molding me into the professional I am today. Thank you, all.

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Section 1. Introduction

Kathy is a stay-at-home parent who lives in a geographically-isolated area in the Southeastern United States. She is the mother of four children, 7-year-old Sara, 5-year-old Jake, 3-year-old Jamie, and 11-month-old Kacey. Kathy's husband works at the local factory from 6:00am to 6:00pm and, as such, for the majority of the day she is at home alone with the children. The family's schedule is relatively full, with the morning routine before school and the after-school routine when the older kids come home from school (e.g., homework, dinner, bedtime). Kathy's son Jamie was recently diagnosed with autism spectrum disorder. Since receiving the diagnosis, Kathy has struggled to identify supports on how to interact with her son and help promote social communication when they play. Although Kathy was referred to a few local clinics and related programs in a neighboring urban area, the minimum travel time to and from the facilities is at least a 45-minute drive from her home. In addition, costs associated with such services would be a financial strain for the family, such as the cost of gasoline and related necessities while traveling. Kathy wants to provide appropriate supports for Jamie, but there are limited options in their geographic location..

At this point, Kathy's primary concern is Jamie's ability to reliably share his wants, interests, and feelings with others. Jamie says a few words such as "mama", "more", and "bye-bye," but typically communicates using vocalizations that are unrelated to the activity or his interests. In addition to vocalizations, Jamie will point to items for the purpose of requesting access to different items or lead Kathy by the hand to a preferred item. Although Kathy typically understands Jamie's communicative behaviors, others in the family have difficulty knowing what he wants. This sometimes leads to Jamie becoming frustrated because others do not understand

his attempts to communicate. Kathy feels that life would be so much easier if Jamie was able to reliably communicate his needs and wants to others.

Section 2. Promoting Early Communication and Coaching Practices

Children with or at-risk for disabilities typically receive services under Part C or Part B of the Individuals with Disabilities Education Act (IDEA, 2004). Eligibility under IDEA (2004) includes categories such as developmental delay, intellectual disability, and autism spectrum disorder (ASD). Relatedly, reports indicate that a large proportion of children between 3 and 5 years of age receive special education services to address communication delays (e.g., Hebbeler & Spiker, 2016). Services for communication delays may be provided to address a specific issue (e.g., proper articulation of early consonant sounds) or support children who display pervasive communication-related challenges (e.g., children with ASD who are minimally verbal). Pervasive communication delays are especially problematic because children are less likely than same-age peers to meaningfully share wants, interests, and feelings, and such delays compound over time (Lane & Brown, 2016).

Services for communication delays are typically focused on form, meaning, and use of language in context (Paul & Norbury, 2012). Language serves as the foundation for successful interactions with others (Hebbeler & Spiker, 2016) and is essentially the *rules* for how we communicate with one another (Paul & Norbury, 2012). It is important to note that language does not simply refer to a child's speech (arguably the most straightforward approach to communication), but includes a variety of modes of communication, such as speaking, augmentative and alternative communication (e.g., speech-generating device; sign language), body orientation, and facial expressions (Lane & Brown, 2016; Cooper et al., 2020). Social communication is the use of language during social contexts and situations

(American Speech-Language-Hearing Association [ASHA], n.d., Social Communication Disorder section). Social communication skills are necessary to engage in social behaviors, such as having conversations with a same-age peer, conveying needs and wants to others, and developing friendships and relationships. Considering the importance of social communication, there are a number of interventions that focus on improving expressive language in children with disabilities. One of the most recommended interventions for social communication are naturalistic language interventions, which have a long-standing history in the literature for improving early language development in children during interactions (Lane et al., 2016a; Pierce & Schreibman, 1995; Snyder et al., 2015).

