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Social Competence:
What It Is, Why It Is Important, and How PRT Can Achieve It

Daniel Openden

Joseph simply didn't take the skills he learned in Discrete Trial Training to any other contexts in his life. His parents were terribly frustrated. What good was it that he said hello to his teacher in the cubby when given the instruction, "Say hi," if he ignored his grandparents when they rang the doorbell? How useful was it that he could take turns in putting pennies in a jar when seated at a table with his teacher if he cut the line on the slide at the playground and grabbed the dice with his siblings?

While Sarah had learned to do what her teachers did on request (touch nose, clap hands), it was about as unmotivating as you can imagine. She hated it, did it just to get out of the chair, and never seemed at all interested. Most unnerving, she NEVER imitated anyone outside of these sessions. So, her parents thought, "When will she really get the hang of imitation, do it spontaneously, do it without being asked to do it? Will it happen? Can it happen?"

Joseph and Sarah's parents are struggling with social skill development. What is the real purpose of social skill training? How can children with autism be taught so that real world changes happen? How can the way we teach matter to them, motivate them, help establish a connection with them?

These are examples of the questions and struggles that motivate instructors in Pivotal Response Training. We want to focus on the conditions that are the most motivating, which have the highest chance of teaching skills that matter, that will occur spontaneously, and that will transfer across settings and people.

What Is Social Competence?

The social deficits of individuals with autism spectrum disorders are well known and well documented. There is a great deal of clarity and consensus on what constitutes social deficiency. Clinicians and researchers are much less clear and in much less agreement on social competence, but it has received a great deal of attention in recent years.

Social competence is an evolving concept that is broadly defined in the literature (Spence, 2003). Generally, social competence refers to the integration of social, emotional, and cognitive skills and behaviors that individuals need for successful engagement and interaction. The skills and behaviors expected vary with the age of the individual, cultural expectations, and the demands of a particular social situation. Social competence is not comprised of distinct skills; rather, it is defined by the abilities to receive social information, interpret social cues, and adjust behavior to the social expectations of the circumstance.

Why focus on a concept such as social competence? Socially competent individuals may have an easier time navigating the social world, developing meaningful friendships, working collaboratively in group and team contexts, pleasing authority figures, and managing complex situations. They may also ultimately encounter greater success in getting and in maintaining a job. Essentially, an individual's social competence is likely to significantly influence his or her quality of life, level of reinforcement, and personal happiness.

How successful have we been in achieving social competence in individuals with autism? This is difficult to evaluate, as most explorations have not even considered social skills in such a broad context. The literature has focused mainly on teaching children with autism spectrum disorders social skills as individual target behaviors. The general assumption that underlies this method is that the more skills you have, the more socially competent you are likely to be. However, a meta-analysis of social skills interventions by Bellini, Peters, Benner, & Hopf (2007) indicated that results are mixed and many commonly used interventions are not effective.

Many social skills programs emphasize teaching social "rules" that focus on what to do in a given context. While this can be a very effective teaching strategy that results in the ability to perform a given social skill under specific conditions, generalization of the skill is often lacking, particularly in natural settings. It is a clinical conundrum: how do we help prepare learners for the myriad situations they are likely to encounter and still teach efficiently? It is simply impossible to teach and prepare learners for *every* circumstance they may face. An alternative and more efficient model is needed.

Pivotal Response Treatment

Pivotal Response Treatment (PRT) is a naturalistic behavioral approach for children with ASDs (Koegel & Koegel, 2006; National Research Council, 2001) that may be particularly useful for improving broadly defined social competence. PRT is based on the science of applied behavior analysis (ABA). However, PRT does not primarily focus on the improvement of *individual* target behaviors, as traditional ABA approaches may have done. PRT targets *pivotal* areas that are aligned with the core symptoms of autism and teaches these pivotal behaviors in generalized ways. The major assumption of teaching via PRT is that when these core deficits are changed, generalized improvements occur across many behaviors.

To date, the literature has identified four pivotal areas for intervention: 1) motivation, 2) responsivity to multiple cues, 3) self-management, and 4) self-initiations (Koegel, Openden, Fredeen, & Koegel, 2006). It may be that social competence and PRT address broad areas for intervention in autism. A focus on pivotal areas in PRT may lead to improvements in, and the development of, social competence in individuals with ASD.

Over 20 years of empirical evidence support the efficacy and effectiveness of PRT for children with ASDs. PRT was first piloted and studied as the Natural Language Paradigm (NLP). NLP was designed to systematically include elements of natural language interactions into an ABA program. This was done to potentially improve the generalization and maintenance of treatment gains. In two critically important studies, the NLP demonstrated more rapid and generalized improvements in prompted, deferred, and spontaneous speech than in an analogue behavioral intervention (Koegel, Koegel, & Surratt, 1992; Koegel, O'Dell, & Koegel, 1987). Furthermore, in a critical review of eight published studies, Delprato (2001) indicated that naturalistic behavioral approaches were more effective at improving language compared to traditional discrete trial training (DTT) interventions.

