Positive reinforcements in family-centered early intervention: Video analysis of provider-caregiver interactions

Casey J. Krauss
Washington University School of Medicine in St. Louis

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Abstract: This paper discusses a tool that was created to quantify and define positive reinforcements that may be found in early intervention sessions. The study was to confirm, with the videotaped family-centered early intervention sessions, that the positive reinforcements defined in the rubric were observed during the sessions.
Acknowledgements

I would like to thank Dr. Heather Hayes for her unwavering support and dedication throughout the development of this paper. Without her guidance this project would not have been possible. I would also like to thank Ms. Jenna Voss for her inspiration and involvement of this study. Additionally, I would like to thank my family and friends for all of their encouragement and support over my educational career.
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Introduction

Under the Individuals with Disabilities Education Act (IDEA), children ages birth to three, with diagnosed disabilities, developmental delays, or who are at risk of significant delays are eligible for early intervention services. Dunst (1985) defined early intervention as the provision of support to families of infants and young children from members of informal and formal social support network members that impact both directly and indirectly upon parent, family, and child functioning. Early intervention support is provided to the family when the infant’s development is impacted.

Traditional service models generally are child-focused, oriented to the child’s developmental or physical needs, and include the following components: a.) areas of concern, generally expressed as developmental skill outcomes or goals; b.) planned methods, strategies, or approaches to be used to address the areas of concern; and c.) progress monitoring or measurement. In traditional services, the interventionist plans activities that provide a context in which the child can learn or practice targeted skills and works directly with the child to provide learning opportunities (Campbell & Sawyer, 2007).

Early interventionists have been moving toward a model with more collaboration and participation with the parent than the traditional service models provided. The participation-based early intervention model has a primary purpose of intervention in a natural setting (home and community) to promote children’s participatory learning opportunities and to teach caregivers to use effective strategies in their interactions with their children (Campbell, 2004). While the primary focus of early intervention continues to be promoting the infant’s growth, no matter which model is being put to practice, the primary mechanism for effecting change in the participation-based early intervention model is through the caregivers’ interactions with their
infant. By using participation-based early intervention during family-centered sessions, the assumption is that the services providers teach to the caregivers will be incorporated into the family’s daily routines and activities (Campbell & Sawyer, 2007).

**Family-Centered Intervention**

Family-centered intervention programs have been examined to determine the success of the collaboration between the parents and the providers. Turnbull and colleagues (2007) presented a framework of family-centered programs in which family members: a.) shared responsibility and worked collaboratively with professionals; b.) joined professionals in developing appropriate outcomes; c.) shared information routinely and collaboratively with professionals; and d.) accessed relevant information so they can make informed choices and decisions for their children. Mathoney and colleagues (1999) defined family-centered care as a friendly, respectful partnership with families that include the provision of emotional and educational supports and opportunities for parents to participate in service delivery and to make decisions as to how available services best meet their needs. Central to all definitions of family-centered intervention are the goals to involve and respect parents as more equal and active partners, to recognize the central and long-term importance that they play, and provide opportunities for their use of practices to enhance their children’s development. Hanft and Pilkington (2000) encouraged early childhood interventionists to redirect their role “to move to a different position alongside a parent as a coach rather than lead player.” (p.2)

Recent research suggests that family-centered intervention is an effective practice. Ozonoff and Cathcart (1998) investigated the effects of home program services on children ages 2 through 6 who were diagnosed with autism. Twenty-two children were placed equally into a treatment group and a control group. The treatment group received home program services in
addition to their regular day treatment program and the control group did not receive the additional home program services. Throughout the home program lasting 10 weeks, the parents were given increasing responsibility for implementing the strategies that were demonstrated by the therapist. The therapists began to take a secondary role in the selection, design, and fine-tuning of tasks, while parents took a more central role. After four months, the children in the treatment group demonstrated significant improvement, relative to the control group on the total score of the Psychoeducational Profile-Revised (Schopler, Reichler, Bashford, Lansing, & Marcus, 1990), a developmental test designed for assessing both the typical strengths and the characteristic weaknesses of children with autism. The results of the study suggest that auxiliary home interventions with active parent participants increase developmental functioning in young autistic children.

