

Increasing Social Reciprocity in Young Children With Autism

Debra Leach and Michelle LaRocque



Abstract

Research and education law support the use of routines-based interventions for young children with disabilities in the children's natural environments. However, systematic training and practice can provide individuals with the strategies and skills that can enhance these interventions. This article provides guidance for implementing intervention in the natural environment to promote the social reciprocity of young children with autism. It provides techniques for parent training and highlights strategies that can be used collectively during everyday routines and activities to help parents and other caregivers establish long chains of back-and-forth interactions with young children with autism.

Keywords

social skills; collaboration; autism; families; early childhood intervention(s)

The Individuals With Disabilities Education Improvement Act of 2004 requires that early intervention services for infants and toddlers with disabilities occur in the natural environment to the maximum extent possible. This requirement is supported by research indicating that everyday family and community routines and activities provide young children with many different kinds of learning opportunities (Dunst, Hamby, Trivette, Raab, & Bruder, 2000; McWilliam, 1999; Raab & Dunst, 2004; Tomlin, 2002). Providing services in natural environments supports and enhances the capacity of

families and caregivers by using developmental learning opportunities within a family's daily routines, activities, and everyday places. For example, while a child is playing with his or her toys, parents and/or early interventionists can work on occupational therapy goals. When a child is eating lunch with familiar utensils and foods, the parent and/or early

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interventionist can work on language and appropriate eating goals. In practical terms, taking a child to a clinic or office can result in some potential problems that would not occur at home, such as issues related to separation from the caregiver or lack of opportunity to generalize skills if specific office or clinic materials are used.

The Importance of Including Parents

Involving parents in intervention for children with autism promotes increases in generalization and maintenance of skills over time (Koegel, Schreibman, Britten, Burke, & O'Neill, 1982), which addresses some of the challenges with clinic-based intervention programs. When children are actively engaged in everyday routines and activities, they have multiple opportunities to practice existing abilities and acquire new skills by using readily available people and materials.

Findings also suggest that parents should engage in more responsive interactions with their children when implementing early intervention in the natural environment (Mahoney, Boyce, Fewell, Spiker, & Wheeden, 1998; Siller & Sigman, 2002). Responsive interactions require parents to respond to their child's emotions and language in a manner that supports the healthy development of both. For example, when a child is yelling "Ju! Ju!" the parent can respond, "Wow, Eliana, that is really great talking! Can you say juice, please?" This allows the parent the opportunity to simultaneously acknowledge the emotion, model appropriate language, honor the request, and increase the length of the interaction. Bronfenbrenner (1995) noted that responsive interaction styles of parents significantly affect the learning and development of children. Through responsive interactions, parents can positively influence the child's interest levels, affect, and joint attention skills. While no child with autism will respond in the same manner to specific strategies, increasing social reciprocity is valuable for any child receiving early intervention services.

Social Reciprocity

For parents of young children with autism, however, engaging in responsive interactions is often difficult because these children display significant impairments in social reciprocity (American Psychiatric Association, 1994). A child who displays social reciprocity is aware of the emotional and interpersonal cues of others, appropriately interprets those cues, responds appropriately to what he or she interprets, and is motivated to engage in social interactions with others (Constantino et al., 2003). These skills enable children to participate in long chains of back-and-forth interactions in which they continuously learn new skills as they engage with people and the environment. On the other hand, deficits in

social reciprocity can have a lifelong negative effect on the social communication and cognitive development of children with autism (Mundy, 1995). Thus, it is important for parents to learn specific responsive interaction strategies to help promote the development of social reciprocity of their children. However, parents require structured and consistent support to learn how to provide the intensity of intervention required for children with autism during their everyday routines and activities (Wetherby & Woods, 2006).

Parents require guidance for implementing intervention in the natural environment to promote the social reciprocity of young children with autism. Specific procedures described here provide techniques for parent training and highlight strategies that can be used collectively during everyday routines and activities to help parents establish appropriate interactions with their young child with autism. The strategies include

- contextual support,
- balanced turn taking,
- environmental arrangements,
- time delay,
- model and request imitation,
- prompting and fading procedures.