Perhaps most intriguingly, Koegel, Koegel, & Surratt (1992) showed collateral decreases in problem behavior. This study represents the first PRT-based study that demonstrated generalized improvement in an untargeted behavior. As more studies began showing this effect, the NLP became Pivotal Response Treatment to more directly reference the broader targets and effects of the intervention. In essence, NLP evolved into PRT. The elements of NLP were preserved, and the intervention was extended into addressing core areas of deficit in individuals with autism.

A number of researchers have demonstrated that PRT was indeed an efficacious approach for increasing many different skills. Most importantly,

documented changes in affect, play skills, and socialization have occurred with this intervention.

Several recent reviews and reports have also identified PRT as an evidence-based practice. In the report of the National Research Council (2001) that reviewed the most current research to date for educating young children with autism, PRT was included among the list of comprehensive programs. Simpson (2005) and Simpson et al. (2005) reviewed over 30 treatments for ASDs and categorized them into one of four categories: scientifically-based practice, promising practice, limited supporting information for practice, and not recommended. PRT was one of four interventions identified as a scientifically-based practice. In the same vein, the National Autism Center National Standards Report (2009) endeavored to give "comprehensive information about the level of scientific evidence that exists in support of the many educational and behavioral treatments currently available." PRT was identified as one of eleven established treatments. This is important to note, because many interventions purporting to address social skills do not have data that support their effectiveness. PRT is distinct because it does.

The efficacy and effectiveness of PRT are clear, but it is not clear what the relationship is between PRT and the development of social competence. In general, measures of social competence have not been employed in studies where PRT was implemented. In some ways, the field is still defining such concepts and methods for determining them.

Early Emergence of PRT from Traditional Discrete Trial Training

What Does It Look Like? All of the naturalistic strategies emerged from discrete trial training (DTT). PRT in particular emerged from other naturalistic approaches, most notably Natural Language Paradigm. In some ways, it is best understood in contrast to these traditional DTT teaching contexts. The NLP primarily focused on teaching language in a more naturalistic context that more closely resembled the way typically developing children learn to produce speech. The first goal of the NLP, then, was to bring responding under the control of natural environmental stimuli, allowing children to better interact with and learn from real world environments. That is, the goal was for children to respond to and interact with things in their environments—for example, for a hungry child to retrieve items from the refrigerator.

This was in part a reaction against the formality of DTT, in which skills were often taught in isolation and in artificial contexts. For example, a child may have been taught to go to the door, even when it was not time to exit. Typically developing children become socially competent adults through

the shaping of social behaviors learned from an early age in the real world, much of which is language-based (Hart & Risley, 1989, 1992, 1995). The idea in NLP and in PRT is to capitalize on natural situations to teach skills in communication and socialization. In this way, the natural process that unfolds in typically developing children is mimicked. While children with ASDs can certainly be taught to use language in highly contrived environments, it is possible that the more social aspects of language and social communication may be missed

How Does It Generalize? A second goal of the NLP was to improve the generalization and maintenance of skills taught during intervention. Skills that do not transfer to natural contexts, to those not involved in instruction, or to novel environments are simply not useful. While data indicated that many children with ASDs made great progress within traditional DTT programs, some did not maintain skills over time, while others failed to generalize their skills across settings or people. Thus, the NLP shifted from arbitrary reinforcers used in traditional DTT programs to natural reinforcers that were directly and functionally related to the child's communication, producing better generalization and maintenance of treatment gains. For example, a child may be reinforced for requesting a car while playing with a car as opposed to saying "car" to get a token. These improvements, particularly those in generalizing newly learned skills, relate directly to social competence. Individuals who are better able to maintain, as well as generalize social communication skills across environments and with different people, tend to be more socially competent than those whose skills are limited to specific settings or with only particular individuals.

The idea is that communication should be meaningful, should make a difference in the life of the individual, and should give him skills to navigate his world in ways that matter to him. Having language becomes meaningful when children are able to use it to communicate within a social context (e.g., between parent and child, with teachers and peers). By moving away from arbitrary reinforcers that were not functional to the interaction in favor of natural reinforcers that were directly related to the child's interest and communicative response, the NLP emphasized the social function of language.

Core Intervention Components for Implementing PRT

Implementing PRT requires early intervention, intervention in natural environments, and parent training. In the PRT model, intervention begins as early as possible and during the earliest stages of brain development to maximize treatment outcomes.