Roberts and Kaiser (2012) investigated the extent to which a parent-implemented language intervention improves language skills in toddlers at risk for persistent language impairment. The control group did not receive parent training sessions, while the treatment groups’ parents received individual training sessions in which implementation occurred at three levels: 1.) the delivery of parent training sessions by the therapist; 2.) therapist’s use of intervention strategies with the child and; 3.) the parent’s use of the intervention strategies. The Preschool Language Scale-4 (Zimmerman, Steiner, & Pond, 2002) total standard scores and the PLS-4 Expressive Communication Scores were used to measure the difference between the treatment and control group. The children in the treatment group had significantly higher overall language skills and higher global expressive language skills than children in the control group.

When caregivers are able to teach children effectively across everyday activities and routines, the number of opportunities for children to practice and learn a skill is greater than
when learning opportunities occur primarily through professional provided intervention sessions (Jung, 2003). Thus, driven by research findings, the field of early intervention has shifted toward family-centered intervention. The most important component of family-centered intervention is parent coaching, which will be discussed in the next section.

**Parent Coaching**

Coaching is a reciprocal process between a coach and learner, comprised of a series of conversations focused on mutually agreed upon outcomes (Rush, Sheldon, & Hanft, 2003). Modeling, reflective listening, questioning, performance feedback, prompting, and problem solving are some specific strategies described in a relationship between a provider and caregiver while focusing on coaching during early intervention sessions. Reflection and evaluation are important steps that encourage the caregiver to think critically about his or her use of strategies. They also provide the caregiver with an opportunity to engage in problem solving with the clinician (Hanft, Rush, & Sheldon 2004).

For the caregiver, coaching develops the competence and confidence to implement strategies to increase the child’s learning opportunities and participation in daily life. Coaching also teaches the caregiver to know when the strategies are successful and how to make necessary to changes to a technique if necessary, as well as, generalizing solutions to new and different circumstances, people, and settings (Dunst & Bruder, 1999). Early interventionists applying coaching principles within natural environments are expected to facilitate caregiver engagement, enhance caregiver confidence and competence, and teach caregivers to support their child’s learning within everyday activities or routines (Dunst, Bruder, Trivette, Hamby, Raab, & McLean, 2001).
Studies have investigated the types of coaching strategies used with parents, and their effectiveness in changing child outcomes. Ingersoll and Dvortcsak (2006) conducted a study in which eight families of children with autism were given individualized parent training sessions that focused on teaching families naturalistic intervention techniques to increase their child’s social-communication skills during daily activities and routines. The parent training sessions included the following coaching strategies: building rapport, reviewing information, modeling techniques, providing feedback, and building independence. To determine whether parent knowledge regarding intervention techniques increased, a pre-post quiz was administered. Prior to the training, the parents received an average score of 29% correct and after training, the parents received an average score of 75% correct. At the end of the training, parents were also given a survey regarding the program. Overall, parent ratings were positive. Parents felt strongly that their child improved his or her social engagement and communication skills as a result of the program. Parents felt most positive about the coaching that was done during the program and that their child enjoyed the program.

The coaching process builds the psychological skills needed to support lasting change, including mindfulness, self-awareness, self-motivation, resilience, optimism, and self-efficacy. Frates and colleagues (2011) described coaching from a healthcare point of view in a five-step cycle.

- Be empathetic: The healthcare provider must spend some time understanding the patient’s situation and feeling and expressing compassion toward the patient.
- Align motivation: The healthcare provider needs to ask the patient what motivates him or her.
• Build confidence: Focusing on the patient’s strong points and past triumphs in attaining goals is a way to empower patients.