These strategies have been shown to be effective when used in intervention programs such as discrete trial training (Lovass, 1987), pivotal response training (Koegel, Koegel, Harrower, & Carter, 1999), incidental teaching (McGee, Krantz, & McClannahan, 1985), and floor time (Greenspan & Wieder, 1998). For the past two decades, researchers have seen positive results from the use of these strategies as part of a pre-prescribed intervention program, but now early interventionists must support parents so that parents can implement these strategies during everyday routines and activities to enable children with autism to learn in natural environments as do their typical peers. These six strategies were identified as most beneficial after a series of pilot programs for children with autism were conducted by the authors.

Parent Training

Before parents can be expected to successfully implement strategies to promote social reciprocity during their everyday routines and activities, they must receive explicit instruction related to the strategies and how they can be applied in the natural environment (Wetherby & Woods, 2006). A recommended model (Ellis, Deschler, Lenz, Shumaker, & Clark, 1991) follows a structured instructional format that promotes active participation in the learning process. There are eight stages of this learning process:

- pretest and make acquisition commitments,
- describe,
- model,
- verbal practice,
- controlled practice and feedback,
- advanced practice and feedback,
- posttest and make generalization commitments, and
- provide generalization opportunities.

Eight Stages of the Learning Process

During the *pretest and make acquisition commitments* stage, the parent is asked to describe what social reciprocity means and why it is important for the child to develop such skills. The early interventionist provides this information if the parent is unsure. Once the parent understands social reciprocity and why it is important for the child and commits to learning specific strategies to enhance the social reciprocity of the child, the early interventionist *describes* the strategies for the parent, providing examples of appropriate and inappropriate use. After the strategies are defined and explained, the early interventionist *models* the strategies, involving the parent in role-playing scenarios. *Verbal practice* is then provided to allow the parent to identify strategies, given the definition. For *controlled practice and feedback*, it is best to provide short video clips of other parents using the strategies during everyday routines and activities. The parent watches the video segments and points out the strategies being used by the parent on the video. During *advanced practice and feedback*, the parent identifies the routines and activities he or she would like to begin with and discusses how the strategies can be used during those routines and activities to promote the social reciprocity of the child. The early interventionist provides positive comments to the parent related to the parent's intervention plan and offers additional suggestions if necessary. For the *posttest and make generalization commitments* stage, parents define *social reciprocity* and why it is important for their child to develop, describe the strategies they will use to enhance the social reciprocity of their child, and state the routines and activities in which the intervention will be provided. Finally, at the *generalization* stage, the parent uses the strategies during the selected routines and activities. Segments of each routine are videotaped for review during parent conferences using a *video-stimulated recall* protocol to provide a quality coaching experience. Video-stimulated recall has been used with teachers to make explicit their implicit knowledge base (Meade & McMeniman, 1992). Similarly, parents are given the opportunity to view themselves implementing the strategies in the context of their everyday routines. This will enable them to personally reflect on their use of the strategies and how it affects the social reciprocity of the children. Table 1 provides guidelines for the video-stimulated recall conferences. Table 2 provides a

Table 1. Video-Stimulated Recall Parent Conference Procedures

Nine Steps for a Successful Parent Conference

1. The parent chooses a location in the home in which the video can be viewed with the least distraction.
2. The early interventionist introduces the video (e.g., We will view bath time from yesterday).
3. The early interventionist explains how they will review the video together to give the parent the opportunity to reflect on his or her use of the strategies and to see how the use of the strategies affects the social reciprocity of the child. The parent is given a handout that lists the names of the six strategies to refer to during the discussion.
4. The early interventionist will explain that the parent is encouraged to start and stop the video for discussion purposes.
5. The parent points out the times each strategy is properly used and how the use of the strategy promotes the social reciprocity of the child. The parent also indicates opportunities when a strategy could have been used to increase the social reciprocity of the child.
6. The early interventionist adds positive comments related to the parent's use of the strategies and the child's social reciprocity throughout the conference. However, the parent is the more active participant in the discussion.
7. After the parent has finished commenting on the use of the strategies, the early interventionist adds suggestions for increasing the parent's use of the strategies.
8. The early interventionist sums up the parent's proper use of the strategies and how it has positively affected the child's social reciprocity.
9. The early interventionist schedules the next parent conference.