Naturalistic Strategies

Naturalistic language interventions (NLI) refer to a collection of strategies designed to promote expressive language in children by embedding opportunities for learning trials during routines and activities (Snyder et al., 2015). NLI share common features: (a) instruction occurs in typical contexts, (b) instruction is focused on communication that is purposeful and useful for the child, (c) each instructional trial is ultimately child-led and directed, and (d) the investigator is someone who the child regularly encounters (Snyder et al., 2015). Several NLI, such as milieu teaching, also utilize environmental arrangement strategies (EAS). An EAS is contrived by the adult to provide an opportunity for the child to convey their wants, interests, and feelings, and serve to highlight when a child should communicate (Ledford et al., 2019) Common EAS include providing a choice (e.g., allowing the child to pick an item they want from two or more items), maintaining and controlling access to materials (e.g., placing a desired item in view but out of reach of the child or blocking access to a preferred item), and introducing unexpected situations into play (e.g., providing an inadequate amount of a required item for an

activity). Relatedly, providing occurring opportunities for a child to communicate within their typical environment directly establishes the relationship between a child's communication and accessing pleasant consequences. Instruction that is embedded into the child's natural environment will likely be effective for helping a child learn to communicate in context with others. Thus, efforts to promote early language development are oftentimes focused on training family members to embed opportunities across routines and activities, given that many young children spend the majority of their day with family. To ensure that family members are able to provide NLI, coaching is a consistently effective training practice to prepare family members to address children's communication needs.

Considerations for Coaching Indigenous Implementers

There are a number of studies that have used adult training practices with families in typical contexts. Trivette and colleagues (2009) conducted a review of adult training literature and identified six common adult learning practices that will likely influence successful implementation of strategies:

- Introduction: provide the learner with a brief overview of the material, knowledge or practice of the topic being taught.
- Illustration: demonstrate or model for the learner how the material, knowledge or practice should be applied.
- Practice: allow the learner to engage in the use of the material, knowledge or practice while delivering feedback.
- Evaluation: discuss with the learner the outcomes of applying the material, knowledge or practice.

- Reflection: work with the learner to evaluate their progress and identify goals for their future steps.
- Mastery/learning criterion: further support the learner in their self-assessment of the skill in order to promote ongoing monitoring and improvement.

Using at least one of the six characteristics listed resulted in adult learning; however, learning was more effective when multiple methods were used together (Trivette et al., 2009).

Practices of combining the above methods have become popular in research. The training of caregivers along with the support given to them to apply their new skills has been discussed in the literature as "family-coaching" (Ledford et al., 2019). Ledford et al. (2019) describes coaching as not only encompassing the principles of adult learning, but also focusing on the family's daily routines and the caregivers' ability to embed the strategies into those routines. There are a number of coaching models available in the literature that use some or all of the adult learning components above in addition to the added support that is necessary to allow caregivers to feel confident when implementing strategies.

Behavior skills training (BST) and practice-based coaching (PBC) are comprehensive coaching models that encompass outlined characteristics of adult learning. BST is an approach to teaching that is commonly used to teach staff working in education on strategies that will support skill development in their students (Ledford et al., 2019). The primary components of BST are (a) instruction, (b) modeling, (c) rehearsal, and (d) feedback. PBC is similar to BST and has been shown to be effective when implemented in an early childhood context (Ledford et al., 2019). The primary components of PBC are (a) shared goals and action planning, (b) focused observations, and (c) reflection and feedback. There are many coaching models used to promote adult learning, and although each have different names, they generally include the common adult

learning practices identified by Trivette and colleagues (2009). Regarding the amount of training that is needed to ensure that adults learn target content, Trivette and colleagues (2009) recommended that training be provided for more than 10 hrs when training adults. However, the time requirement for training could be unrealistic for parents of young children with limited resources, such as time and limited finances.

The majority of published studies that evaluated coaching practices provided 27 or more hours of coaching (Artman-Meeker et al., 2015). Although it is ideal to have that much time working directly with adults, it may not be feasible in some contexts, especially in practice. Thus, making the search for a coaching model that is both effective and feasible is a necessity for training parents with young children. Lane et al. (2016b) evaluated a multi-component brief coaching model for parents of children with disabilities, including ASD. They created this model in order to make a parent-coaching intervention that is equally effective but more feasible than traditional coaching interventions, by requiring less time from the parents and the coach during training. This multi-component brief coaching model included providing rationales, modeling, coaching, and providing feedback on parent performance. Lane et al. (2016b) found that their coaching intervention resulted in an increase of parents' use of naturalistic strategies during typical activities with their child. One future implication discussed by Lane et al. (2016b) was training families that are in rural areas or that may have limited access to resources.

The United States Census Bureau (n.d.) defines a rural area as being a geolographic location that consists of less that 2,500 people. Those living in rural areas experience higher rates of poverty and less access to adequate healthcare services (Centers for Disease Control and Prevention, n.d., Rural Health section). Hallam et al. (2009) discovered that families who are located in rural counties have access to less types of services and these services were generally

delivered less frequently and for shorter durations of time when provided. Given these challenges, a more accessible and cost-efficient plan for providing needed resources is critical, such as delivering services via telehealth.

