Journal of Educational and Psychological Consultation, 21:259–283, 2011

ISSN: 1047-4412 print/1532-768X online
DOI: 10.1080/10474412.2011.620818

Routledge
Taylor & Francis Group

ARTICLES

Analysis of Parent, Teacher, and Consultant Speech Exchanges and Educational Outcomes of Students With Autism During COMPASS Consultation

LISA RUBLE, JESSIE BIRDWHISTELL, and MICHAEL D. TOLAND
University of Kentucky

JOHN H. MCGREW
Indiana University-Purdue University Indianapolis

The significant increase in the numbers of students with autism combined with the need for better trained teachers (National Research Council, 2001) call for research on the effectiveness of alternative methods, such as consultation, that have the potential to improve service delivery. Data from 2 randomized controlled single-blind trials indicate that an autism-specific consultation planning framework known as the collaborative model for promoting competence and success (COMPASS) is effective in increasing child Individual Education Programs (IEP) outcomes (Ruble, Dalrymple, & McGrew, 2010; Ruble, McGrew, & Toland, 2011). In this study, we describe the verbal interactions, defined as speech acts and speech act exchanges that take place during COMPASS consultation, and examine the associations between speech exchanges and child outcomes. We applied the Psychosocial Processes Coding Scheme (Leaper, 1991) to code speech acts. Speech act exchanges were overwhelmingly affiliative, failed to show statistically significant relationships with child IEP outcomes and teacher adherence, but did correlate positively with IEP quality.

Correspondence should be sent to Lisa Ruble, Educational, School, and Counseling Psychology, 237 Dickey Hall, University of Kentucky, Lexington, KY 40506-0017. E-mail: lisa.ruble@uky.edu

Autism is a developmental disability characterized by impairment in communication and social interaction skills and patterns of behavior that are restricted and repetitive (American Psychiatric Association, 2004). The Centers for Disease Control (Rice, 2009) reported an estimated 1 in 110 children are diagnosed with an autism spectrum disorder (ASD) by the time they are 8 years old. This number represents more than a 500% increase over the past 2 decades (Safran, 2008).

A serious issue facing public schools today is teacher preparation and ongoing support in educating the increasing number of students with autism. Many teachers are not well prepared to effectively instruct students with autism and lack the requisite expertise to provide evidence-based practices in their classrooms (Loiacono & Allen, 2008; National Research Council [NRC], 2001; Scheuermann, Webber, Boutot, & Goodwin, 2003; Stahmer, Collings, & Palinkas, 2005). In part, this may be explained by the fact that no single evidence-based practice is effective for all students with autism (NRC, 2001). Instead teachers must develop interventions that are tailored to each child (Wilkinson, 2005), are sensitive to the child's developmental level, address core symptoms of autism, utilize best practices, take into account parental priorities, and can be administered within an educational context. The skills to differentiate instruction, generate effective education plans, monitor progress, problem solve, collaborate with families and other professionals, and deliver research-supported practices for children with autism within classroom settings remains an elusive goal for many teachers (NRC, 2001).

One promising practice that begins to address the need for greater autism expertise in classrooms is consultation (Jung, Ruble, Johnson, & McGrew, 2011; Ruble & Dalrymple, 2002; Ruble, Dalrymple, & McGrew, 2010). Rather than upholding the traditional service models, in which interventions are delivered directly to students with autism, consultation focuses on enhancing the skills of consultees (i.e., teachers and parents), who then implement interventions generated as a result of the consultation (Gutkin, 1996). Consultation within educational settings has been shown to be effective (Busse, Kratochwill, & Elliott, 1995; Medway & Updyke, 1985; Sheridan, Welch, & Orme, 1996) and can produce additional benefits that surpass traditional treatment models (Auster, Feeney Kettler, & Kratochwill, 2006). For teachers, such benefits include the use of a problem-solving approach in which unique expertise is contributed on behalf of both the consultant and the consultees to facilitate solutions for current students (Kratochwill & Bergan, 1990) and the opportunity to acquire valuable skills that can be applied to additional students in the future, thus serving a greater number of students at a lower overall cost of service delivery (Auster et al., 2006).

