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## Partners in School: An Innovative Parent-Teacher Consultation Model for Children with Autism Spectrum Disorder

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### Abstract

Little research examines the best ways to improve communication between parents and teachers of children with Autism Spectrum Disorder (ASD) and its effect on child outcomes. The present study tests an innovative parent-teacher consultation model, entitled *Partners in School*. The goal of *Partners in School* is to improve parent-teacher communication about evidence-based practices (EBPs), and subsequently, outcomes for children with ASD. Participants were 26 teachers and 49 parents of children with ASD from a large urban public school district. Parents and teachers completed measures of their communication and child outcomes prior to and after receiving consultation through *Partners in School*. Results indicated that parents and teachers perceived improvements in child outcomes after participation in *Partners in School*. Changes in parent-teacher communication also were associated with changes in some child outcomes.

Discussion highlights the important role of communication in consultations targeting family-school partnerships for children with ASD.

### Keywords

consultation; parent-teacher communication; autism; autism spectrum disorder; parent-teacher relationships; family-school partnerships

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Parent-teacher communication is an essential component of successful family-school partnerships (Christenson, 2004; Mautone, Marcelle, Tresco, & Power, 2015; Sheridan & Kratochwill, 2007), especially for children with Autism Spectrum Disorder (ASD; Azad & Mandell, 2016; Azad, Kim, Marcus, Sheridan, & Mandell, 2016). A plethora of studies examine the effects of training parents to implement interventions with their children with ASD at home (Beaudoin, Sebire, & Couture, 2014; Wetherby et al., 2014) and teacher-implemented interventions for students with ASD at school (Lawton & Karasi, 2012; Mandell, Stahmer, Shin, Xie, Reisinger, & Marcus, 2013). However, there is a paucity of intervention research that examines how these important stakeholders can come together and

effectively communicate with one another about evidence-based practices (EBPs). Collaborative communication is imperative for consistency of practices across home and school, and ultimately, enhanced outcomes for children with ASD (Azad & Mandell, 2016).

Family-school partnerships have been proposed as a way to increase collaboration between systems of care (e.g., home and school) most critical to children's development (Sheridan, Warnes, Woods, Blevins, Magree, & Ellis, 2009). A successful partnership between families and schools can substantially improve students' success in and out of school, both for children who are typically developing (Sheridan & Kratochwill, 2007; Sheridan, Bovaird, Glover, Garbacz, Witte, & Kwon, 2012) and for children with disabilities (Mautone et al., 2015), including ASD (Garbacz & McIntyre, 2016). Unfortunately, establishing and sustaining partnerships between parents and teachers is extremely challenging in practice. Most teacher preparation programs typically provide no training on how to communicate with parents (Jivanjee, Kruzich, Friesen, & Robinson, 2007; Murray, Ackerman-Spain, Williams, & Ryley, 2011). Teachers report that they lack the time, support, and structure for developing effective partnerships with parents (Jivanjee et al., 2007), and often position parents as part of the problem rather than a critical part of the solution (Wood & Olivier, 2011). Likewise, parent training programs do not provide direct instruction on how to communicate with teachers (Murray et al., 2011). Given this lack of training, it is not surprising that these stakeholders are not equipped to communicate in meaningful ways to help children. If parents and teachers are unable to communicate effectively, it is unlikely that they will be able to work together to develop and implement EBPs across contexts. There are many components to consider for successful family-school partnerships, including the quality and quantity of communication between parents and teachers. Studies in general education have shown that improving the quality of home-school communication, not just the frequency of contact, is a primary way to enhance trust in the parent-teacher relationship and further promote parental involvement (Santiago, Garbacz, Beattie, & Moore, 2016). More specifically, parents of typically developing children want teachers to provide specific information on their child's academic content and learning goals, as well as clear direction on how to incorporate learning opportunities at home (Christenson, 2004; Epstein & Dauber, 1991). Unfortunately, parents of typically developing children often feel like they are interfering when they contact teachers with questions (Gonzales-DeHass & Willems; 2003).

Consultation is one mechanism used to promote and sustain communication. For example, behavioral consultation (BC) models focus on working with a consultee (i.e., parent or teacher separately) to address concerns regarding the child (Bergen & Kratochwill, 1990). Other models of consultation, such as Conjoint Behavioral Consultation (CBC), focus on working with dyads (e.g., parent and teacher together) to address cross-contextual concerns for the child (Sheridan & Kratochwill, 2007). CBC entails four stages by which parents and teachers work together with a consultant to identify and solve academic, social-emotional, or behavioral concerns for typically developing children. The four stages of CBC (i.e., problem identification, problem analysis, intervention implementation, and evaluation) are implemented through a series of three to four interviews (Sheridan & Kratochwill, 2007). Collaborative models of consultation have been shown to be effective because they increase the intensity, impact, and sustainability of interventions. When children are exposed to the same interventions across home and school, they may potentially double the dosage of

intervention received (Azad et al., 2016; Dunlap, Newton, Fox, Benito, & Vaughn, 2001; Fallon, Collier-Meek, Sanetti, Feinberg, & Kratochwill, 2016; Lucyshyn, Blumberg, & Kayser, 2000; Swiezy, Stuart, & Korzekwa, 2008)

Despite a few exceptions (e.g., Fallon et al., 2016; Garbacz & McIntyre, 2016; Ray, Skinner & Watson, 1999) the extant literature on consultation and ASD focuses on working with a single consultee (i.e., consultations for parent- or teacher-implemented interventions). For example, studies on parent training of EBPs show that parent-implemented interventions are associated with improved child outcomes (e.g., increased language, social interaction, and joint attention; Kasari, Gulsrud, Wong, Kwon, & Locke, 2010; Wong, 2013), parent outcomes (e.g., increased knowledge and decreased depression; McConachie & Diggle, 2007) and parent-child outcomes (e.g., dyadic social communication; Green et al., 2010). There also is a parallel line of research that examines coaching teachers on interventions for students with ASD. The literature on school-based implementation suggests that teachers' use of EBPs are associated with a variety of child outcomes, such as gains in literacy and engagement (Oakley, Howitt, Garwood, & Durack, 2013), as well as increases in joint attention and symbolic play (Lawton & Kasari, 2012; Wong, 2013). However, there is significant variability in teacher implementation of EBPs, even with external support (Mandell et al., 2013). Unfortunately, there is little consideration in the literature on how consultation models may be used to facilitate communication between parents and teachers, and ultimately, continuity of care for children with ASD.