Telehealth (also known as "telemedicine") is the use of technology to provide health care services from a distance (ASHA, n.d., Telepractice section) and has been proven to reduce costs and time associated with traveling for in-person service delivery (Dullet et al., 2016). Telehealth has been utilized by health care professionals in the behavioral field to conduct functional analyses (Wacker et al. 2013a), deliver behavior reduction interventions (Wacker et al., 2013b), parent training (Bearss et al., 2017), and more. This form of delivering services has also been proven as an acceptable platform to train and coach parents in language and communication skills of young children with ASD and developmental disabilities and delays (Akemoglu et al., 2019). There are, however, some limitations to telehealth services. Common barriers when receiving services via telehealth include, but are not limited to, having access to the appropriate technology device and the necessary connection strategy for your device (ASHA, n.d., Telepractice section). When the barriers are able to be controlled for, delivering services via telehealth could bridge the gap between families located in rural areas and access to affordable health care.

Coaching caregivers who live in rural areas to use natural strategies with their child to promote expressive communication via telehealth could allow those families equal access to resources and other supports. When coaching caregivers, practitioners should train caregivers on four natural strategies to use with their child: responding to communication, imitation, narration of adult behavior, and environmental arrangements and responding (see Table 1). These targeted naturalistic strategies have often been seen in popular research-based naturalistic interventions,

such as milieu teaching (Ledford et al., 2019; Snyder et al., 2015). Table 2 also includes the steps for correctly engaging in environmental arrangements and responding.

Section 3. Implementing Coaching Practices with Remote Families

Training a family via telehealth may be a new experience for both the practitioner and the caregivers (see Appendix B for a PowerPoint PDF of how to train caregivers). Prior to meeting with the family, the practitioner (also known as the trainer) should familiarize themselves with the online platform that will be utilized during sessions. The practitioner should be comfortable with the platform to support the caregivers in

Table 1 Naturalistic Strategies to Promote Early Communication

Naturalistic Strategies	Definition	Examples	Non-Examples
Responding to Communication	Anytime the caregiver vocally responds to the child's communication (e.g., gestures, vocalizations, words) within 1-3 s by expanding on the child's communication (adding 1-2 meaningful words), recasting a word or phrase (if difficulties with articulation or grammatical error), or providing language for a non-vocal behavior at the target language level.	Examples include but are not limited to saying, "ball" when the child points to a ball, or "blue ball" when the child says "ball" in the presence of multiple balls of different sizes, colors, and shapes.	Non-examples include but are not limited to repeating what the child said when there is no articulation issue, adding more than 3 or more words to the child's vocal communication (e.g., saying, "That is a big blue ball with stripes" when the child says "ball" alone), or if 5 or more s elapse between the child's communication and the adult's response.

Imitation	Anytime the caregiver imitates the child's play actions with same or similar materials or, if materials are unavailable (e.g., one item), the caregiver pantomimes engaging in an identical action (e.g., hand gesture that indicates the caregiver is "talking on the phone").	Examples of imitation include but are not limited to rolling a ball while the child rolled a separate ball, pretending to throw a ball while the child threw a ball, and throwing a football while the child threw a soccer ball.	Non-examples include engaging in actions unrelated to the child's play (e.g., bouncing a ball while the child plays with a doll). Separate instances of imitation will be recorded when 1 or more s elapse between actions or when different materials are used, or different but related actions occur.
Narration of Adult Behavior	Anytime the caregiver describes their own play actions while engaging in turn-taking with their child.	Examples include but are not limited to saying, "car" or "push car" when taking turns with rolling cars.	Non-examples include but are not limited to describing the child's action on objects or responding to the child's communication.
Environmental Arrangement/ Responding (EAR)	Anytime the caregiver controls access to preferred	Examples include completing each	Doing steps incorrectly or in the wrong order (e.g.,

	items or activities, waits 3 s, provide a model of the word, wait 3 s, and give the child the toy while saying the target word or putting toy down if the child loses interest.	step correctly and in order as they are listed (see Table 2)	controlling access to materials but failing to wait 3 s before providing a one-word model, or giving the model prompt before controlling access to the materials).