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strategies handout for parents for reference during the conferences.

It is important to note that for some parents the training and video-stimulated recall conferences are not enough to enable the parents to be fluent with their use of the strategies. Modeling by the early interventionist during the actual routines and activities is often needed to allow the parent to see how the strategies can be used. However, once the early interventionist models the use of the strategies, the parent should then immediately have an opportunity to practice, with coaching provided. It is critical that the early interventionist not simply take over the routine or activity, with the parent on the sidelines. Notice that the last step is generalization. This is the step in which the video-stimulated recall procedures are implemented.

Detailed descriptions and examples of strategies used to encourage social reciprocity follow. Although each strategy has been shown to be effective when used in isolation, the strategies are much more effective when used together as part of a repertoire of parent behavior. A vignette (see Figure 1)

Table 2. List of Strategies for Video-Stimulated Recall Parent Conferences

Strategy Name	Strategy Description
Contextual support	Follow the child's lead by attending to what the child is attending to, get face-to-face, use interesting materials, provide activities at the child's developmental level to ensure success.
Balanced turn taking	Playful obstruction (get "in the way" of what the child is doing to provide opportunities for interaction). Playful construction (turn an independent activity into a social interaction). Playful negotiation ("stretch" the interaction to increase the number of back-and-forth-exchanges).
Environmental arrangements	Place something out of reach, do something unexpected, give small amounts.
Time delay	Provide a brief pause accompanied with a positive look or facial expression to indicate that a response is expected. Pause long enough for processing to take place, but not so long that you lose the attention of the child.
Model and request imitation	Demonstrate what you would like the child to do or say. Provide an opportunity for the child to imitate your demonstration.
Prompting and fading procedures	Use extra cues and supports. Gradually reduce the level of support to allow the child to be more independent.

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that demonstrates how these strategies can be used in conjunction with one another is provided after the strategy explanations.

Techniques and Strategies for Increasing Social Reciprocity

Contextual Support

Contextual support involves the adult performing the following:

- positioning himself or herself to maximize face-to-face interactions with the child,
- following the child's lead to enhance engagement, and
- identifying materials, actions, and objects that are interesting to the child and are at the child's developmental level (Zanoli, Paden, & Cox, 1997).

For example, if a child is playing with a pretend kitchen, the parent can join the child, get face-to-face, and begin interacting with the pretend kitchen in a way the child can

understand and participate in, to promote reciprocal interactions. This may require the parent to follow the lead of the child by commenting about what the child is currently attending to and then encouraging the child to interact. If the child is playing with the food, the parent may say, "I'm hungry. I want some food." This will encourage the child to interact with the parent and the objects and to engage in reciprocal interactions. The additional strategies should be used along with contextual support if the child doesn't respond to the parent.

Balanced Turn Taking

Balanced turn taking entails the child and adult participating in a balanced, back-and-forth fashion to increase the length of attention and engagement (MacDonald & Carroll, 1992). This can include *playful obstruction*, *playful construction*, and/or *playful negotiation* (Greenspan & Wieder, 1998). *Playful obstruction* involves getting in the way of what the child is doing to promote back and forth interactions. For example, if a child is heading toward the back door to go outside, the parent may run to the door to get there first and block the doorway. In this instance, the child must go past the parent to go outside. The parent can use playful obstruction by moving from one side of the doorway to the other, thus turning it into a game. Or, the parent may simply lock the door to encourage the child to communicate with words or gestures to tell the parent to open the door. In this scenario, the parent obstructs the child's activity to promote a reciprocal interaction. *Playful construction* involves turning something the child is doing in isolation into a reciprocal social interaction. For example, if a child is lining up cars, the parent may begin using blocks to build a parking garage for the cars. The parent can encourage the child to participate in building and encourage back-and-forth interactions throughout the activity. The parent may say, "I can't find a red block," to encourage the child to respond by getting a red block for the parent. Whether the parent uses playful obstruction or construction, playful negotiation should also be used. *Playful negotiation* involves stretching the interaction as much as possible to establish long chains of back-and-forth exchanges. While blocking the back door, the parent may be able to ask the child where he or she is going or what he or she is going to do outside or to make a comment about the things outside to encourage a response. The goal is to use the child's desire to go outside as an opportunity to develop the child's social reciprocity skills. Again, the other strategies discussed in this article could and should be used in conjunction with these balanced turn-taking strategies in order to increase the likelihood that the child will respond and interact.