Some studies have targeted family-school partnerships to varying degrees, both for children with typical development and ASD. For example, Webster-Stratton and colleagues (2001) randomly assigned Head Start mothers and teachers to either an experimental condition in which parents, teachers, and service providers participated in the Incredible Years Program or a control condition of the regular Head Start Program. Results indicated that the experimental collaborative condition was associated with more positive parenting, better classroom management, fewer child behavioral problems, and increased parent-teacher bonding.

For children with ASD, the COMPASS (Collaborative Model for Promoting Competence and Success) framework, which consists of an initial parent-teacher consultation followed by teacher coaching sessions, has been associated with improved objectives on individualized education programs (IEPs; Ruble, Dalrymple, & McGrew, 2010). Other studies have increased parent involvement by using CBC with parents and teachers of children with ASD. Results suggested that CBC was efficacious in increasing social behavior (Garbacz & McIntyre, 2016), as well as on-task and compliant behavior (Wilkinson et al., 2005) in the classroom for children with ASD. At home, CBC has been shown to increase compliant behavior and decrease aggression for children with ASD (Fallon et al., 2016).

There is very limited research on the intersection of family-school partnerships, communication, parent/teacher consultation, and ASD. Given that these relationships are important for this vulnerable population, mere communication with families is insufficient (Azad & Mandell, 2016). To the best of our knowledge, there are only four published studies (Fallon et al., 2016; Garbacz & McIntyre, 2016; Ray et al., 1999; Wilkinson et al., 2005) that

have used CBC to meet the needs of children with ASD. One probable reason for the limited scope of this work is because parents and teachers have very limited time and resources to collaborate and CBC is a time-intensive process. More feasible, efficient models of consultation may be necessary to encourage and maintain collaborative partnerships between parents and teachers.

The studies on family-school partnerships have attempted to explain the mechanism underlying change in child outcomes. One possibility is parent-teacher relationships. In the Webster-Stratton et al. (2001) study with typical children, parent-teacher bonding was significantly higher for participants in the experimental condition than for the control condition. Likewise, parents and teachers who received consultation through CBC have consistently reported improvements in their relationship with each other (Sheridan, Clarke, Knoche, & Edwards, 2006), and several mediation analyses have documented that the quality of the relationship between parents and teachers is at least partially responsible for the effects of CBC on student outcomes for children with typical development (Sheridan et al., 2012; Sheridan et al., 2017a,b).

Parent-teacher relationships are multi-faceted and to date, limited research has attempted to pinpoint what aspect of relationships should be targeted for intervention. Probable targets include communication, mutual support, and shared expectations (Vickers & Minke, 1995). Parent-teacher communication may be a particularly tangible and important target for intervention. Studies have shown that parents and teachers of children with ASD have difficulty communicating their concerns to each other (Azad & Mandell, 2016) and do not engage in a communication style that leads to solutions about these concerns (Azad et al., 2016).

Whereas prior studies have added to our knowledge of how to improve family-school partnerships in ASD, they have several limitations. The aforementioned studies do not always elucidate what factors in the parent-teacher relationship may be associated with changes in child outcomes. Their study samples consisted of predominantly white, middle-class families (Garbacz & McIntyre, 2016) in rural settings (Ruble et al., 2010), and therefore, findings may not generalize to a socio-culturally diverse sample of parents in urban public schools. Research has consistently indicated that implementing interventions in under-resourced communities is challenging (Stichter, Riley-Tillman, & Jimerson, 2016). However, a meta-analysis conducted by Jeynes (2007) showed that parent involvement (of which parent-teacher communication is a key component) is particularly important in inner-city urban contexts with minority children. Therefore, it is critical to examine the efficacy of less-resource intensive approaches to engaging parents and teachers in urban public schools, with the ultimate goal of improving child outcomes.

The present study addresses these gaps in the literature by testing an innovative consultation model, entitled *Partners in School*, with a diverse sample of parents and teachers of children with ASD in urban public schools. The goal of *Partners in School* is to improve parent-teacher communication surrounding the use of EBPs for children with ASD. The aims are to: (1) examine the extent to which *Partners in School* affects parents' and teachers' perceptions of child outcomes at home and at school and (2) investigate the extent to which

parent-teacher communication is associated with child outcomes. We also report on the extent to which parents and teachers perceived *Partners in School* as a feasible and acceptable consultation approach in urban public schools.

## Method

### Participants

Participants were 26 teachers and 49 parents from a large urban public school district. Each teacher worked with between one to three parents in his/her classroom. Only one parent participated per child. A dyad was defined as one parent and one teacher, receiving consultation about one child with ASD. As presented in Table 1, a majority of the teachers were female (92.3%) with an average age of 36.6 years ( $SD = 9.7$ ). Approximately 80.9% identified as White, 11.5% as African American/Black, 3.8% as Hispanic/Latino, and 3.8% as Asian. All teachers taught in self-contained special education classrooms, referred to as autism support classrooms. There were seven different types of classroom arrangements, with two to four grades grouped together (e.g., K-1 or K-3). More than half the teachers (57.9%) taught in some arrangement of a kindergarten through third grade class. On average, teachers reported teaching special education for 9.3 years ( $SD = 5.9$ ) and autism support for 5.6 years ( $SD = 3.1$ ).

Parents were primarily mothers (93.9%) who averaged 38.1 years of age ( $SD = 7.8$ ). Approximately 30.6% identified as White, 36.7% as African American/Black, 24.5% as Hispanic/Latino, 4.1% as Asian, and 4% as other. About two thirds (67.4%) of the parents had a high school/vocational degree or less; 73.5% reported an annual income of less than \$45,000. Approximately, 44.9% were unemployed, 60.4% were not married, and 67.3% were enrolled in Medicaid.

In the district where the present study was conducted, students are placed in autism support classrooms based on a psychoeducational evaluation of their cognitive ability, socio-emotional behaviors, and language. The students with ASD in the current study ( $n=49$ ) averaged 7.3 years of age ( $SD = 1.6$ ), ranged in grade from kindergarten to fifth, with 71.4% in the earlier grades (i.e., either K, 1<sup>st</sup>, or 2<sup>nd</sup> grade); 69.4% were boys. On average, students were 32 months ( $SD = 12.6$ ) when they were first diagnosed with ASD. Most students were enrolled in free or reduced lunch programs (79.6%). Only a small percentage (2%) of students were receiving English as a Second Language (ESL) services. Most students received other services (93.9%), including speech therapy (85.4%), occupational therapy (66.7%), physical therapy (2%), social skills training (8.2%), and/or autism-specific therapies (22.4%; e.g., in-home applied behavioral analysis services). A majority of children lived with their biological parents (95.7%) with either one (26.5%), two (40.8%), three (22.4%), four (8.2%), or five (2%) siblings.