[a] *Definitions and examples/nonexamples adapted from Lane & Goldey (2020).*

Table 2 Implementing Environmental Arrangement and Responding Steps

Steps	Adult Behaviors
Step one	Controlling access to materials while not taking materials directly from the child. This means that the child cannot grab them or play with the items you are controlling, but they can still see them. This does not mean taking a toy out of a child's hand, but instead blocking or holding onto a toy they want or materials they need.
Step two	Once you are controlling access to the toy or material the child wants, waiting 3 s for the child to communicate in some way (e.g., vocalization, gesture, words)
Step three	Once the child shows joint attention (e.g. eye contact or looking at same toy) and communicates, provide a one-word model if the child still seems interested (e.g., saying "ball" if they're wanting a ball)
Step four	After the one-word model is given, wait another 3 s to see if the child repeats it.
Step five	If the child still does not say the target word, give the child access to the toy while saying the target word again.
Step six	If the child loses interest and moves onto another toy or activity, simply put the toy down and try again later.

troubleshooting any issues that may arise. The family should also be encouraged to familiarize themselves with the platform before beginning sessions, as well. The practitioner should take some time to introduce themselves and talk with the caregivers using the online video platform before sessions officially begin. Virtual meetings could potentially hinder social interactions by not allowing the two parties to be able to read each other's body language and, in turn, make establishing rapport (or "buy in") with families more difficult. Thus, it is important to take extra time to build rapport with the caregiver (Wagner et al., 2013). Skipping or ignoring the importance of rapport building early in the coaching process can have deleterious effects on the practitioner and caregiver's relationship. The caregiver will likely be less engaged and, as such, less likely to display improvements in target adult behaviors (Ledford et al, 2019). Discussing shared interests or goals (e.g., behavior change goals for the child), or identifying the caregiver's or the child's strengths can be good strategies to use when building rapport or the relationship (Ledford et al., 2019).

Before beginning the trainings, the practitioner should prepare the caregivers with information on materials that are needed and where they should be located during the sessions. First, the caregiver should have their electronic device (e.g., laptop, tablet, smartphone) connected to Wi-Fi, or connected to cellular data if desired. This device should have a webcam and a screen big enough that the caregiver can see the practitioner during the sessions. The caregiver should also have some of their child's preferred items and activities present in the room with them. When deciding where at in the house to set-up at, the caregiver should pick a room that the child typically plays in, such as their bedroom or the living room. The electronic device should be in a spot where the practitioner can see the caregiver and the child within the camera's view.

Each telehealth appointment will include caregiver training, coaching sessions, and post-session feedback. Caregiver training will occur once for each target behavior, while coaching and post-session feedback will begin and continue until the caregiver has demonstrated the target behavior at least once per min (the mastery criterion for each target behavior). In total, each coaching session and post-session feedback loop should last approximately 5-10 mins. The length of time will vary depending on a number of factors, such as how many questions the caregiver has at that time and if they want to see a model of the target behavior. The practitioner should teach the caregiver one target behavior at a time until they meet the mastery criterion, then move on to the next behavior. See Table 3 for an outline of the steps that each session should include.

Caregiver Training

For each naturalistic strategy, the practitioner should conduct a one-time training that includes an overview of the target behavior. Each training will include (a) description of the rationale for the target behavior, (b) a review of the expectations for the caregivers during intervention sessions, and (c) two to three video examples of the investigator demonstrating the target behavior with a child. See Table 4-7 for more details on how each training should look for each target behavior. Following the rationale description, review of expectations, and video examples, the caregiver should have the opportunity to ask any questions they might have about the implementation of procedures. The practitioner should answer any questions the caregivers ask before they are told to practice the behavior in real-time. During this training time, the child may be present in

Table 3 Outline of Steps for Each Coaching Session

Steps	Adult Behavior
Initial caregiver training (2-3 min)	1. Trainer provides rationale for developed target behavior 2. Trainer explains to the caregiver what is expected of them during session 3. Trainer provides 2-3 video examples of the target behavior
Post-training session and feedback ***This process repeats for the remainder of the session until caregiver meets mastery criterion of displaying the target behavior once per minute across three sessions***	4. Trainer tells caregivers to practice the target behavior with child 5. Trainer provides behavior specific praise for observed target behaviors and direct the caregiver's attention to opportunities to demonstrate the behavior
Post-session feedback (2-3 min)	6. Questions from the caregiver are answered 7. Discuss new ways of how the caregiver can engage in the target behavior in the future