While there are many skills for children with ASDs to be taught within an intervention program, subtle social behaviors are often the most difficult to teach. When children are engaged in meaningful intervention within social contexts from an early age, appropriate social behaviors may be learned more incidentally, and, as children get older, may not need to be taught directly. Developing social competence may be mostly about practice. The number of opportunities to teach, learn, shape, and reinforce appropriate social behavior increases dramatically if we use every natural moment to teach.

Second, as a naturalistic behavioral intervention, PRT is implemented primarily in home, school, and community settings, addressing generalization and maintenance concerns directly. Indeed, problems with generalization may have more to do with the teaching and the environments in which intervention is delivered than with the child.

Thus, PRT does not remove children with ASDs from the typical settings in which we ultimately want the behaviors we teach to occur. Rather, intervention is delivered and embedded within real world environments. If we want children with ASDs to grow up to become socially competent individuals, then we need to regularly expose them to natural environmental stimulation and implement intervention in social contexts so that social behaviors can be more easily learned, maintained, and generalized. Why was this less likely to occur in training? It does create challenges in training, data collection, and the design of instructional sessions. However, the potential benefits are enormous.

Finally, parent training is central to the PRT model, as parents are often considered primary intervention agents. Research has shown that parents can learn to effectively implement intervention for children with autism, and it makes sense to teach parents the skill set that works. As discussed, intervention typically begins early and in the child's natural environment (i.e., home) where children spend the majority of their time interacting with their parents. Because reciprocal, natural interactions between a caregiver and child greatly influence child development (Wetherby & Prizant, 2000), it is critical that parents not only are involved in the treatment of their children, but also learn to implement intervention procedures accurately and consistently.

Parent training also likely improves both the quantity and intensity of treatment, as intervention can be delivered throughout the child's waking hours and is not solely dependent on a highly quality therapist. Children with ASDs should be engaged in meaningful learning opportunities for as much of the day as possible. Logically, training parents to implement PRT increases the number of hours of intervention and the opportunities for learning. Additionally, embedding intervention during typical, everyday parent-child interactions across all environments (e.g., home, grocery store, park, restaurants) may further drive the development of social competence.

Implementing PRT within Social Skills Interventions

PRT has also been used as the primary intervention for directly teaching social skills to children with ASD. While PRT is generally implemented within the context of play-based interactions, particularly for young children, Stahmer (1999) and colleagues have used PRT to target appropriate play skills in children with ASDs, including:

- object play (e.g., with toys),
- symbolic play (e.g., dress-up activities), and
- sociodramatic play (acting out roles).

Play skills are critical for early language and social development and likely relate to the development of prosocial behaviors and social competence.

One interesting extension of PRT that has promise is the use of peer-implemented interventions in which typically developing peers learn to use PRT with children with ASDs. Pierce and Schreibman (1995) taught typical peers to implement PRT strategies in the classroom and found that children with autism interacted for longer periods, initiated more, and paid better attention in social contexts.

Baker, Koegel, and Koegel (1998) utilized the obsessive interests of children with autism as the motivational variable for improving social interaction with peers on the playground. For instance, typical peers were taught to play a tag game on a giant outline of the United States for a child who had an intense interest in maps. Dramatic increases in social interactions were found and maintained during follow up. Perhaps more importantly, the children with autism in the study generalized social interactions during other play activities with peers. In a related study implemented with siblings, similar results were demonstrated when incorporating the thematic ritualistic activities of children with autism into typical games (Baker, 2000).

These kinds of novel interventions make a tremendous difference in the extent to which a child with ASD can be integrated into a classroom environment. Instead of trying to motivate the child with ASD to engage in non-preferred tasks, the typically developing peers were simply brought into a context that the child with ASD would enjoy. This type of thinking outside of traditional contexts characterizes the more naturalistic instructional approaches.

More recent studies have used cooperative arrangements to provide training in PRT for both typical peers and children with ASDs. Cooperative arrangements focus on mutually reinforcing activities to ensure that peers also receive reinforcement and maintain interactions with children with ASDs. Since social interaction occurs between people, it is really important to also look at how happy the siblings or classmates are when they are interact-

ing with the child with ASD. If we seek more natural initiations and interactions, we must teach in situations that are pleasant and interesting for the play partners as well.