### Setting

The parents and teachers were from 26 kindergarten-through-fifth grade autism support classrooms spread across 18 elementary schools in a large urban school district. The school district is one of the top ten largest districts in the nation, located in the northeast of the

United States. During the year the study was conducted, there was a total of 134,041 enrolled students and 14.1% of these students had been classified with a disability. The district is comprised of 220 schools, of which 150 are elementary schools. Approximately 53% of the elementary schools (i.e., 79 schools) had autism support classrooms. The 18 schools participating in the current study were representative of the student characteristics in the district with: 10.4% White, 52.4% African American/Black, 21.2% Latino, 6% Asian, 0.1% Pacific Islander, 0.1% American Indian, and 9.6% other. Approximately 11% of the students in the participating schools were English Language Learners and 13.4% were receiving special education services.

## Procedure

**Recruitment procedures.**—The university's institutional review board and the school district's research review committee approved all research activities. The first author recruited autism support teachers at a school district in-service training day conducted in collaboration with the university. Additionally, emails were sent to autism support teachers that participated in a previous study on family-school partnerships for children with ASD (reference blinded for review). Through this process, 31 teachers from 27 schools expressed interest and provided written consent to participate. Information describing the study was sent home with all students of the consented teachers.

Approximately 235 study packets were distributed. Criterion for involvement were: 1) Participant must be a parent or legal guardian of a child with ASD; 2) Child with ASD must be in kindergarten – fifth grade; and 3) Parent/legal guardian must be English-speaking. Of the 90 parents who returned completed packets, 20 were not interested in participation, 10 could not be contacted (i.e., phone number was no longer valid), three had moved to a different district, and four did not speak English as their primary language. Additionally, two parents dropped from the study because they were in litigation with the district and two more parents were dropped because they did not keep their first phone interview. Four teachers were excluded because the parents in their respective classrooms either did not return the consent form or were ineligible to participate. One teacher was excluded from the study because she did not keep her first phone interview. The first author contacted all recruited parents and teachers to explain the study, answer questions, and schedule the first component of the consultation process.

**Intervention procedures.**—*Partners in School* is a problem-solving model where parents and teachers work collaboratively with a consultant to address the needs of students with ASD. The goal is to improve parent-teacher communication surrounding the use of EBPs for children with ASD. This consultation model was developed by merging research evidence with the perspective of parents and teachers of children with ASD. The research evidence came from school consultation (Bergan & Kratochwill, 1990; Christenson & Sheridan, 2001; Erchul & Martens, 2002; Sheridan, Clarke, & Burt, 2008; Sheridan & Kratochwill, 2007), negotiation (Adair & Brett, 2005; Bazeman, Curhan, Moore, & Valley, 2000; Daniels, Walker, & Emborg, 2012; Olekalns & Smith, 2000; Shell & Moussa, 2007), and health communication (Britt, Hudson, & Blampied, 2004; Cameron, 2009; Orbe & Allen, 2008; Roter, Hall, & Aoki, 2002; Siminoff & Step, 2005). The primary consultation model on

which *Partners in School* is based is CBC (Sheridan & Kratochwill, 2007). Adaptations to CBC were made based on the research evidence mentioned above, as well as quantitative and qualitative evidence gathered from parents and teachers of children with ASD during wave one (i.e., exploratory phase) of the project. More specifically, parents and teachers of children with ASD were observed communicating about their child concerns, as well as interviewed about the best ways to improve communication between them. They also reported on various aspects of their communicative behaviors.

*Partners in School* represented wave two (i.e., intervention phase) of the project. The model is composed of three stages: (1) a pre-consultation phone interview, (2) an in-person parent-teacher consultation meeting, and (3) a post-consultation phone interview. The pre- and post-consultation interviews were conducted over the phone (rather than in person) because of parental preferences. More specifically, during wave one of data collection parents reported that it was only feasible for them to come into the schools once. Transportation was reported to be a major barrier. However, parents were open to using multiple modes of communication, including phone and in-person interactions. Parent pre-consultations were conducted prior to teacher pre-consultations, which was then followed by the in-person parent-teacher consultation meeting. The phone consultations were dyadic (consultant-parent or consultant-teacher) and the in-person consultation was triadic (consultant-parent-teacher). Each stage is described below.

**Pre-consultation phone interview.** The objectives of the pre-consultation were threefold. Specifically, we intended to (1) build rapport with parents and teachers, (2) encourage parents and teachers to reflect on the other person's role, and (3) gain child-specific information that would facilitate the in-person consultation. There were five parts to the pre-consultation phone interview. First, parents and teachers were asked to determine a strength in the other person (i.e., Tell me what you think the child's parent is doing really well). Second, parents and teachers were asked to determine what is challenging about the other person's role (i.e., Tell me what you think is hard about teaching children with ASD and teaching your child in particular). Third, parents and teachers were asked to report on the child's preferences (i.e., Tell me three things that are motivating for this child). Fourth, parents and teachers were asked if they endorsed eight possible concerns regarding their child. (The eight concerns were derived from wave one of data collection, in which parents and teachers reported on the main concerns they had for children with ASD). The following target concerns were addressed: (a) expressing needs (29.3%), (b) staying on task (29.3%), (c) aggression (14.6%), (d) rigidity/difficulty with change (14.6%), (e) completing assignments (7.3%), and (f) following directions (4.9%). Of the concerns that were endorsed, parents and teachers were asked to rank order their top three concerns. The frequency and severity of the three concerns also were assessed by each parent and teacher, separately.

**In-person parent-teacher consultation meeting.** The objectives of the consultation meeting were to (1) share information gathered during the pre-consultations, (2) collaboratively design an intervention plan to be implemented across home and school, and (3) develop a communication plan for parents and teachers to discuss intervention



progress. The consultation meeting occurred two weeks after the parent pre-consultation (i.e., week one was parent pre-consultation, week two was teacher pre-consultation, and week three was parent-teacher consultation). At the in-person consultation meeting, parents and teachers were each given notes about what they reported on during their respective pre-consultation phone interview. They were asked to share their concerns for the child with ASD, as well as the strengths and challenges that they identified in the other person. The child concern that overlapped between parents and teachers became the target concern for consultation. In the event that there were no overlapping concerns, the consultant used qualitative information gathered during the pre-consultation to identify a mutual area of concern (e.g., the consultant may say, “Although there was no overlapping concern, you both talked about [insert child’s name] being very distracted. I wonder if staying on task is a mutual area of concern?”) The target concern was defined and a separate goal was set for home and school.