Another benefit of consultation is increased opportunities for parents to be active contributors to their child's educational program—an aim consistent

with legislative mandates from No Child Left Behind (2002) and the Individuals with Disabilities Education Act (IDEA; 2004). Parental involvement is associated with positive student outcomes, including increased academic achievement, self-esteem, social skills, and school attendance in addition to better study habits and decreased disciplinary problems (Epstein, 1986; Fan & Chen, 2001; Hoover-Dempsey, 1987; Sheridan & Kratochwill, 1992). Consultation also can have effects producing outcomes not targeted directly as part of the intervention. Examples are increased parental sense of efficacy and problem-solving skills (Fine & Gardner, 1994).

Consultation is a complex process that requires empirical analysis of "verbal behaviors, communication styles, and patterns of interactions" (Sheridan & Kratochwill, 1992, p. 131). Relational communication has emerged as one of the means to study the dyadic relationships in consultation (Erchul, 1987, p. 114) and encompasses the content analysis of single spoken messages, paired chronological messages, and the dynamic nature of messages over time (Erchul et al., 2007). Findings from early research concluded that the consultation process was not collaborative as originally assumed (Erchul, 1987; Erchul & Chewning, 1990; Witt, Erchul, McKee, Pardue, & Wickstrom, 1991) and instead indicated that consultants overwhelmingly directed the topic and the tone. However, subsequent research portrayed a more complicated process in which both consultants and consultees assumed important, yet unique, leadership roles (Gutkin, 1996). Consultants were found to produce the majority of the elicitors (questions) whereas consultees were found to produce the majority of the emitters (responses). It was concluded that "consultation is more akin to a partnership in which both members have important leadership roles to perform, some of which are held jointly and others of which are unique to the individual 'partners'" (Gutkin, 1996, p. 217). Additionally, Gutkin (1999) revisited findings from earlier research that questioned the collaborative nature of consultation and posed an alternative interpretation, noting that although consultants initiated more questions than did consultees, there was no evidence to suggest that this was done in a noncollaborative manner. Gutkin (1999) pointed out and emphasized the reciprocal manner in which responses to questions can help to guide and influence the topic and nature of the consultation.

Consistent with this idea of a reciprocal, shared collaboration, Sheridan (1997) examined the verbal exchanges during the problem identification phase of conjoint behavioral consultation (CBC), which includes both teachers and parents, and compared findings with teacher-only consultation. Findings revealed that parents were actively involved in CBC, often in response to elicitors directed at the parent. Additionally, parents contributed a significant amount of information regarding their child; teachers contributed to the discussion proportionally less but asked more questions. Sheridan suggested that teachers may understand the shared nature of CBC in which information regarding the child is elicited from both parents and teachers consistent with

an ecological model of the child and the overarching goals of CBC. Finally, consultants were found to dominate more of the conversation, suggesting a more directive role. This finding may be a reflection of attempts by the consultant to structure the discussion as a result of the inclusion of multiple consultees in the consultation.

Later research has supported such findings and suggests that school-based behavioral consultation involves a "complementary, leader-follower, cooperative relationship" in which one participant is more influential and the other is less influential (Erchul et al., 2007, p. 124). Using the Family Relational Communication Control Coding System, Erchul (1999) assessed attempts by a speaker toward gaining control, accepting another's control, and neither attempting to gain nor accept control. Results indicated that overall measures of domineeringness (attempts to gain control) were generally similar across participants. Although consultants exhibited slightly more domineeringness toward parents and teachers compared with parents and teachers' attempts toward consultants, differences were not significant. Furthermore, none of the participants in CBC were found to be highly dominant (successfully gaining control). Surprisingly, consultees exhibited generally higher levels of dominance than did consultants. These findings suggest that the process within CBC appears to be more symmetrical and reciprocal than previous models of consultation such as teacher-only behavioral consultation. Additionally, all participants appeared to be involved in the process.

