

# Chapter 10

## Parent Involvement in Communication Interventions

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**Abstract** Parents play an important role in facilitating the communicative development of their child. When the child has autism spectrum disorder (ASD), the parental role may change significantly as they may provide detailed assessment information, assist in educational planning and goal setting and for some, become actively involved in implementing interventions. Parent involvement can benefit not only the child but also the parent by reducing stress and increasing parenting self-efficacy. This chapter will investigate parent involvement in communication interventions, considering factors related to family-centered practice and family routines. Challenges for parents and professionals are considered across the lifespan of the individual with ASD.

### 10.1 Child, Parent, and Family

Family involvement in the development and implementation of interventions for individuals with disabilities is encouraged by educators and professionals, supported by researchers, and required by the USA law (Bruder, 2010; IDEA, 2004). Parents support their child's development in various domains including communication, language, and social skills (Hart & Risley, 1995) they could be considered as their child's first teachers (Kaiser & Hancock, 2003). A child's overall development is supported and influenced by the specific social and cultural contexts in which he or she is nurtured.

Bronfenbrenner (1992) argued that in order to understand a child's development, we must consider the entire ecological system in which the child grows. The ecological system is organized in five subsystems that support the child's development. The subsystems range from microsystems that include the relationship between the child and his or her immediate environment (e.g., family), to the

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macrosystem which includes the overarching cultural context (e.g., belief system, body of knowledge, economy). The family of the child with a disability is at the center of the ecological microsystem. Therefore, to understand the child and to develop an appropriate and effective intervention, the family ought to be involved.

When designing interventions for individuals with disabilities, in addition to exploring the context in which a child develops, it is necessary to examine the family as a whole. Turnbull, Turnbull, Erwin, Soodak, and Shogren (2011) recommended this approach, arguing that understanding family patterns of interaction is necessary to understand a child with a disability, and vice versa. According to Turnbull et al., within a traditional nuclear family there are four major subsystems: (a) the marital subsystem that includes interactions between spouses or significant others who function as marital partners, (b) the parental subsystem that includes interactions between parents and their children, (c) the sibling subsystem that includes interactions among brothers and sisters, and (d) the extended family subsystem that includes interactions among members of the nuclear family and other relatives. Because there are bidirectional relationships among all subsystems and the child's development is related to and influenced by all family members, individuals from each subsystem within the family system should be considered when developing an intervention.

Meadan, Halle, and Ebata (2010) used Turnbull et al.'s (2011) family subsystems framework to review the literature related to stress of and support for families with individuals with ASD. The findings of 57 journal articles were organized in sections with information related to stress and support, including: stress in the marital subsystem; stress in the parental subsystem; stress in the sibling subsystem; coping strategies employed by families; and informal and formal sources of support used by families. Many researchers have reported that parents, especially mothers, of individuals with ASD experience high levels of stress and depression (Falk, Norris, & Quinn, 2014; Keen, Couzens, Muspratt, & Rodger, 2010). The review of literature revealed that parents and families who use a variety of active coping strategies not only experience decreased levels of stress, but also enjoy the benefit of increased family cohesiveness. Meadan et al. highlighted three topics that emerged as critical support strategies to foster the well-being of families with individuals with ASD: (a) quality care and respite services benefitting all family members, (b) informal and formal supports for parents and siblings, and (c) educational programs that offer parents and families access to trained personnel and other services and benefits.

Meadan et al. (2010) reported that most of the research on families of individuals with ASD focuses on the influence of having an individual with ASD on family members' stress and well-being, but suggested that family members' behavior could also have an impact on the individual with ASD and other subsystems within the family. The notion that effects could be reciprocal through bidirectional or transactional (i.e., mutual influences over time) processes was hypothesized, but the authors found only limited evidence for this notion in the literature reviewed. In this chapter we will focus on the parental subsystem, but it is important to consider involvement of other family members, particularly siblings.