Parents and teachers were asked to provide more information on the target concern, similar to the information gathered during a function-based assessment (e.g., what happens right before and/or right after the occurrence of the target concern). Further, parents and teachers were asked to report on strategies that were effective with the child at home and school, respectively. Based on their report of antecedents, consequences, and effective strategies, as well as the consultant’s knowledge of EBPs for children with ASD, an intervention plan was developed to be implemented by parents at home and teachers at school. The consultant did not have a pre-determined intervention plan for each case, rather the intervention plan was developed collaboratively based on parent and teacher report. All materials needed for the intervention were provided by the consultant on the day of the consultation meeting (e.g., visual supports, tangible reinforcers.) Implementation was only delayed by one or two days in the event that the consultant did not have a specific intervention item and needed to purchase it. On average, parents and teachers were asked to complete 4.8 steps for their intervention plan. All intervention plans included visual supports and a schedule of positive reinforcement, given the research evidence supporting these methods for children with ASD (Knight, Sartini, & Spriggs, 2015; MacNaul & Neely, 2017). Table 5 presents common intervention strategies used by parents and teachers.

Home-school notes were used for each case. Notes were comprised of three main parts. The top section listed the child’s name, date, target behavior, and home/school goals. The middle section listed the intervention steps, whether it was completed, and how difficult it was to complete (i.e., 0 = Not difficult, 1 = somewhat difficult, and 2 = Very Difficult). Parents and teachers had their own home and school sections, respectively, to report on intervention implementation. The bottom section listed the child’s progress toward his/her goal and a signature box. The extent to which a child made progress toward his/her goal was evaluated using Goal Attainment Scaling, with the following scale: -2 = situation significantly worse, -1 = situation somewhat worse, 0 = no progress, 1 = situation somewhat better, and 2 = situation significantly better. Parents and teachers were asked to report on how much progress the child made toward his/her goal separately. Teachers were asked to sign the home-school note and send it home each day. Parents were asked to provide their signature and return the home-school note back to the teacher. The consultant provided the teacher with 15 daily home-school note forms for the three-week intervention period. The home-

school notes primarily served as a communication mechanism between parents and teachers, and were not aligned with the student-specific interventions (e.g., they were not tied to reinforcement for students).

In addition to the daily home-school notes, there was a weekly communication plan (i.e., “check-in”) developed by parents and teachers during the in-person consultation meeting. Participants were told that they could use any method to check-in, including phone calls, text messages, etc. At the end of the first and second week, the consultant emailed the teacher with a reminder about the parent check-ins, which were then initiated by the teachers. At the end of the third week, the consultant picked up all of the home-school notes.

**Post-consultation phone interviews.:** The objectives of the post-consultation were to (1) discuss the outcomes of the intervention plan, (2) discuss the outcomes of the communication plan, (3) develop maintenance strategies and (4) elicit feedback on the entire *Partners in School* process. Prior to the post-consultations, students’ progress toward their home and school goals was graphed based on the information reported on the home-school notes. There were four components to the post-consultation interview. First, parents and teachers reported on the frequency and severity of the same three concerns they reported on during the pre-consultation. Second, the outcomes of the intervention were discussed. Specifically, parents and teachers were asked to report on what parts of the intervention plan worked or did not work in their respective setting, and the next steps of the plan (i.e., maintenance and changes) were discussed. Third, parents and teachers were asked to report on the outcomes of the communication plans (i.e., the daily home-school notes and the weekly check-ins). Future communication plans also were discussed. Fourth, the consultant elicited feedback from parents and teachers about their perspective on the *Partners in School* model.

It is important to note that a unique aspect of *Partners in School* relative to typical consultation practice is that individual versus shared expertise was weighted differently at different points in consultation. A prioritization of target behaviors and providing a choice to consultees about which behaviors to target (i.e., in the pre-consultations) is a slight concession to consultee preferences, but is not as open as allowing consultees to entirely determine the area of focus. However in the consultation meeting, consultee preferences were more heavily considered during intervention selection. Further, the *Partners in School* model deviates from the original base model of CBC in many ways, including the number of in-person consultation meetings, the use of multiple modes of communication, the addition of a weekly parent-teacher check-in, the supports available during implementation, and the length of the entire consultation process. See Figure 1 for an illustration of the *Partners in School* model.

**Data collection procedures.**—Pre-consultation surveys were delivered to classrooms after the parents and teachers completed their pre-consultation phone interviews. Parents and teachers brought their completed surveys to the in-person consultation meeting. All parent-teacher consultation meetings were conducted at the schools and audiotaped. The in-person consultations lasted about 45 minutes. Post-consultation interviews were conducted over the phone (separately for parents and teachers) approximately four weeks after the parent-

teacher consultation meeting. Post-consultation surveys were delivered to classrooms after the parents and teachers completed their post-consultation phone interviews.

### Variables and Measures

**Child variables.**—There were specific and global child outcomes that served as dependent variables. The specific child outcomes were the concerns that parents and teachers reported on during the pre- and post-consultations. The global child outcomes were parent and teacher reports on a broad-band measure of child behaviors, completed at both pre- and post-consultation. Measures to assess each of these variables are described in the following sections.

**Frequency and severity of concerns.:** The *Frequency and Severity Form* was used as a specific measure of parents' and teachers' perceptions about child functioning. During the pre- and post-consultation phone interviews, parents and teachers were asked to report on the frequency and severity of the top three concerns they identified for the child. For each concern, they were asked about the frequency with the following question, "How often does this [concern] occur with the child?" Parents and teachers rated their response on a five-point Likert scale ranging from 1 = rarely, 2 = seldom, 3 = sometimes, 4 = often, to 5 = always. For each concern, they also were asked about the severity with the following question, "How much does this impact the child's daily functioning at home (for parents) or school (for teachers)?" Parents and teachers rated their severity response on a five-point Likert scale ranging from 1 = rarely, 2 = a little, 3 = somewhat, 4 = a lot, to 5 = extremely.

**Aberrant behaviors checklist – community.:** The *Aberrant Behaviors Checklist-Community* (ABC; Aman & Singh, 1986) was used as a global measure of parents' and teachers' perceptions about child functioning. The ABC is a 58-item survey designed to assess children's challenging behaviors. Each item is rated on a four-point Likert scale ranging from 0 = not a problem to 3 = problem is severe. The measure is designed to be completed in 10–15 minutes by caregivers familiar with the child's behaviors, such as parents and teachers. Five subscales are calculated by summing item scores associated with: (a) irritability, agitation, and crying (range= 0–45), (b) lethargy and social withdrawal (range= 0–48), (c) stereotypical behavior (range= 0–21), (d) hyperactivity and noncompliance (range= 0–48), and (e) inappropriate speech (range= 0–12). Internal consistency is acceptable for all five subscales, with alpha's ranging from .88 (stereotypic behavior) to .94 (hyperactivity and noncompliance). For the present study, Cronbach's alpha also was calculated. For example, for the hyperactivity and noncompliance scale, alpha's were .95 (pre) and .96 (post) for parents and .94 (pre) and .94 (post) for teachers.