Table 4 Caregiver Training Steps for Responding to Communication Sessions

Caregiver Training Steps – Responding to Communication	**Examples**
Trainer provides rationale for developed target behavior	Consider the following script: "This behavior is called responding to communication. Responding to your child's communication is important, because it lets them know that you hear them, and it will likely make them want to communicate more with you in the future."
Trainer explains to the caregiver what is expected of them during the session	Consider the following script: "While you're playing with your child, you want to try to respond to his communication about once per min, and you want to respond immediately to them. Your child's communication is not only limited to their vocal words, but it also includes them gesturing such as pointing or reaching for an item or using vocalizations. When your child does any of this, you can add 1-2 words onto what they said, recast the word if it was not said correctly, or add language to their gestures."
Trainer provides 2-3 video examples demonstrating the target behavior	Consider making a video of the trainer playing with a child or other person and demonstrate this skill. Examples could be the trainer saying, "blue car" when the child says "car", saying "ball" if the child points to a ball, or saying "truck" if the child vocalized "tuh" or "ruh".

Table 5 Caregiver Training Steps for Imitation Sessions

Caregiver Training Steps – Imitation	Examples
Trainer provides rationale for developed target behavior	Consider using the following script: "This behavior is called imitation. When playing with your child, it is important to play with the same or similar items that they are playing with, because it lets them know you are engaging with them. If they see that you are engaged with them during play, they will be more likely to communicate with you about the toy or activity."
Trainer explains to the caregiver what is expected of them during the session	Consider using the following script: "During this session, you're going to want to try to do whatever it is that your child is doing. If they are driving a car on the ground, you should do the same with a separate car. If they are playing with dolls, you should play with a doll in the same way they are. If they are playing with a toy that you do not have another of, grab any similar toy and engage in the same actions that they are. Try to do this about once every minute."
Trainer provides 2-3 video examples demonstrating the target behavior	Consider making a video of you playing with a child or other person and demonstrate this skill. Examples could look like the trainer and a child playing with blocks together, the trainer and a child both playing with playdough, or the child pushing a car and the trainer pushing a block pretending to be a car if another car toy is not available.

Table 6 Caregiver Training Steps for Narration of Adult Behavior Sessions

Caregiver Training Steps – Narration of adult behavior	**Examples**
Trainer provides rationale for developed target behavior	Consider the following script: "This behavior is called narration of adult behaviors. This is important when playing with your child because it adds language to the actions that you both are doing. While you're engaged with the child during play, you want to narrate your own behavior, so you are not narrating their behavior and sounding like you are telling them what to do."
Trainer explains to the caregiver what is expected of them during the session	Consider the following script: "While you are playing alongside your child or taking turns with an item or activity with your child, you are going to say what you are doing. This should look like you simply saying a phrase or sentence that describes what you are doing, such as 'I'm throwing the ball'. You should aim to do this about once every minute."
Trainer provides 2-3 video examples demonstrating the target behavior	Consider making a video of the trainer playing with a child or other person and demonstrate this skill. Examples could be saying "roll playdough" as the trainer rolls it in their hands, saying "throw the ball high" when they throw the ball into the air, or saying "brush baby's hair" when brushing the hair of a doll.

Table 7 Caregiver Training Steps for Environmental Arrangements and Responding Sessions

Caregiver Training Steps – Environmental arrangements and responding	**Examples**
Trainer provides rationale for developed target behavior	Consider the following script: "This behavior is called environmental arrangements and responding. This behavior is important because it encourages your child to communicate verbally on their own and provides them with how to say the appropriate vocalization if they do not verbally communicate."
Trainer explains to the caregiver what is expected of them during the session	Consider the following script: "While you're playing with your child, you want to block the child's access to the toys where they can't get them, then wait for them to communicate. Once they do, say the name of the toy once to model what they should do. If they say it then immediately give them the toy and continue playing. If they do not say it, give the toy back anyway while modeling how to say the word again. If the child loses interest during this and moves onto another toy, simply put the toy down and try again later. Try to do this about once per minute."
Trainer provides 2-3 video examples demonstrating the target behavior	Consider making a video of the trainer playing with a child or other person and demonstrate this skill. Examples could be doing this by blocking access to paint while painting, holding the ball instead of throwing it back to them, or holding on to a piece

	of doll clothing they need while dressing the doll up.

the room and can be attending to the training if necessary or playing independently with the toys.