Researchers have reported that when parents are involved in their children's interventions, there are better outcomes and when practices are family-centered the services benefit the child, the parents, and the family as a whole (Dunst & Trivette, 1996). A family-centered approach draws from a number of theories, including Bronfenbrenner's (1992) ecological theory described above, together with helping theory (Trivette, Dunst, & Hamby, 1996), empowerment theory (Rappaport, 1981) and social support theory (Cohen & Wills, 1985). Central to a family-centered approach is supporting families in their natural care-giving and decision-making roles by building on their strengths as individuals and as a family unit (Brewer, McPherson, Magrab, & Hutchins, 1989).

Family-centered practice involves a set of values, skills, behaviors, and knowledge that recognizes the importance of families in the lives of children. Family-centered planning places the family unit and the strengths, needs, and hopes of individuals with disabilities and their families at the center of service planning, development, implementation, and evaluation (McWilliam, Snyder, Harbin, Porter, & Munn, 2000). According to Dunst and Trivette (1996), family-centered practices have both relational and participatory components. The relational component includes practices associated with good professional skills (e.g., active listening, compassion, respect) and professional beliefs about parenting capabilities and competencies. The participatory component includes practices that (a) are individualized, flexible, and responsive to family concerns and priorities; and (b) provide families with opportunities to be actively involved in decisions and choices and family-professional collaboration. Both relational and participatory practices are highly correlated, directly and indirectly influencing parent self-efficacy, parent well-being, and child development (Dunst, Trivette, & Hamby, 2010).

In the early childhood years, the benefits of family-centered services on child and family outcomes have been well documented (Dempsey & Keen, 2008, *in press*). Similarly, Kim and Turnbull (2004) argued that person-family interdependent planning (a combination of family-centered planning and person-centered planning) for delivering transition services to young adults with disabilities and their families enhanced the quality of life for both.

## 10.2 Parent Involvement in Communication Interventions

Many individuals with ASD have deficits and delays in communication skills, and it is estimated that 40% of these individuals will never develop speech (Sigafos, Arthur-Kelly, & Butterfield, 2006). Communication competence has been linked to a child's abilities to develop relationships, manage his or her own behavior, and learn from others and the environment. Because of the predictive nature of early communicative competence and what is known about the positive effects of well-designed communication interventions, many interventions focus on increasing the capacity of children with ASD to communicate and respond to the communication

of others. An essential component of communication interventions for individuals with ASD, therefore, is parental involvement, as parents are an essential communicative partner for their child. Parent involvement can facilitate successful integration of language and communication interventions in the home with their children with ASD (Moore, Barton, & Chironis, 2014). As a communicative partner, parents' responsiveness to their child's communication is also critical to language development over time (Siller, Hutman, & Sigman, 2013). Using evidence-based parenting strategies that facilitate responsive communication can help parents to support their children's communication development (Peterson, Carta, & Greenwood, 2005; Stoner, Meadan, & Angell, 2013).

Years of research have demonstrated that the education of children with disabilities can be made more effective by strengthening the role and responsibilities of parents and ensuring that families have meaningful opportunities to participate in the education of their children (Turnbull et al., 2011). Turnbull et al. describe eight major roles that parents play over time, including (a) the source or cause of their child's disability, (b) organization members, (c) service developer, (d) recipients of professionals' decisions, (e) teachers, (f) political advocates, (g) educational decision makers, and (h) partners with professionals. In the past, service delivery practices followed a medical model in which the professionals were the experts who worked directly with the child with ASD. Parents could observe the intervention, but did not participate in it. However, recent practices emphasize active family involvement in their children's interventions.

Parents are key communication partners because they can provide various experiences and opportunities to facilitate communication development for their children (Kaiser, Hancock, & Hester, 1998). Furthermore, the home environment provides a natural context within which children can develop their communicative competence. A significant challenge for children with ASD in developing their communication skills is to be able to generalize these skills to different contexts and communication partners (Durand, Berotti, & Weiner, 1993). Home-based interventions have the advantage of providing a natural context for learning, with parents being a constant communication partner in the child's life and the home being the place where much of this communication occurs.