**Parent-teacher communication variables.**—There were three parent-teacher communication predictors that served as independent variables: (1) General communication to the other person, (2) Communication about ASD, and (3) Communication about problem-solving. Measures used to assess the predictors are described in the following sections.

**General communication to the other person.:** To assess parents' and teachers' general communication to the other person, we used the *Parent-Teacher Relationship Scale-Second*

*Edition* (PTRS-II, Vickers & Minke, 1995; parent and teacher versions). The PTRS-II is a 24-item measure that examines the degree of connection felt between parent and teacher pairs. Two aspects important for parent-teacher relationships, derived via factor analysis, are assessed: joining and communication-to-other. For the present study, we only used the latter factor. Parents and teachers were asked to indicate the degree to which a series of statements were applicable to their relationship, using a five-point Likert scale, ranging from 1 = almost never to 5 = almost always. The communication-to-other scale is comprised of two subscales including (1) sharing of emotion and (2) sharing of information. High scores indicate that communication to the other person is effective. Reliability estimates using Cronbach's alpha on the parent version were  $\alpha = .86$  and on the teacher version were  $\alpha = .85$ . Internal consistency was reported to be high,  $\alpha = .91$  and  $\alpha = .98$  for parents and teachers, respectively (Minke, Sheridan, Kim, Ryoo & Koziol, 2014). For the present study, Cronbach's alpha on the communication-to-other scale for parents was .93 (pre) and .83 (post). For teachers, Cronbach's alpha on the communication-to-other scale was .90 (pre) and .91 (post).

**Communication about ASD.** To assess parents' and teachers' communication about ASD, we used the *Participation in Problem-Solving Scale* (PPSS, Sheridan, Ryoo, Garbacz, Kunz, & Chumney, 2013; parent and teacher versions). The PPSS has two sections. The first section asks parents or teachers to answer dichotomous (yes/no) questions regarding their communication about the student's behavior and solutions to address those behaviors. For the present study, the PPSS was slightly modified for use with parents and teachers of children with ASD and to tap the variables of interest (i.e., communication about ASD). More specifically, communication about ASD specific problems and solutions was assessed via five dichotomous (yes/no) questions (e.g., "During the last three months, did you communicate with your child's teacher about your child's social skills?").

**Communication about problem-solving.** To assess parents' and teachers' communication about problem-solving, we used the second section of the *Participation in Problem-Solving Scale*. This section asks respondents to assess their problem-solving competencies. The items are rated on a six-point Likert scale that ranged from 1 = disagree very strongly to 6 = agree very strongly. Internal consistency for the PPSS was  $\alpha = .88$  (Sheridan et al., 2013). Slight modifications were also made to this section. Communication about problem-solving competence was assessed in the context of a "recent concern they brought up with the other person (i.e., parent or teacher)," about which they answered eight problem-solving competency questions (e.g., "I gathered specific information to measure my child's progress"). Modifications were made with approval from the developer of this measure. For the present study, Cronbach's alpha for parent PPSS was .83 (pre) and .81 (post). For teachers, Cronbach's alpha on the PPSS was .90 (pre) and .88 (post).

### **Fidelity and acceptability of *Partners in School*.**

**Intervention fidelity.**—Intervention fidelity was examined using the daily home-school notes. More specifically, we examined intervention dosage by asking parents and teachers to indicate whether they completed each of the intervention steps.

**Consultant fidelity.**—The consultant was a female, doctoral-level psychologist with prior teaching experience for children with ASD. She had extensive training on consultation and EBPs for children with ASD to prepare for her role. Consultant fidelity was examined with a checklist listing the objectives of the intervention, coded by two independent raters. Both raters examined 20% of the audiotapes to establish and maintain reliability standards. The remaining tapes were coded individually. Percent agreement was 98.5%.

**Acceptability.**—Parents and teachers were asked to rate how likely they were to do the different components of the model on a scale of 1 (extremely likely) to 7 (extremely unlikely). The questions were adapted from the Psychological Factors Influencing Use Scale (McEachan et al., 2016) and collected with the post-consultation surveys.

## Data Analyses

We used paired samples t-tests to address our first research question about the effect of *Partners in School* on parents' and teachers' perceptions of child outcomes. The child outcomes of interest were parent and teacher reports on the frequency of the target concern, the severity of the target concern, and each subscale of the ABC. We computed group pre- and post-consultation means for descriptive purposes. For each child, we then calculated the change between their pre- and post-consultation periods for each outcome and examined, via paired samples t-tests, whether the average for each difference score was significantly different from 0.

Linear regressions were used to address our second research question about the extent to which change in parent-teacher communication variables between the pre- and post-periods were associated with changes in child outcomes over that time. We explored associations between variables where a significant pre-post difference was found. Parent-teacher communication variables served as the independent variables and each child outcome served as the dependent variable. We examined the unadjusted and adjusted association between the independent and dependent variables separately for parents and teachers. In the unadjusted analyses, models included, in turn, each independent variable as the sole predictor of each dependent variable. In the adjusted models, we entered all three communication variables together as predictors. Difference scores were used for all independent and dependent variables. To account for the clustering in our data (i.e., multiple parents with the same teacher), our analyses were conducted using Complex Samples in SPSS.

## Results

Intervention fidelity was examined using the daily home-school notes. Parents reported completing 68% and teachers reported completing 69% of the required intervention steps. The consultant adhered to 98% of the *Partners in School* protocol. Acceptability of *Partners in School* also was examined. On average, parents reported they were “likely to somewhat likely” to have a pre-consultation phone meeting ( $M = 1.9$ ,  $SD = 1.5$ ), develop and implement EBPs at home ( $M = 1.8$ ,  $SD = 1.5$ ), use home-school notes as a form of communication ( $M = 2.8$ ,  $SD = 1.5$ ), and have a post-consultation phone meeting to evaluate the success of their intervention and communication plans ( $M = 2.6$ ,  $SD = 1.2$ ). On average,

teachers reported they were “likely to somewhat likely” to have a pre-consultation phone meeting ( $M = 2.4$ ,  $SD = 1.7$ ), develop and implement EBPs at school ( $M = 2.3$ ,  $SD = 1.6$ ), use home-school notes as a form of communication ( $M = 2.2$ ,  $SD = 1.7$ ), and have a post-consultation phone meeting to evaluate the success of their intervention and communication plans ( $M = 2.4$ ,  $SD = 1.7$ ).