Grissom, Erchul, and Sheridan (2003) applied the same coding schedule to assess the association of domineeringness and dominance with outcomes. Results contradicted the study hypotheses and suggested that neither consultant nor teacher successful influence (i.e., dominance) or attempts to influence (i.e., domineeringness) were related to the outcome measures. However, results suggested that parental influence over consultants (i.e., dominance) was related to less favorable teacher ratings regarding the acceptability/effectiveness of CBC as well as less favorable parent ratings of client goal attainment (Grissom et al., 2003). Overall, findings to date have been mixed and inconclusive. Although it is plausible that consultants are more influential under particular conditions, whereas teachers or parents are more influential under other conditions, the particular conditions have yet to be identified.

We have developed an ecological framework of consultation for planning educational interventions for students with autism called the collaborative model for promoting competence and success (COMPASS; Ruble & Dalrymple, 2002; Ruble, Dalrymple, & McGrew, 2010; Ruble, Dalrymple, & McGrew, 2012). COMPASS is specialized to autism and assesses core impairments of social interaction and communication as well as independence using a systematic process by which parents and teachers share information on the personal and environmental challenges and supports of the child.

The collective information values all perspectives and rests on a foundation of collaborative intent, which forms the basis for consultant interactions with the parent and teacher; facilitates the identification of measurable educational objectives; and develops personalized teaching plans using evidence-based interventions tailored to the child's developmental level, parent and teacher priorities, and classroom routines. COMPASS is a departure from traditional therapeutic planning approaches for children with autism that assume an expert and curriculum-driven orientation that may not be personalized to the individual child with autism.

Results from two single-blind randomized controlled studies indicated that COMPASS is effective in facilitating the use of evidence-based practices in classrooms and improving educational outcomes (Ruble, Dalrymple, & McGrew, 2010; Ruble et al., 2011). In addition, parents and teachers were satisfied with the COMPASS consultation (mean satisfaction scores for both groups of 3.7 on a 4-point scale). Further, as a result of COMPASS consultation, the quality of the child's IEP improved immediately following the consultation in the areas targeted by the consultation, and the changes in IEP quality partially mediated improvements in child outcomes (Ruble, Dalrymple, & McGrew, 2010). Teacher adherence to the implementation of the teaching plans also partially mediated child outcomes. However, more information is needed on how communication during the critical information gathering and sharing portion of the initial parent-teacher consultation impacts child outcomes directly and, indirectly, via mediators of adult outcomes (IEP quality and teacher adherence). Specifically, we would like to understand the types and frequency of speech acts and exchanges made between consultants, teachers, and parents during COMPASS consultation and their potential relationship to child outcomes, IEP quality, and teacher adherence.

To answer our questions, we applied the Psychosocial Processes Coding Scheme (PPCS) developed by Leaper (1991). The aim of the PPCS is to examine the reciprocal influence and conversational intent and function of participants' speech acts. A speech act is defined as "a phrase or utterance, bounded by intonation, pauses, or grammar" (Sheridan, Meegan, & Eagle, 2002, p. 311). The PPCS allows for the examination of exchanges between participants by assessing two primary functions of speech: influence and involvement. *Influence* refers to how much a speech act attempts to control the consultation and can be direct or nondirect. *Involvement* refers to how much a speech act enhances or obstructs the social relationship and can be noted as affiliative or distancing (Sheridan et al., 2002). Each speech act conveys one message, and each message is coded into one of four interaction coding categories that represent the varying degrees of influence and involvement: (a) controlling (distancing and direct; e.g., "Let me backtrack a little bit . . ."; "So you need to think . . ."), (b) collaborative (affiliative and direct; e.g., "Well it sounds like . . ."; "And you are absolutely right . . ."),

(c) withdrawing (distancing and nondirect; e.g., "I don't want to answer that right now . . ."; "Ummm . . . [long pause]"), and (d) obliging (affiliative and nondirect; e.g., "Yeah, sure.").

After the speech acts are coded, the speech act exchange is determined. A speech act exchange represents the relationship between consecutive speech acts among different participants in the consultation. Three types of speech act exchanges are identified: (a) affiliative, (b) distancing, and (c) mixed. The first type of speech act exchange, affiliative, involves exchanges in which one speaker's collaborative or obliging speech act is followed by another speaker's collaborative or obliging speech act (e.g., a consultant's statement "Look and see what is different at school" followed by a teacher's statement "OK"). The second type of speech act exchange, distancing, involves exchanges in which one speaker's controlling or withdrawing speech act is followed by another speaker's controlling or withdrawing speech act (e.g., a consultant's statement "So probably what you will want to do is . . ." followed by a teacher's statement "You know I am just seeing . . ."). The final speech act exchange, mixed, involves exchanges in which one speaker's affiliative statement was followed by another speaker's distancing statement, or vice versa (e.g., a consultant's statement "So if we look here . . ." followed by a teacher's statement "Ummm . . .").