Parents can learn new teaching strategies and implement them with fidelity (Meadan, Angell, Stoner, & Daczewitz, 2014) and teaching parents to be responsive and supportive of their child's communication development is associated with improved outcomes for the child (Baggett et al., 2010; Dunst & Trivette, 2009; Kong & Carta, 2013). Kaiser and Roberts (2013) describe three specific roles parents can assume in supporting their child's communication development, explaining that "the roles fit along a continuum from most similar to typical parenting roles to most like a systematic interventionist teaching specific language skills" (p. 98). At the more naturalistic end of the continuum, the parent assumes the role of communication partner and as such, teaches communication and language informally using modeling and responding. Moving along the continuum, the next role is one of parent as co-interventionist. In this role, the parent works with the professional while implementing an intervention. The final role is that of primary interventionist whereby the parent implements a systematic teaching strategy.

Parents can move between roles, depending on the needs of the child and on the parents' own skills, preferences, interests, needs and resources. Kaiser and Roberts argue that regardless of the role a parent adopts, education and support from professionals is important.

Although most of the research on parents' involvement in their child's communication intervention focuses on young children with disabilities, parents and the whole family unit can be involved with the child's communication development throughout the life span. Repetti, Flook, and Sperling (2011) state that, in general, family involvement and influence on a child's development is expressed in different ways over the lifetime. There is very limited information about parents' involvement in communication intervention across the life span, but we anticipate the parents' roles and goals will change over time. When children are young, parents might focus on teaching their children, in their natural environments, to communicate their needs and wants and develop relationships with peers and other adults. When children age, parents might focus on teaching communication skills in the community or workplace that could facilitate transition to adulthood, including independent living and employment skills.

### 10.3 Parent-Mediated Communication Interventions

Parents can be involved in different ways in the development of their child's communication interventions; however, for the purpose of this chapter, we will focus on the role of parents as the primary interventionist, or parent-implemented and parent-mediated interventions. In 2014, Wong and colleagues in the Autism Evidence-based Practice Review Group at the Frank Porter Graham Child Development Institute completed a systematic review of the literature and concluded that parent-implemented interventions are an evidence-based practice for children with ASD. They defined parent-implemented interventions as structured programs in which "parents learn to deliver interventions in their home and/or community," including clinic settings, laboratories, research spaces within large universities, and preschools specifically for children with autism (p. 20).

Parent-implemented or parent-mediated interventions are developed to enhance parents' knowledge and practices to promote their children's development and learning (Barton & Fettig, 2013). The effectiveness of parent-implemented interventions for children with disabilities has been repeatedly reported by researchers (e.g., Kaiser, Hancock, & Nietfeld, 2000; Kaminski, Valle, Filene, & Boyle, 2008; Meadan et al., 2014; Mobayed, Collins, Strangis, Schuster, & Hemmeter, 2000; Roberts & Kaiser, 2011; Schultz, Schmidt, & Stichter, 2011; Smith, Buch, & Gamby, 2000). Lang, Machalicek, Rispoli, and Regester (2009) found that parent-implemented communication interventions have the potential to promote skill generalization and maintenance while also reducing parental stress and increasing quality of life.