To examine the extent to which *Partners in School* impacts parents’ and teachers’ perceptions about specific child outcomes at home and at school, we used the *Frequency and Severity Form*. Table 2 shows the results from both parents and teachers. Parents reported a significant reduction in the frequency of target concerns from pre to post consultation (difference score = 1.07,  $p = .002$ ). Parents also reported a significant reduction in the severity of target concerns from pre to post consultation (difference score = .50,  $p = .016$ ). Teachers reported a significant reduction in the frequency of target concerns from pre to post consultation (difference score = .53,  $p < .000$ ), but not in the severity (difference score = .21;  $p = .203$ ).

To examine the extent to which *Partners in School* impacts parents’ and teachers’ perceptions about global child outcomes at home and at school, we used the *Aberrant Behaviors Checklist* (ABC). Table 3 shows the results from both parents and teachers. On the ABC, parents reported a significant reduction in children’s hyperactivity/noncompliance from pre to post consultation (difference score = 3.41,  $p = .010$ ). Parents did not report a significant reduction in irritability/agitation/crying, lethargy/social withdrawal, stereotypic behavior, or inappropriate speech. Teachers did not report a significant reduction in any of the subscales on the ABC.

Table 4 shows the results from the linear models that examine the extent to which parent-teacher communication is associated with child outcomes in *Partners in School*. In the unadjusted models, two variables were significantly important for parents. Communication about problem-solving ( $B = -.08$ ,  $p = .025$ ) was significantly associated with changes in the severity of concerns. Communication about ASD ( $B = 1.70$ ,  $p < .001$ ) was significantly associated with changes in hyperactivity and noncompliance. However, only the latter variable was significant after adjusting for all three communication variables ( $B = 2.04$ ,  $p = .001$ ). More specifically, a one point increase in the difference score on communication about ASD was associated with a 2.04 point increase in the difference score on hyperactivity and noncompliance.

For teachers, communication about ASD was related to hyperactivity and noncompliance in the unadjusted model ( $B = 2.38$ ,  $p = .036$ ), but not in the adjusted model. The only variable significantly associated with hyperactivity and noncompliance in the adjusted model was communication about problem-solving ( $B = .05$ ,  $p = .002$ ). More specifically, a one point increase in the difference score on problem-solving was associated with a .05 point increase in the difference score on the frequency of concerns.

## Discussion

The goal of *Partners in School* is to improve parent-teacher communication surrounding the use of EBPs, and subsequently, outcomes for children with ASD. While our results are

preliminary, given the single group design, they suggest that *Partners in School* may be a promising model for improving parents' and teachers' perceptions about some outcomes for children with ASD. Parents reported significant changes in specific and certain global measures of child outcomes. Teachers reported significant changes in specific measures of child outcomes. For both parents and teachers, changes in parent-teacher communication were associated with changes in some child outcomes (but not all).

We found that parents reported significant changes in specific and certain global measures of child functioning from pre- to post-consultation. Parents reported a significant reduction in the frequency and severity of their specific concerns after participating in *Partners in School*. Parents also reported a significant reduction in hyperactivity/non-compliance on a global measure of child behaviors. Teachers reported a significant reduction in the frequency of their specific concerns after participating in *Partners in School*. Parents may have reported more improvements in child outcomes compared with teachers because the teachers in our study have some training in EBPs and receive on-going support from the district. As a result, the additional support from *Partners in School* may not have been sufficient to alter behaviors at school beyond what current practices accomplished. It is possible that more intensive consultation and intervention supports with teachers may have produced changes in child outcomes. In contrast, parents were not receiving any support at home. Therefore, even minimal support through *Partners in School* may have had a meaningful impact. However, it is important to note that our findings are based solely on self-report data and not direct observations.

These results are consistent with prior findings indicating that when parents and teachers of children with ASD participate in consultation, child outcomes improve (Garbacz & McIntyre, 2016; Wilkinson et al., 2005). However, this is the first study to our knowledge that has shown improvements at both home and at school (although modest) for children with ASD. Prior studies have shown gains across contexts with typically developing children (Sheridan et al., 2012) or improvements in the school context (Garbacz & McIntyre, 2016; Ruble et al., 2010) or the home contexts (Fallon et al., 2016) for children with ASD. It is especially encouraging to find such positive child outcomes given the brevity of the consultation period, as well as the challenging context of its implementation (resource-poor urban public district and underserved community).

Given that *Partners in School* focuses on improving parent-teacher communication, we also examined what types of communication were associated with child outcomes. For parents, we found that communication about problem-solving and communication about ASD had independent effects on the severity of concerns and hyperactivity/noncompliance, respectively. However, when adjusting for all three communication variables (i.e., general communication to the other person, communication about ASD, and communication about problem-solving), only communication about ASD was significantly associated with children's hyperactivity and noncompliance. For teachers, communication about ASD also had an independent effect on children's hyperactivity and noncompliance; however, this effect diminished when placed in the model with the other communication variables. In the adjusted analyses, communication about problem-solving had a small effect on the frequency of concerns. Our findings are consistent with prior studies suggesting that

communication can increase the strength of effects in family-school consultations (Garbacz, Sheridan, Koziol, Kwon, & Holmes, 2015).

Based on both parents' and teachers' reports, it is possible that some child outcomes are associated with communication about ASD. One likely explanation for this finding is that when there is communication about ASD (e.g., ASD specific issues and strategies to address them), parents and teachers may reframe their understanding of the challenges exhibited by children with ASD. They may have become more sympathetic about manifestations of the disorder. More specifically, greater understanding of behavior and strategies applied across contexts may have led teachers and parents to perceive hyperactive and/or noncompliance behaviors as more typical for a child with ASD. Perhaps this reframing had a stronger impact for parents because of the little knowledge and training that they receive compared to teachers (Renty & Roeyers, 2006).