Coaching Sessions

The coaching sessions will be approximately 5 mins each and will start after the caregiver training. The session will begin once the practitioner asks the caregiver to "Practice [the target behavior] with [child's name]." While the caregiver is practicing the target behavior while playing with their child, the practitioner should give behavior-specific praise following demonstrations of the target behavior (e.g., "great job responding when he pointed to the toy") and highlight opportunities to display the target behavior (e.g., "next time, try implementing the strategy when you see him moving to another toy"). When the practitioner is coaching (providing the feedback on the caregiver's behaviors), they should focus and comment only on the target behavior at hand and not on any previously learned behaviors. Immediately following completion of the session, post-session feedback will be provided.

Post-session Feedback

During post-session feedback, the caregiver will be given the opportunity to ask any questions they may have after their practice session. Once their questions have been answered, the practitioner should offer the caregiver the opportunity to see a video model of the behavior again, or to practice/role-play the behavior with the practitioner. Then, the practitioner will review with the caregiver at least one thing they did well (e.g., "You did a great job at narrating your own play when you were pushing the car") and one area that could have been a great opportunity for promoting social communication in their child (e.g., "Next time, when you are tossing the ball with him, you can say when you're going to throw it high or low, or when you

are going to roll it"). Just like the caregiver training sessions, the child can be present in the room either sitting with the caregiver or playing independently during this time.

Kathy was able to reach out to a Board-Certified Behavior Analyst (BCBA) that agreed to coach her on naturalistic strategies over an online platform. This was perfect for Kathy and her family because she was able to be involved in the sessions while playing with her son, schedule the sessions with the BCBA at a time that fit in her schedule, and do all of the work from home, saving her travel time and expenses. She has met with the BCBA several times now and has met mastery for 2 out of 4 naturalistic strategies so far. Knowing that she is able to spend time with her son and support his needs by simply playing with him has made this experience special for her. She looks forward to her sessions with the BCBA and appreciates being able to ask questions after each practice session and receive feedback afterwards.

Troubleshooting

Although ideally the caregiver would combine all coaching practices when working with their child once all strategies have been taught, there is a possibility that some strategies may occur at rates similar to pre-intervention observations. This could occur after a caregiver learns how to arrange the environment and provide support, which requires quite a few more steps than earlier adult behaviors. Thus, some caregivers may need some additional sessions, or booster sessions, in order to implement all of the strategies during a single session (e.g., Lane et al., 2016). If this occurs, remind the caregiver that they have learned a number of strategies and now you want them to know when and how to use each one, as appropriate. These sessions should be similar to the individual training sessions, in that the practitioner should remind the caregiver of the strategies, give a brief overview of what each strategy looks like, then allow them to practice. Just as was done in the individual coaching sessions, behavior-specific praise should be provided

immediately after the caregiver displays target behaviors. If the caregiver begins to display the behavior at relatively high-rate, consider providing praise after every few instances of a target behavior so as not to disrupt the flow of the session. Once the caregiver practices, the practitioner should provide post-session feedback just like the individual coaching sessions and answer any questions the caregiver may have.

There also may be issues that arise revolving around the connectivity with the technology device. Before beginning, the network connection speed should be tested on all devices to ensure the connectivity is reliable and fast enough to engage in the telehealth meetings. The network connection speed is what affects the overall video and audio quality and is recommended to be no less than 3 MB in order to achieve ideal connection (ASHA, n.d., Telepractices section). If this speed of connectivity is not feasible due to the caregiver's lack of high-speed internet services in their area, using an online platform to coach a caregiver in-vivo may not be effective. If this is the case, consider loaning the family the appropriate technology (McDuffie et al., 2013) or looking into the family's geographic location to find the nearest telemedicine site as done in Heitzman-Powell et al. (2014).

Tracking Adult and Child Progress

The caregiver's ability to accurately implement the steps of each strategy and their progress should be monitored during each session. During each session, the practitioner should have the appropriate data sheet in order to track the caregiver's behavior. On each data sheet, the practitioner should record every instance of the caregiver displaying the target behavior (see Appendix A). If the practitioner notices that the caregiver displays consistent trouble with a particular strategy, they should take time to pause the practice sessions and re-train the caregiver on what the behavior should look like and provide video examples again.