For years, researchers have documented the effectiveness of naturalistic teaching strategies in promoting and enhancing communication skills (e.g., Halle, 1982; Hart, 1985; Hart & Risley, 1975; Kaiser & Roberts, 2011). Milieu language teaching that includes modeling, mand-model, time delay, and incidental teaching is a naturalistic teaching program with prodigious empirical support (Hart, 1985; Kaiser & Roberts, 2011). Being competent in the use of these strategies, parents can capitalize on children's interests in an object, event, or activity by using the strategies to teach communication during naturally occurring opportunities. This is particularly relevant to individuals with ASD who are prelinguistic communicators. For these individuals, communicative attempts may be infrequent and communicative behaviors can be idiosyncratic and difficult to interpret (Keen, 2014). Increasing communicative interactions by utilizing the child's interests provides opportunities to shape their communicative behaviors into more intentional and symbolic modes that are more easily understood. This approach to addressing communication holds promise not only for enhancing the communication skills of children with ASD and limited expressive language, but also for improving their quality of life and that of their family members (Meadan, Stoner, & Angell 2015).

An example of a program that aims at improving the communication skills of children with ASD and other developmental disabilities who are prelinguistic communicators is the work of Meadan and her colleagues (Meadan et al. 2015, 2014, *in press*). The Parent-Implemented Communication Strategies Program (PiCS) was designed to improve the social-communication skills of young nonverbal children with ASD and other developmental disabilities. Parents were taught and coached, in person in their homes, to implement milieu teaching strategies (i.e., modeling, mand-model, time delay and environmental arrangement). After training and in collaboration with the project coaches, parents developed social-communication goals based on their children's home routines (e.g., meal time, free play). Then, parents were coached, in person in their home, two or three times each week until they reached an established performance criterion for implementing each strategy (Stoner et al., 2013). Data were collected on both parent and child behavior during naturally occurring parent-child interactions. The data resulting from piloting the PiCS intervention program were promising: parents learned the new strategies and implemented them with high fidelity. In addition, parents reported that their children's social-pragmatic communication skills improved (Meadan et al., 2014; Stoner, Meadan, Angell, & Daczewitz, 2012).

A logical next step in this line of research was to evaluate the effectiveness of the newly developed in-person PiCS intervention program with additional families. However, it was difficult to implement this program with multiple families over a large geographic area due to its intensity and the in person contact with parents that includes frequent home visits. Issues such as travel time and staffing resources contributed to the costs of implementing this approach with families who were geographically dispersed. Therefore, a new iteration of the program, called i-PiCS (Internet-based Parent-Implemented Communication Strategies Program), was designed to explore the use of Internet technology to train and coach parents (Meadan et al. 2015, Meadan-Kaplansky, Snodgrass, Palomo, & Halle, *in press*).

Internet-based and computer-mediated interventions have become practical solutions to the barriers associated with home- or clinic-based service delivery by increasing the potential for reaching many individuals and families that need services and support (Wainer & Ingersoll, 2013, 2014). Internet-based interventions are accessible, cost efficient, flexible, and provide structure that promotes treatment integrity (Baggett et al., 2010). In the i-PiCS program, the same intervention package used in the PiCS program was implemented, but all communication between the parent and coach was conducted via online videoconferencing (e.g., Skype). The findings from the pilot i-PiCS program were promising and similar to the findings from the PiCS program that was conducted in-person in family homes.

## 10.4 Teaching and Coaching Parents

In the past, the concept of coaching was commonly associated with sporting situations; however, recently it has been applied to many different fields including education, counseling, and business. Coaching has been used in early intervention and early childhood education by occupational therapists, physical therapists, and speech-language pathologists to support families of children with disabilities and to facilitate interventions in early childhood programs (Rush & Shelden, 2005, 2011).

Coaching can be implemented to enhance existing practices, develop new skills, and promote self-reflection and learning. Rush and Shelden defined coaching as “an adult learning strategy in which the coach promotes the learner’s ability to reflect on his or her actions as a means to determine the effectiveness of an action or practice and develop a plan for refinement and use of the action in immediate and future situations” (2005, p. 8). In addition, Rush and Shelden described five key characteristics of coaching: (a) *joint planning*: agreement on the actions or opportunities to practice between coaching sessions; (b) *observation*: evaluation of actions or practices to be used to develop new strategies; (c) *action*: spontaneous or planned events in the natural environment that will allow the coachee to practice; (d) *reflection*: analysis of existing strategies to decide about needed changes; and (e) *feedback*: information provided by the coach to expand the coachee’s current level of understanding and practice.