It is important to note the limitations of the present study. First, our small sample size limited our ability to conduct more rigorous analyses, such as examining whether parent-teacher communication played a mediating role between consultation and child outcomes. Second, it is possible that our child outcome findings may have been influenced by the Hawthorne effect (McCarney, Warner, Iliffe, Van Haselen, Griffin, & Fisher, 2007). More specifically, parents and teachers may have reported significant improvements in child outcomes because they were aware of their participation in *Partners in School*. Due to the nature of the model, there were daily (via home-school notes) and weekly (via the check-ins) reminders about participation in research, and this may have influenced parent and teacher ratings of outcome data. Third, our design lacked a control condition, and therefore, it is difficult to ascertain the impact of *Partners in School* relative to other changes (e.g., time, maturation, etc.) that might have been occurring with parents and teachers that were unrelated to consultation. Fourth, we relied solely on parent and teacher reports of communication, intervention fidelity, and child outcomes with no direct measures of the variables of interest. Prior studies examining parent training (Beaudoin et al., 2014), teacher coaching (Güleç-Aslan, 2013), or parent-teacher consultation (Ruble et al., 2010) have often confirmed survey data with observational measures. Fifth, one of our main outcome measures, the *Frequency and Severity Form*, was designed specifically for the present study and therefore, does not have the psychometrics properties or generalization capabilities as well-established measures. Sixth, parents and teachers did not receive support on implementation, and therefore, it is difficult to determine whether the lack of changes are due to poor communication or limited implementation training. Prior studies have demonstrated that support with implementation is associated with child outcomes in CBC (Fallon et al., 2016). Further, parents and teachers did not report adequate intervention fidelity of typically 80% or higher (Iwata et al., 2000). Finally, the first author served as a consultant for all the parent-teacher dyads, and therefore, generalizability of findings for cases with different consultants and consultant characteristics is limited. It is important to note that the present study is a pilot study with the intent to generate a more rigorous research design. Future studies using a larger sample size and a more sophisticated design and methodology are warranted to build upon the present findings.



Despite these limitations, the results from the present study have important implications. Family-school partnerships are widely recognized for their importance (Garbacz et al., 2015; Minke et al., 2014), but they are rarely studied empirically, especially for children with ASD. Intervening to improve the quality of partnerships between parents and teachers is clinically difficult and methodologically challenging, especially with diverse samples in urban public schools. *Partners in School* was developed with direct input from parents and teachers of children with ASD. For example, the use of phone-based consultation to overcome parents' transportation difficulties is a methodological and pragmatic strength of the present study. Our findings suggest that when community stakeholders are engaged in model development, they may be more invested in the research process, which may ultimately translate to positive outcomes for children. Even minimal support can have a meaningful impact for parents who are dually challenged with difficult life circumstance (i.e., low income, single parenthood, etc.) and the daily stressors of raising a child with ASD. The parents and teachers who received *Partners in School* implemented the same intervention across home and school, suggesting that continuity of care across contexts may enhance children's access and dosage to EBPs, and ultimately, their outcomes.

Our findings also highlight the potentially important role of communication in collaborative consultations, especially for parents. During parent-teacher consultations, facilitating general communication or a very specific type of communication, such as problem-solving, may not be as important as encouraging parents and teachers to discuss ASD specific challenges and strategies to address them. This moderate level of communication may be optimal to help parents and teachers reframe the challenges exhibited by children. Gaining a new perspective may strengthen self-efficacy, and subsequently, empower parenting or teaching more effectively. The results from the present study are the first of its kind to show that a short, school-based consultation model with a diverse sample of parents and teachers may have a meaningful impact on perceptions of some children's outcomes. More rigorous research is needed to fully capture the potential of *Partners in School* with parents, teachers, and children with ASD.

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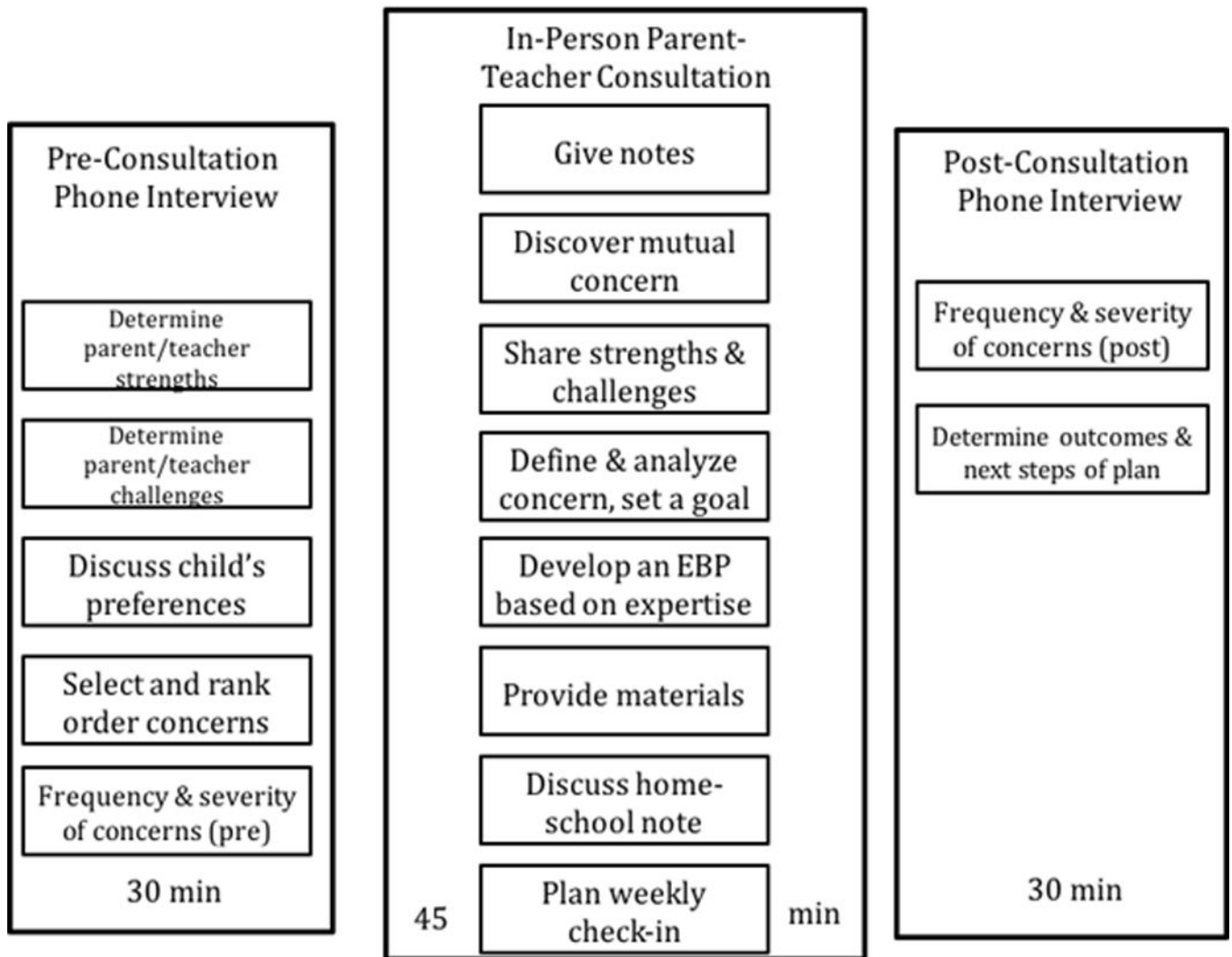
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**Figure 1.**  
Visual representation of the *Partners in School* consultation model