Although the focus of this intervention is supporting caregivers when interacting with their child, the child's progress could be monitored either prior to and at the end of the intervention (adult displayed mastery of the content) or during intermittent probe sessions conducted throughout the intervention/coaching process. It would likely be difficult to measure adult plus child data throughout all sessions unless another person was assisting with the intervention and/or there was time to review videotaped records of all sessions. During the sessions, there are a few behaviors that the practitioner should look for from the child, especially spontaneity and unprompted or prompted correct responses to the environmental arrangement strategy. Spontaneous behaviors happen when the child engages in or attempts to engage in the specified target behavior independent of an adult cue or prompt (Ledford et al., 2019). Ultimately, spontaneous communication is the overarching goal of such instruction, but some children will require extra supports to begin displaying such behaviors in typical contexts. In addition, spontaneous and generalized use of communication in context typically is a gradual process (e.g., Kim et al., 2014). The child's unprompted or prompted correct responses to the environmental arrangement strategy could also be monitored. Their correct response can either be unprompted, meaning the child displays the target behavior on their own after the initial cue to communicate (environmental arrangement), or prompted, meaning they displayed the target behavior after the caregiver provided a prompt (e.g., verbal model) (Ledford et al., 2019). Ideally, as instruction proceeds, the child would begin to display an increase in unprompted correct responses. In addition, the extent to which the child displays errors could be monitored. All of this information is meant to serve as a concrete guide for making decisions, as well as monitoring the short- and long-term improvements in a child's social communication.

Promoting Maintenance and Generalization

In order to ensure the caregiver is maintaining the target behaviors associated with each strategy, the practitioner should continue providing supports between coaching sessions and after the caregiver has displayed mastery of all target behaviors. The practitioner can provide ongoing supports to the caregivers through text, email, or by phone call (Ledford et al., 2019). The practitioner should ask the caregiver what questions they have and provide any supports, as needed. The practitioner could also ask the caregiver to send a video of using the target strategies at home for review. This would allow the practitioner to provide additional support to the caregiver and child.

Practitioners should also promote continued use of the target strategies outside of coaching sessions. The practitioner could work with a caregiver to identify routines in home and the community. For example, each strategy could be embedded during the family's morning routine (e.g., mealtime before school) (Crone & Mehta, 2016). This could look like the practitioner asking the caregiver to think about other routines or activities that happen during their day and mapping out different ways to embed the strategies into that time. In addition, similar to a "train the trainer" approach, the caregiver could begin to show other family members and related individuals how to use the strategies. Relatedly, the family could collaborate to identify other activities to embed the strategies (e.g., the older siblings are playing with their young sibling outside or with toys in the home).

Over time, Kathy has noticed significant improvements in her son's engagement and social communication. He is reliably imitating words and is beginning to use words or word approximations spontaneously during everyday activities. Kathy could not be more pleased with her experience of being coached on how to support her son. She appreciates the flexibility, the intensity, and the efficacy of being provided these services through an online platform. Initially,

Kathy was nervous about the impact remote coaching would have on her interactions with the BCBA and that her voice would not be heard during sessions. Kathy was surprised and relieved to find that she enjoyed meeting with the BCBA virtually and was able to build a great relationship with her. Kathy felt comfortable asking questions during sessions and appreciated being able to text the service provider between sessions, as needed. By receiving coaching services through an online platform, Kathy feels she was able to maximize her time and, in turn, support her son's social communication where she needs him to use it most – at home. Kathy hopes to continue online services in order to support her son.

Section 4. Conclusion

Support for families that include individuals with or at-risk of disabilities are limited in rural areas. Living in a geographically isolated area could mean that a family will not receive resources and services or receive limited supports to help their child. By providing these supports via telehealth to caregivers, families in rural and underserved areas are able to receive effective training to promote their children's language use.

Appendix A

Data Sheets for Monitoring Fidelity and Performance

Adult Responsive Behaviors

Participant:_____ Condition:_____ Date:_____ Session #:
Data Collector:_____

<u>Directions:</u> Record the time stamp of *each* behavior during 1 min intervals for the duration of the session. The behavior could happen multiple times per min. If a behavior could not occur due to the child's behavior, record not applicable (n/a).