Many researchers have investigated the effectiveness of training and coaching practices and described the essential components of effective training and coaching (e.g., Trivette, Dunst, Hamby, & O’Herin, 2009). In addition, Joyce and Showers (2002), who analyzed research on teachers’ training and coaching, reported that when coaching within natural settings was added to training, large gains were seen in knowledge, skills demonstration, and use of the new skills in the natural settings. Joyce and Showers concluded that coaching facilitates the transfer of training by providing targeted support over time. Providing coaching in addition to training can lead to an increase in both the knowledge of the targeted content and the implementation of the skills.

Although many researchers have investigated effective training and coaching practices, there is limited information about the contexts in which these activities occur and the influence of these contexts on the effectiveness of the training and coaching efforts. Meadan et al. (in press) described a framework for training and coaching programs that can guide researchers and professionals when they develop and implement training and coaching programs. The Training and Coaching Contexts Framework is guided by three questions that are linked to decisions that need to be made: (a) *who* will provide the training/coaching, (b) *where* will the training/coaching take place, and (c) *how* will the training and coaching be delivered to the recipients. These questions and associated decisions must be made about both the training and the coaching program models (see Fig. 10.1).

**Who** Researchers or service providers (e.g., teacher, speech therapist) who are trained in the program procedures can deliver training and coaching to the parents. Alternatively, training can be completed independently through the use of prepared materials, such as online training modules or instructional videos; this option, however, is only available for training, as coaching, by definition, always requires interaction and collaboration with at least one other person.

**Where** Training and coaching can be delivered in (a) authentic settings that the parents already access and in which they will apply the target skills, such as home and community settings; or (b) controlled settings that are structured for the intervention, such as clinic or therapy room.

**How** Training and coaching can be delivered to an individual or to a group of parents either in person or from a distance through the use of technologies, such as online videoconferencing or modules, telephone calls, or videos. A combination of in-person and distance training and coaching is also an option. If interventionists choose to provide training and/or coaching from a distance, they must then determine if the training and/or coaching will be delivered synchronously or asynchronously. That is, they must determine if the trainer/coach will deliver services live and in real time to the recipient (i.e., synchronously) or if the services will be

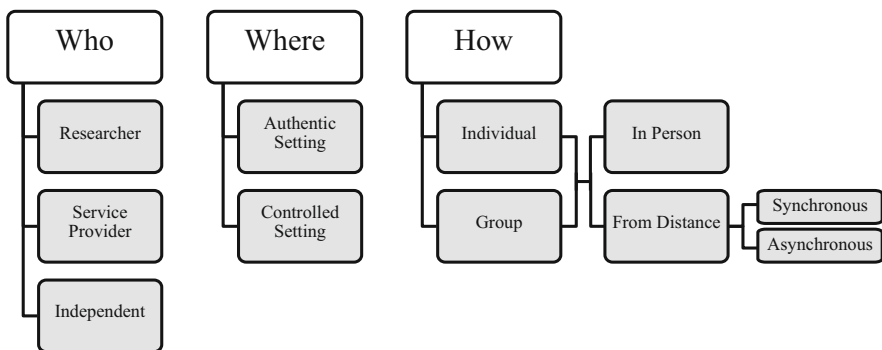


Fig. 10.1 Framework for training and coaching programs



delivered via a prerecorded or programmed venue, such as a training video or online modules (i.e., asynchronously).

Meadan et al. ([in press](#)) reviewed 40 studies that included parent-implemented communication interventions and identified the contextual features (i.e., who, where, how) under which training and coaching occurred. The reviewed studies included different combinations of the contexts described in the training and coaching models framework. Almost half of the researchers engaged service providers in delivering training (44 %) and coaching (42 %) to the parents. In addition, many of the researchers selected authentic settings to conduct training (39 %) and coaching (42 %).