**Table 1**  
**Demographic Characteristics of Teachers and Parents in Partners in School**

Variable	Mean (SD) or Percentage	N
Teacher Characteristics (N = 26)		
Male	7.7	2
Female	92.3	24
Age in years	36.6 (9.7)	26
Caucasian/White	80.9	21
African American/Black	11.5	3
Asian	3.8	1
Hispanic/Latino	3.8	1
Kindergarten – Third Grade	57.9	15
First Grade – Third Grade	11.5	3
Second Grade – Fifth Grade	30.6	8
Years Teaching in Special Education	9.3 (5.9)	26
Years Teaching in Autism Support	5.6 (3.1)	26
Parent Characteristics (N= 49)		
Fathers	6.1	3
Mothers	93.9	46
Age in years	38.1 (7.8)	49
Caucasian/White	30.6	15
African American/Black	36.7	18
Asian	4.1	2
Hispanic/Latino	24.5	12
Middle Eastern	2.0	1
American Indian/Alaska Native	2.0	1
High School/Vocational School or Less	67.4	33
Annual income less than 45K	73.5	36
Receiving Medicaid	67.3	33
Unemployed	44.9	22
Not married	60.4	30

**Table 2**  
**Pre- and Post-Consultation Outcomes on the Frequency and Severity of Concerns**

Variable	Parent			Teacher		
	M	SD	<i>p</i>	M	SD	<i>p</i>
Frequency of Concerns						
Pre-Consultation	3.88	.893		3.79	1.04	
Post-Consultation	2.77	1.14		3.26	1.06	
Difference	1.07**	1.55	.002	.53***	.86	.000
Severity of Concerns						
Pre-Consultation	3.42	.90		3.58	1.18	
Post-Consultation	2.87	1.01		3.37	1.20	
Difference	.50*	1.11	.016	.21	.94	.203

\*  
*p* < .05

\*\*  
*p* < .01

\*\*\*  
*p* < .001



**Table 3**  
**Pre- and Post-Consultation Outcomes on the Aberrant Behaviors Checklist**

Variable	Parent			Teacher		
	M	SD	<i>p</i>	M	SD	<i>p</i>
Irritability, agitation, crying						
Pre-Consultation	12.76	9.96		9.79	9.45	
Post-Consultation	11.55	9.96		9.47	9.61	
Difference	1.47	5.38	.130	.49	4.81	.506
Lethargy, social withdrawal						
Pre-Consultation	10.06	7.77		9.27	8.71	
Post-Consultation	8.46	8.43		9.21	8.86	
Difference	1.76	7.17	.193	.69	3.98	.289
Stereotypic behavior						
Pre-Consultation	4.69	5.31		4.76	5.61	
Post-Consultation	4.29	4.89		4.90	6.12	
Difference	.19	1.89	.486	.05	2.80	.899
Hyperactivity, noncompliance						
Pre-Consultation	20.27	12.97		18.42	12.77	
Post-Consultation	16.67	12.23		15.90	12.06	
Difference	3.41**	6.05	.010	1.20	6.11	.226
Inappropriate speech						
Pre-Consultation	4.40	3.85		2.68	2.87	
Post-Consultation	3.57	3.18		2.90	3.26	
Difference	.79	2.52	.082	-.29	2.12	.293

\*\*  
*p* < .01

**Table 4**  
**Child Outcomes Regressed onto Parent-Teacher Communication Variables**

Variables	Difference in frequency of concerns			Difference in severity of concerns			Difference in hyperactivity & non-compliance					
	Unadjusted	Adjusted	<i>p</i>	Unadjusted	Adjusted	<i>p</i>	Unadjusted	Adjusted	<i>p</i>			
	B	<i>p</i>	B	<i>p</i>	B	<i>p</i>	B	<i>p</i>	B	<i>p</i>		
Parents												
Difference in communication to the other person	-.08	.471	-.04	.741	.03	.799	-.01	.898	-.08	.881	-.27	.500
Difference in communication about ASD	.09	.764	.23	.512	-.17	.438	-.01	.965	1.70***	<.001	2.04***	.001
Difference in communication about problem-solving	-.03	.368	-.05	.332	-.08*	.025	-.08	.052	.01	.963	-.16	.471
Teachers												
Difference in communication to the other person	.03	.533	.01	.866	-.05	.297	-.07	.116	-.27	.392	-.39	.216
Difference in communication about ASD	.17	.312	-.01	.967	.22	.136	.24	.195	2.38*	.036	1.62	.115
Difference in communication about problem-solving	.04	.095	.05**	.002	.01	.648	.01	.730	-.18	.094	-.08	.439

\* *p* < .05;

\*\* *p* < .01;

\*\*\* *p* < .001

Note. Frequency and severity were examined with the *Frequency and Severity Form*. Hyperactivity and non-compliance was examined with the *Aberrant Behaviors Checklist*. General communication to the other person was examined with the *Parent-Teacher Relationship Scale*. Communication about ASD and problem-solving was examined with the *Participation in Problem-Solving Scale*.

**Table 5**  
**Common Intervention Strategies Implemented by Parents & Teachers during Partners in School**

Common Interventions Strategies	
Shared Characteristics	Non-shared Characteristics
Visual Supports (Knight et al., 2015)	Antecedent Strategies (Wong et al., 2015) <ul style="list-style-type: none"> <li>• Reminders</li> </ul>
Positive Reinforcement(MacNaul & Neely, 2017) <ul style="list-style-type: none"> <li>• Immediate and delayed</li> <li>• Primary and secondary</li> <li>• Tangible and intangibles</li> <li>• Example: Token economy</li> </ul>	<ul style="list-style-type: none"> <li>• Timers</li> <li>• Verbal and gestural prompting</li> </ul>
	Cognitive Reframing (Weston et al., 2016)
	Structured Choices (Ledford et al., 2016)
	Task Analyses (Odom et al., 2010)
	Communication Supports (Hong et al., 2016) <ul style="list-style-type: none"> <li>• Sentence strips</li> <li>• Picture Exchange Communication Systems (PECS)</li> </ul>
	Modeling of Appropriate Replacement Behaviors& Active Ignoring of Inappropriate Behaviors (Martinez et al., 2016)
	Prompting &Redirecting (Schreibman et al., 2015)
	Academic Modifications (Bond et al., 2016)
	Self-Monitoring Systems(Aljadeff-Abergel et al., 2015)
	Emotion Identification and De-escalation Strategies (Thomson et al., 2015)