• Set goals: Goals that are engaging, interesting, and challenging while reaching those goals builds self-efficacy and behavior change.

• Set accountability plan: If healthcare provider sets goals with a patient, he needs to check in with the patient through a phone call or a follow up visit.

For the coaching process to create change and build confidence between any dyad, a trusting relationship must be developed.

**Relationship building between the caregiver and provider**

In order for coaching to be a successful technique with early intervention, a relationship must be established between the provider and the caregiver. Early interventionists need to take the time to get to know the family, their priorities, interests, and natural settings. The family must understand how the interventionist can support their child’s development and participation in family and community life. Coaching provides an interactive foundation for establishing and nurturing the family-provider relationship, that shifting the focus from expert-driven to learner-focused service (Rush et al., 2003). A coaching relationship is built upon trust, respect and open communication (Fenichel & Eggbeer, 1992).

Kinlaw (1999) identified four conditions that lead to commitment between coaches and learners: 1.) developing clear understanding of core values, such as early intervention philosophy and rationale for the coaching model, as well as performance goals; 2.) ability to influence the coaching process; 3.) gaining the knowledge, skills, and confidence to do what learners want and need to do; and 4.) appreciation for contributions from all partners in the relationship.
Positive relationships enable both the coach and the learner to focus on how to master new skills without wasting their energy addressing communication issues or aligning expectations. Coaching encourages mutually respectful relationships based on trust and supports the expectation that proficiency develops through continued learning for both the coach and the learner. In family-centered early intervention, a positive relationship developed through coaching between the caregiver and provider, can allow for the shared focus of the development of the child.

**Positive Reinforcement**

One aspect of a successful relationship between a provider and the caregiver is positive reinforcement. Positive reinforcement is defined as a method of identifying which behaviors are acceptable and appropriate (Sigler & Aamidor, 2005); specifically, the use of positive reinforcement is the act of identifying and encouraging a behavior, with the hopes that the desired behavior will increase (Burden, 2003). Positive reinforcement is a vital aspect of any coach/learner relationship, in order for the learner to not only be successful but to also feel successful. Behaviors followed by a pleasant stimulus are likely to be repeated and an improved performance will be seen.

For example, Harris and colleagues (1964) studied which positive reinforcement procedures were used to encourage a toddler to establish a consistent walking behavior instead of regressing back to crawling. The positive reinforcement, in the form of verbal praise, was given by a teacher in a school environment immediately following the toddler choosing to walk instead of crawl. Within one week from the start of positively reinforcing walking, the toddler was walking a large proportion of the time. The toddler increased her walking time and she also began to initiate play and social interaction with her classmates.
Not only is positive reinforcement utilized in school settings but also in the workplace and on the athletic field. Positive reinforcement is used in the workplace to improve absenteeism (Latham & Kinne, 1974), tardiness (Hermann, DeMontes, Dominguez, Montes, & Hopkins, 1973), and productivity (Latham & Baldes, 1975) among employees. Smith and Smoll (1990) recorded that children on a baseball team who experienced low self-esteem responded most positively to coaches who were reinforcing and encouraging. The children were more attracted to the coaches who scored high on both levels of instructiveness and supportiveness than any other aspect of the team.

Research has examined the positive impact of positive reinforcements in school settings, areas of business, and athletics. Because positive reinforcement is likely to increase behaviors, it seems to be a necessary component of any coaching situation. Could the presence of positive reinforcements given by the provider to the caregiver, in family-centered early intervention, play a role in the eventual success of a toddler?

The current study investigated positive reinforcement given by the provider to the caregiver during family-centered early intervention sessions. Based on the Coaching Behavior Assessment System (Smith, Smoll, & Hunt, 1977) and performance feedback strategies defined by Barton and colleagues (2011) this study’s first goal was to create a tool to quantify and define positive reinforcements that may be found in early intervention sessions. The second goal of the study was to confirm, with videotaped family-centered early intervention sessions, that the positive reinforcements defined in the rubric were, in fact, observed during the sessions.