Although a majority of the articles provided sufficient documentation of the contextual features, Meadan et al. ([in press](#)) reported that some researchers failed to include sufficient information to clearly identify the contexts in which they provided training and coaching. Clearly identifying the contexts in which programs are delivered is critical to the successful replication of research findings and to the establishment of an evidence base for the practice and for translating these research programs into applied practice (Fixsen, Naoom, Blase, Friedman, & Wallace, 2005). The authors recommended that researchers include more specific and detailed information about *who* conducted the training and coaching, *where* the program was conducted, and *how* it was implemented, and refer to the Training and Coaching Contexts Framework as a guide.

## 10.5 Challenges and Implications

We have argued in this chapter that when parents are involved in communication interventions for their children with ASD who are prelinguistic communicators, outcomes for both the child and family can be enhanced. We examined more closely the use of parent-mediated interventions where parents actively implement an intervention directly with their child. There are, however, many challenges for families and professionals when attempting to actively involve parents in their child's communication intervention. These challenges include, but are not limited to, (a) the changing needs of individuals with ASD over time and across different contexts; (b) family characteristics, resources and circumstances and how these may influence the effectiveness of interventions; (c) issues related to offering parent education across contexts, settings, and throughout the lifespan of individuals with ASD; and (d) issues related to the feasibility and practicality of parent-mediated communication interventions.

### ***10.5.1 Changing Needs of Individuals with ASD***

There has been a strong research focus on early intervention for children with ASD over the past few decades. Our understanding of early intervention for this population has grown significantly and with it our knowledge of parenting strategies that can support the communicative development of young children with ASD. Many of these strategies employ play-based approaches and joint-action routines to increase the frequency of communicative acts, foster joint attention behaviors and build communicative functions (Green et al., 2010; Rogers et al., 2012).

There has, however, been relatively little research involving adolescent and adult populations (Jang et al., 2014) for whom play-based approaches may no longer be developmentally appropriate. This dearth of research is not only evident in relation to prelinguistic communication development in this older population, but also holds true for the way parents are, or can be, involved in facilitating their child's communication across a range of educational and work contexts. Research is needed to build our knowledge about the developmental trajectories of individuals who have failed to progress beyond the prelinguistic stage of communicative development once they begin school. We know little about patterns of development over the lifespan, whether more intentional and symbolic forms of communication may emerge for some individuals, and if so, what variables may predict or be associated with this course of development. Longitudinal studies that follow children through adolescence and into adulthood may be particularly helpful in this regard. However, to date, longitudinal studies have often relied on standardized language assessments that may not adequately capture or be sensitive to changes in prelinguistic communication development.

### ***10.5.2 Family Characteristics and Circumstances***

Parental characteristics can be critical to the development and implementation of effective communication interventions yet there has been only limited research investigating the relative contribution of these variables. Factors such as parent education level, family income, physical, social and emotional resources, and parent mental health may affect intervention outcomes. For example, Randolph, Stichter, Schmidt, and O'Connor (2011) examined the effects of parental education on the fidelity and effectiveness of Pivotal Response Training (PRT) implemented by caregivers without college degrees. This small-scale study found that two of the three caregiver-child dyads benefited from the intervention. The authors argued that caregivers' level of education may not be as critical to successful implementation of PRT compared with other variables such as consistency of training sessions and other family dynamics. While research has demonstrated that parent-mediated interventions can be effective under certain conditions, the gap between research and real-world practice is significant (McConachie & Diggle, 2007). Research to

identify the relative contribution made by various family-related factors to successful participation of parents in communication-based interventions is needed to ensure the effectiveness of parent-mediated intervention in the community. In addition, research is needed to identify proximal and distal outcomes of communication interventions for children, parents, and families.