Environmental Arrangements

Another effective strategy involves making environmental arrangements that promote and enhance interaction (Koegel

Every night before Phillip goes to sleep, his mother, Olivia, puts his pajamas on for him and tucks him into bed. Instead of repeating this routine in this same way every night, Olivia has been working with a service provider to learn how to use this routine as an opportunity to increase Phillip's social reciprocity skills. She participated in a training in which she learned six strategies to enhance social reciprocity, including contextual support, balanced turn taking, environmental arrangements, time delay, modeling and requesting imitation, and prompting and fading procedures. Once a week Olivia has her husband videotape this bedtime routine. When the service provider meets with Olivia, they view the videotape together. Olivia will point out the strategies she sees herself using and how using the strategies affects Phillip's social reciprocity. The service provider offers additional comments about Olivia's use of the strategies if Olivia misses something in the video. Olivia will also have the opportunity to reflect on what she sees in the video to come up with ideas for using the strategies in more ways or different ways to further enhance Phillip's social reciprocity. The service provider may provide some additional suggestions, or if Olivia comes up with many ideas of her own, the service provider simply summarizes what Olivia has stated and plans the next conference.

Now Olivia is no longer dressing Phillip but is using the routine as an opportunity to establish long chains of back-and-forth interactions. Instead of Olivia putting Phillip's pajamas on for him, Olivia gets face-to-face with Phillip and encourages him to follow directions that are at his developmental level so that he can participate in dressing himself (contextual support). Even though the directions Olivia provides are at Phillip's developmental level, Olivia often needs to use more strategies because Phillip isn't used to participating in this routine. She uses time delay after each request to positively encourage Phillip to comply. For example, she may say, "Phillip, open the drawer." Then she looks at him expectantly to encourage him to open the drawer. If Phillip still cannot comply, Olivia models and requests imitation by opening the drawer, saying "open," then closing the drawer, and asking Phillip again to open the drawer. If he still cannot comply, Olivia uses prompting and fading procedures by pointing to the drawer after asking Phillip to open it. If he needs more support, Olivia will guide his hand to the drawer but ensures she fades out the support she gives in order to increase his independence.

During the routine, Phillip will often initiate by saying what pajamas he wants to wear. Olivia will follow his lead and use balanced turn taking (playful negotiation) to engage Phillip in as many back-and-forth interactions as possible while looking for the desired pajamas. Sometimes she will get to the pajamas before Phillip does and use environmental arrangements by placing them out of reach but still in Phillip's line of vision. When Phillip sees them, Olivia encourages him to use words and gestures to request them. She playfully negotiates, though, by not simply giving him the pajamas right away. For example, she may say, "If you want them, get them." Then Phillip will say, "Pick me up." Olivia will pick him up but walk in the opposite direction of the pajamas. Phillip will then need to indicate for Olivia to bring him to the pajamas.

Olivia will vary her environmental arrangements each day. Sometimes she will do something unexpected, such as start putting the pajamas on herself to encourage Phillip to say something such as, "No, they are for me." By the time Olivia is ready to tuck Phillip into bed, they have participated in many back-and-forth interactions while getting on pajamas. This is an excellent way to work on enhancing social reciprocity during a routine that occurs every day. With the continuation of video-stimulated recall conferences, it won't be long before Olivia will be using these strategies across a variety of routines and activities throughout the day to provide a multitude of learning opportunities for Phillip.