As a pivotal area, self-management has also demonstrated improvements in social behaviors, including generalized changes in untargeted social behaviors. Boettcher (2004) used self-management to teach socially appropriate conversation skills—skills that are often overlooked, yet essential for developing social competence. While children with ASDs have been taught to respond with on-topic comments, many do not initiate questions during social conversation. For instance, during baseline, when Boettcher presented one participant with a leading statement such as, "I saw a great movie last night," the child frequently directed the conversation back to his perseverative interest and responded, "Do you like elevators?" instead of asking about the movie. The children were subsequently taught to ask appropriate, on-topic questions that were related to the other person's interests (e.g., "What movie did you see?" or "Who did you go to the movies with?"), and they were taught to monitor the extent to which they did this. Data indicated that self-management was an efficacious intervention for teaching these social conversation skills and that the skills were maintained and generalized to new settings with new conversation partners (e.g., untrained adults or typically developing peers).

Collateral Improvements in Untargeted Social Behaviors

While increases in targeted social communication and social skills are critical for children with ASDs, collateral improvements in untargeted social behaviors may be the most important in the development of social competence. When focusing on pivotal areas of responding, these behaviors are not taught directly. The assumption, rather, is that they are generalized behaviors that emerge naturally as a result of the intervention. Consistent with this, many of the studies demonstrating efficacy of PRT have documented improvements in both targeted and untargeted behaviors (Koegel, Openden, Fredeen, & Koegel, 2006).

Perhaps of greatest social significance, there have been clear indications that affect (of both children and caregivers) improves. In other words, children treated with PRT generally appear happier on observation. In addition, parents taught to implement PRT generally appear to be less stressed, more natural, and more confident in their interactions with their children.

In fact, collateral improvements in positive affect—a measure of happiness, interest, and enthusiasm—that occur while PRT is implemented have been demonstrated across a number of studies. Schreibman, Kaneko, & Koe-

gel (1991) compared the affect of parents who were trained in PRT versus those who were trained in a different behavioral intervention. Results indicated that parents in the PRT condition exhibited significantly more positive affect, suggesting that natural parent-child interactions may be easier and more effective. Significant differences were also found in a similar study that compared affect during family interactions at dinnertime (Koegel, Bimbela, & Schreibman, 1996). Why does this matter? If parents appear happier while interacting with their child, they may engage their child more often, creating opportunities for learning even during activities that would not typically be thought of as therapy time (e.g., dinnertime).

Improvements in child affect have been demonstrated with young children. Brookman-Frazee (2004) taught parents to implement PRT with their children. Decreased parent stress and increased parent confidence were observed, as well as improvements in child affect. Koegel, Vernon, and Koegel (2009) found that embedded social reinforcers such as praise produced collateral improvements in child-initiated social engagement across different kinds of interactions. Improvements in child affect likely indicate that the children in these studies were also enjoying these interactions. It may be that children who are enjoying interaction would also be less avoidant of, and more likely to engage in, social interactions. It seems logical that this pattern would be associated with increased social competence.

Most importantly, collateral improvements in positive affect in children with ASDs suggest that they may indeed be enjoying their interactions with others. Koegel and Frea (1993) used the pivotal area of self-management for targeting social communication skills in two adolescent boys with autism and found generalized improvements in facial expression and affect. This is an excellent finding; it is imperative that our interventions result in real-life improvements that make a difference in the lives of the individuals. Koegel, Werner, Vismara, and Koegel (2005) used PRT during play dates to improve reciprocal social interactions and also found improvements in positive affect for the children with autism and their typically developing peers. Again, if we look at global social outcomes, this is a significant finding. The consumers of services include the parents, classmates, and friends of individuals with autism.

While there are extensive data that support the efficacy of the model, PRT does not appear to be implemented as widely as other approaches. With the continuing rise in the incidence of autism spectrum disorders in the United States to 1:10 (Centers for Disease, Control, and Prevention, 2009), the need to translate efficacious interventions into effective and accessible practice is urgent. In addition to the publication of training manuals (Koegel, Koegel, Bruinsma, Brookman, & Fredeen, 2003; Koegel, Schreibman, Good, Cerniglia, Murphy, & Koegel, 1989) and a book that covers communication,

social, and academic development (Koegel & Koegel, 2006), translational research studies have demonstrated the effective dissemination of PRT. There is a gap between what is known to be effective and what is actually implemented. More children need access to interventions that have been demonstrated to be effective.

In addition, the number of children reached could be substantially increased if highly trained professionals spent less time working directly with children and more time training parents to implement intervention. This is one of the most important potential advantages to PRT. Symon (2005) assessed the spread of effect of parent training by asking parents to train other significant caregivers in PRT (e.g., spouse, grandparent) once they returned home. Parents were able to successfully train others, and the children made gains in communication and behavior with other caregivers. Thus, parents can not only learn to implement PRT correctly, but also train others who regularly interact with their child, further expanding the number of individuals who receive effective services and increasing the number of hours in which effective intervention is available for any individual child.

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