### ***10.5.3 Providing Parent Education***

There has been wide-scale adoption of family-centered approaches in the provision of early intervention services for children with ASD. Fundamental to these approaches is that parents are partners with professionals in facilitating their child's development and this has led to funding for parent education programs and parent-mediated interventions in children's early years. Once the child enters school, family-centered philosophy is generally evident by the importance placed on the home-school partnership; however, service provision tends to become more child focused, prioritizing educational programs for the child within the school context over parent-mediated or home-based interventions. This can be illustrated by considering the individualized education planning (IEP) process where parent involvement is viewed as a central component. Parent training, particularly parent coaching, has been viewed favorably by parents and can assist them to be more involved and satisfied with their child's program (Ingersoll & Dvortcsak, 2006). However, education and advocacy programs that could facilitate parental involvement are few, despite research indicating that the inclusion of parents in the IEP process is often poor (Blackwell & Rossetti, 2014; Ruble, McGrew, Dalrymple, & Jung, 2010). It would appear that parent education and parent-mediated interventions have gained traction in the early years, a period when the young child spends much of his/her time in the family home. Once the child enters school, these parent-focused approaches are no longer given the same priority and this pattern continues through adulthood.

By the time typically developing children reach adulthood, they have generally achieved independence and assumed primary responsibility for meeting their own health, education and employment needs. This often is not the case for many adults with ASD. According to Howlin, Moss, Savage, and Rutter (2013), a large percentage of adults with ASD in their study were socially isolated and had continuing high dependency on aging parents. In this context, parents of adults with ASD may continue to play a key advocacy and support role and their involvement in communication interventions might still be essential to achieving positive outcomes. A key challenge in the future is not only to improve our knowledge and understanding of effective ways to provide parent education and coaching across the lifespan of the child with ASD, but also to secure the necessary resources to enable implementation of these programs.

### ***10.5.4 Feasibility and Practicality of Parent-Mediated Interventions***

Although parent-implemented or parent-mediated communication interventions are considered evidence-based practice, there are still many challenges for training and coaching parents and ensuring that the parent implements the targeted teaching skill with fidelity across settings and activities (i.e., generalization) and over time (i.e., maintenance). More research is needed to examine the intensity of parent training and coaching that is required to produce outcomes that are generalized and maintained. Many published studies provide minimal information about both the intensity of the parent training and coaching program and the generalization and maintenance of parents' knowledge and use of teaching strategies. Researchers should evaluate these outcomes to allow for replication and comparison across different intensity levels.

Another issue related to the feasibility and practicality of the intervention is *who* conducts the parent training and coaching program and *where* this training takes place. As described in the Training and Coaching Contexts Framework (Meadan et al., [in press](#)), parent programs can be delivered by different people (who), in different places (where), and with different methods (how). In more than half of the studies reviewed in a recent review of the parent training literature (Meadan et al., [in press](#)), the researchers implemented the training and coaching; in many other studies, the researchers supported service providers in implementing the programs. More research is needed to explore how newly developed programs can be scaled up and be implemented by service providers, therapists, teachers, and other professionals who are working with parents. In addition, more studies are needed on the use of long-distance, Internet-based programs. Internet-based technology (i.e., telepractice) can help providers reach parents of individuals with ASD across large geographic areas and support parents in implementing communication interventions with their children of varying different ages and with diverse needs.

## **10.6 Conclusion**

Parental involvement in communication interventions for individuals with ASD who are prelinguistic communicators can enhance child and family outcomes. Positive results are being achieved through parent-mediated interventions, and there have been advances in the use of digital technologies. These technologies are providing new opportunities to consider larger scale implementation of these interventions by addressing potential barriers arising from limited resources and geographically dispersed populations. A number of areas remain under-researched in relation to parental involvement in communication interventions including, but not limited to, the communication trajectories of minimally verbal children with ASD and the role of parents of these children who have reached adolescence and adulthood.

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