Time Start:_____ Time End:_____

	1 Minute Intervals				
Responsive Inter Strategy	**0**	**1**	**2**	**3**	**4**
<u>Responding to communication</u> - Responded to spontaneous vocal or non-vocal behaviors within 3 sec at the target language level by providing 1-2 meaningful words that are in relation to or expand on child's behavior					
Inter-observer Ag (IOA): ***# of agreements / # of agreement and disagreements X 100***	_____ **<u>%</u>**				

Notes:

Participant:_____ Condition:_____ Date:_____ Session #:
Data Collector:_____

<u>Directions:</u> Record the time stamp of *each* behavior during 1 min intervals for the duration of the session. The behavior could happen multiple times per min. If a behavior could not occur due to the child's behavior, record not applicable (n/a).

Time Start:_____ Time End:_____

	1 Minute Intervals				
Responsive Interaction Strategy	**0**	**1**	**2**	**3**	**4**
<u>Imitation</u> – Imitated the child's play actions with same, similar, or pretend materials					
Inter-observer Agreement (IOA): ***# of agreements / # of agreement and disagreements X 100***	**<u>_____ %</u>**				

Notes:

Participant:_____ Condition:_____ Date:_____ Session #:
Data Collector:_____

<u>Directions:</u> Record the time stamp of *each* behavior during 1 min intervals for the duration of the session. The behavior could happen multiple times per min. If a behavior could not occur due to the child's behavior, record not applicable (n/a).

Time Start:_____ Time End:_____

	1 Minute Intervals				
Responsive Interaction Strategy	**0**	**1**	**2**	**3**	**4**
<u>Narrating own play</u> – Used 1-2 words to name either the object being manipulated or the action that described movement by the caregiver					
Inter-observer Agreement (IOA): ***# of agreements / # of agreement and disagreements X 100***	**<u>_____ %</u>**				

Notes:

Participant:_____ Condition:_____ Date:_____ Session #:
Data Collector:_____

<u>Directions:</u> Record the time stamp of *each* behavior during 1 min intervals for the duration of the session. The behavior could happen multiple times per min. If a behavior could not occur due to the child's behavior, record not applicable (n/a).

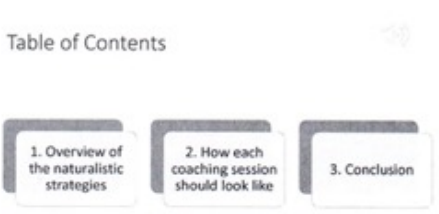
Time Start:_____ Time End:_____

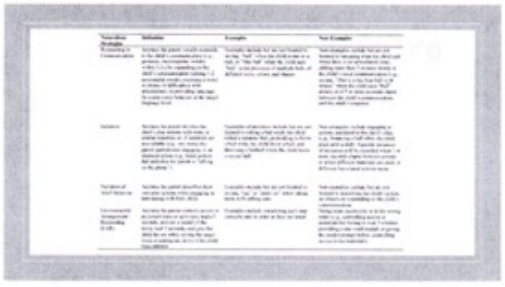
	1 Minute Intervals				
Responsive Interaction Strategy	**0**	**1**	**2**	**3**	**4**
Environmental arrangement and responding – control access to materials, wait 3 s, provide model, wait 3 s, gave child toy while saying target word or put toy away if child lost interest					
Inter-observer Agreement (IOA): ***# of agreements / # of agreement and disagreements X 100***	**<u>_____ %</u>**				

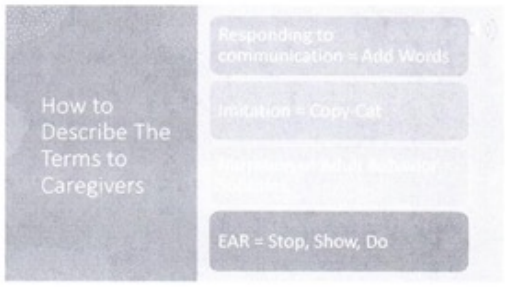
Notes:

Appendix B

Online Training Module







Example: Coaching caregiver on Responding to Communication

Conclusion

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Click HERE to access an online copy of a coaching fidelity data sheet

Click HERE to set up an online account with Zoom, and HERE for tips on getting started with your Zoom account, provided by Zoom Support.

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