Figure 1. Vignette of prompting and fading procedure.

et al., 1999; McGee et al., 1985). Environmental arrangements increase the frequency and type of opportunities for the child to communicate. In this strategy, the parent does such things as

- giving only a small amount of a desired item,
- interrupting a sequence of activities,
- doing something unexpected or different while interacting with the child, or
- placing desired items out of reach to encourage social communication.

For example, during snack time the parent may give the child just a few pretzels at a time to encourage the child to participate in reciprocal interactions to ask for more. If the parent knows a child is going to look for a particular video after naptime, placing the video out of reach will encourage the child to interact to get it. The parent may then put in the

wrong video on purpose to provide more opportunities for interaction.

Time Delay

Time delay involves allowing a certain amount of time to pass before providing a prompt or cue (Halle, Marshall, & Spradlin, 1979). The strategy involves the parent using a brief pause, accompanied by a positive look or facial expression, to indicate that a response is expected, but the pause should be long enough for processing to take place. In the example with the video, if the child does not indicate to the parent that he or she wants the desired video, the parent may get the video, show it to the child, and use an expectant look with a pause to encourage the child to communicate that he or she wants the video. It is important to be playful when using time delay (and the other strategies discussed) so the child remains comfortable and is encouraged to participate in the interactions. Time delay should be used before modeling and requesting imitation and prompting and fading procedures to increase social initiations from the child. Many times young children with autism wait for the adult to ask them questions and make specific requests before they interact. It is important to teach them that they could and should initiate interactions without having to be asked a question or given a direction. Of course, if the child doesn't respond after time delay, the next two strategies should be considered.

Model and Request Imitation

Model and request imitation is a strategy often used in discrete trial training (Lovass, 1987). The strategy involves demonstrating words, phrases, or gestures about objects and activities the child is interested in and then specifically requesting the child to imitate. In the example with the pretend kitchen, if the parent says "I'm hungry" and the child doesn't respond, the parent can take a pretend food item, pretend to eat it, give it back to the child, and restate "I'm hungry" to encourage the child to give the food to the parent. In the example of lining up toy cars, the parent may say, "I'm going to make a parking garage," build the parking garage, knock it down, and say, "You try now." In each of these examples, if the child imitates, the parent is successful in establishing a reciprocal interaction instead of just allowing the child to play in isolation.

Prompting and Fading Procedures

Prompting and fading procedures are also widely used in discrete trial training (Lovaas, 1987). When using the prompting and fading procedure, the adult helps the child interact or communicate by using extra cues and supports and then

gradually reduces the level of support to allow the child to be more independent in routines and social interactions. The support can be verbal, physical, or in the form of gestures. In the pretend kitchen example, if the child doesn't respond when the parent uses modeling and requesting imitation, the parent may need to prompt the child by putting out a hand to request the food. If the child then gives the parent the food, that prompt should be faded out the next time the parent asks for some food. It is usually best to use a *least-to-most* prompts approach when one is trying to increase social reciprocity. This means giving as little help as needed, as opposed to using intrusive prompts such as hand-over-hand procedures. However, if the child doesn't respond to a specific prompt, the parent may need to increase the level of the prompt and then fade out the level of assistance during the interactions that follow (see Figure 1).

Conclusion

Evidence demonstrates that children with autism benefit from intervention implemented in natural environments with parents as the primary intervention agents. However, providing adequate, meaningful opportunities within their daily routines and activities without systematic planning is very challenging for family members and service providers (Wetherby & Woods, 2006). One intervention approach that uses systematic planning to enhance social reciprocity during everyday routines has been described. First parents receive explicit instruction to learn specific strategies, and then they participate in video-stimulated recall conferences to receive support needed to implement effective intervention by using the strategies in conjunction with one another across their everyday routines and activities. While the strategies described focus on enhancing social reciprocity of children with autism, a variety of social skills, communication skills, behavioral skills, and cognitive skills can be taught through the use of these strategies during everyday routines and activities for young children with and without disabilities.

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