Participants

Three early intervention providers, who work in the same private auditory-oral school program and have earned a Master’s degree in Deaf Education, agreed to participate in the study.
One early interventionist submitted four of the six video sessions, while the other two early interventionists submitted one video each. Each videotaped session ranged from 29 minutes to 55 minutes in length. Five of the six sessions were filmed in the homes of the caregivers (natural environments) while one was filmed in a classroom at the private school where the provider works.

**Methods**

The six videotaped early intervention sessions were collected by Jenna Voss as part of another study; permission was granted to access the videos for the current study (Voss & Clark (in preparation)). Following the coding procedures of the original study, the videotaped sessions were coded in three-minute intervals. The first nine minutes of each video were not coded due to the protocol of the original study’s IRB guidelines.

During each coded interval, the Positive Reinforcement Rubric was used as a tool to record which positive reinforcement was used by the early interventionist toward the caregiver. The Positive Reinforcement Rubric was created based on the *Coaching Behavior Assessment System* (Smith, Smoll, & Hunt, 1977) and the performance feedback strategies defined by Barton and colleagues. The six positive reinforcements that were defined in the rubric were:

1. *Nonverbal Reinforcement*: any nonverbal reinforcement
2. *General Encouragement*: encouragement that is future-oriented
3. *Supportive Specific Skill/Strategy*: praise about a correct skill/strategy
4. *Mistake-Contingent Encouragement*: encouragement/praise after a mistake is made
5. *Mistake-Contingent Technical Instruction*: encouragement while showing/telling the caregiver how to execute the skill correctly
6. *Other Verbal Reinforcement*: any other verbal reinforcement
Each positive reinforcement was given a score of 1 when presented during an interval; if a positive reinforcement was not found in an interval a score of 0 was given.

**Results**

Table 1 lists the six positive reinforcements that were used for coding the videotaped early intervention sessions. Each positive reinforcement is described, given an example, and if it was present or not present in the 29-55 minute sessions.

Of the positive reinforcements used by the early interventionists, certain strategies were used more than others. Table 2 describes the frequency of each strategy used. Supportive specific skill/strategy was used most often by the early interventionists, while nonverbal reinforcements were used the least.

**Discussion**

This study aimed to create a tool to define and quantify positive reinforcements that may be seen during family-centered early intervention given by the provider to the caregiver. The second goal of the study was to confirm, through videotaped family-centered early intervention sessions, that the positive reinforcements defined in the rubric were seen during the sessions.

The first goal of defining positive reinforcements that may be used in during early intervention sessions was met through the combination of the *Coaching Behavior Assessment System* (Smith, Smoll, & Hunt, 1977) and performance feedback strategies defined by Barton and colleagues (2011). Specific positive reinforcements were created based on previously defined coaching assessment strategies. Six positive reinforcement strategies were chosen from the resources based on what would be applicable for a relationship between a provider and a caregiver during a family-centered early intervention session.
Of the four positive reinforcements that were used during the early intervention sessions, the most prevalent was the supportive specific skill/strategy. This strategy was used most frequently, I believe, because it is the most tangible reinforcement to give. The parent does a language correction and immediately, the early interventionist can reinforce the correction.

The positive reinforcement that was used the least was the nonverbal reinforcement. I believe this strategy was used the least because nonverbal reinforcement; such as, head nod or reassuring smile are likely personality traits of the provider. Providers either exhibit these behaviors as routine features of their own communication styles or not.

The second goal of the study was to confirm that the positive reinforcements defined in the rubric were seen during the sessions. Two positive reinforcements were defined in the rubric but were not seen during the six family-centered early intervention sessions: mistake-contingent encouragement and mistake-contingent technical instruction. I believe the two unseen positive reinforcements are still valid to remain in the rubric because they were previously defined in the Coaching Behavior Assessment System and seen used in previous studies. Because family-centered early intervention is moving toward a coaching model, strategies and techniques used in other coaching situations such as athletics or healthcare, provide relatable techniques that early interventionists could use.

While coding the family-centered early intervention sessions, a limitation arose in the sessions that affected the overall total of positive reinforcements. The context of four of the six sessions did not focus directly on the early interventionist coaching the caregiver on specific techniques. The sessions contained other subjects that the early interventionists focused on; such as, planning for an Individualized Education Program meeting and preparing for an audiology
appointment. If the sessions were all specifically focused on coaching the caregivers techniques and strategies, the positive reinforcements could have been more prevalent.

Another limitation was found when the videos were being coded. Each video was a different length, anywhere between 29 and 55 minutes. With the different lengths, some videos allotted for more positive reinforcements than others. If all the videos were the same length, a better understanding of frequency of positive reinforcements used in family-centered early intervention sessions could have been found.

Because research has shown the positive impact of positive reinforcements in school settings, areas of business, and athletics, could positive reinforcements given by the provider to the caregiver in family-centered early intervention create a positive impact on the strategies used by the caregiver to the toddler? The presence of positive reinforcements, in any coaching scenario, are likely to increase behaviors, if early interventionists increase their positive reinforcements given to the caregivers, would the caregivers increase their use of strategies with their toddlers?

The current study could provide a rubric for early interventionists to self-assess their use of positive reinforcements during family-centered early intervention sessions. By assessing their use of positive reinforcements, a provider could increase the number or type of positive reinforcement that they give during a family-centered early intervention setting. Further research would then need to be completed on if the presence or increase in positive reinforcements given by the provider increases the caregiver’s use of strategies toward their toddler.

Since the coaching model of family-centered intervention is a prevalent method of early intervention, the relationship between the caregiver and the provider needs to be examined in order to indirectly increase the success of their toddler.
References


Table 1

*Description and Presence of Positive Reinforcements*

<table>
<thead>
<tr>
<th>Positive Reinforcement</th>
<th>Description &amp; Example</th>
<th>Present or Not Present</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonverbal Reinforcement</td>
<td>Any nonverbal assurance: head nod, smile, pat on the back</td>
<td>Present</td>
</tr>
<tr>
<td>General Encouragement</td>
<td>Encouragement that is future-oriented: “If you continue to practice, the strategy will be effective.”</td>
<td>Present</td>
</tr>
<tr>
<td>Supportive Specific Skill/Strategy</td>
<td>Praise about a correct skill/strategy: “Great job expanding his language by asking him to tell you more.”</td>
<td>Present</td>
</tr>
<tr>
<td>Mistake-Contingent Encouragement</td>
<td>Encouragement/praise after a mistake is made: “It’s okay that you forgot to correct his language, because I know you can do it and will correct it next time.”</td>
<td>Not Present</td>
</tr>
<tr>
<td>Mistake-Contingent Technical Instruction</td>
<td>Encouragement while showing/telling the caregiver how to execute the skill correctly: “Good try. Next time ask him what he wants to eat instead of asking if he wants goldfish because that’s a yes/no answer.”</td>
<td>Not Present</td>
</tr>
<tr>
<td>Other Verbal Reinforcement</td>
<td>Any other verbal reinforcement: “Wow, I can tell you have been working hard with him.”</td>
<td>Present</td>
</tr>
</tbody>
</table>
Table 2

*Proportion of Occurrences for Present Positive Reinforcements*

<table>
<thead>
<tr>
<th>Positive Reinforcement</th>
<th>Proportion of Occurrences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonverbal Reinforcement</td>
<td>11%</td>
</tr>
<tr>
<td>General Encouragement</td>
<td>22%</td>
</tr>
<tr>
<td>Supportive Specific Skill/Strategy</td>
<td>39%</td>
</tr>
<tr>
<td>Other Verbal Reinforcement</td>
<td>28%</td>
</tr>
</tbody>
</table>