In their analysis of the communicative process in 19 CBCs, Sheridan et al. (2002) analyzed 8,848 speech acts and 4,986 speech act exchanges that occurred within the conjoint problem identification interview. They found that, for both participants, individual speech acts were most frequently collaborative (range of 66.7 to 86.0%) followed by obliging (9.7 to 31.5%). Between-subjects' analysis of variances (ANOVAs) indicated that consultants made more obliging and fewer collaborative speech acts compared with parents and teachers. Additionally, 94.7% of the speech exchanges between participants were found to be affiliative, and less than 1% was coded as distancing and 5% as mixed. The percentage of speech acts generated by the participants was similar: 30% from teachers, 30% from parents, and 40% from consultants. Analysis of the relationship between speech act exchanges and child outcomes showed no statistically significant relationships after correction for family-wise Type I error.

Based on these prior findings, we hypothesized that collaborative speech acts would be most frequent followed by obliging speech acts. Second, we hypothesized that the type of speech act exchange would be positively associated with child goal attainment outcomes. Specifically, we hypothesized that affiliative speech act exchanges would be directly associated with child outcomes (attainment of educational objectives) and mediators of those outcomes (IEP quality and teacher adherence to implementing teaching plans; Ruble, Dalrymple, & McGrew, 2010), distancing speech act exchanges would be indirectly or inversely associated with outcomes, and mixed speech act exchanges would have no relationship with outcomes.

METHOD

Participants

Participants were from public preschool and elementary schools located in one Southern and one Midwestern state as part of a randomized single-blind controlled study of COMPASS (Ruble, Dalrymple, & McGrew, 2010). Participants included for this secondary analysis were those who were randomly assigned to the experimental condition and included 17 special education teachers and the parent or caregiver of a randomly selected child with autism from each teacher's caseload.

Participating teachers. Of the 17 experimental group teachers, 16 were female. The mean number of years of teaching was 9.11 (SD = 7.0), the mean number of years working with children with autism was 5.0 (SD = 3.0), and the mean number of children with autism taught was 7.9 (SD = 9.0). Five schools were located in a rural area (fewer than 5,000 people), one in a small town (5,000–24,999 people), three in a large town (25,000–74,999 people), two in a small city (75,000–299,999 people), and seven in a large city (more than 300,000 people).

Participating parents and children. Of the 17 caregivers who participated in the consultation, all were female, 14 were White, 3 were Black, 1 was a grandmother who was the legal guardian, and the 16 others were the mother of the child. A total of 46% of the caregivers had a college degree or some college and 41% had a high school degree or General Educational Development (GED). Thirty-three percent of families' household income fell between $50,000 and $100,000; 22% fell between $25,000 and $49,999; 17% fell between $10,000 and $24,999; and 6% did not provide income information.

The children who were represented by the teacher and parent dyads were 13 boys and 4 girls. Mean age was 6.2 years (SD = 1.9) at the time of the consultation. Children receiving special education services under the eligibility category of autism were randomly selected for participation from each teacher's caseload. After a child was randomly chosen, the teacher forwarded a letter asking the child's parent or caregiver for permission to be contacted by the researchers. If the parent or caregiver refused to be contacted or participate, another child was randomly selected from the teacher's caseload. Children had to meet the *Diagnostic and Statistical Manual*'s definition of autistic disorder (DSM; American Psychiatric Association, 2004). Children's parents/caregiver completed one of two screening assessments before children's enrollment—the Modified Checklist for Autism in Toddlers (Robins, Fein, Barton, & Green, 2001) for children under 4 years old and the Social Communication Questionnaire (Rutter, Bailey, & Lord, 2004) for those 4 years old and older. We confirmed children's diagnoses of autism with two additional measures: the Autism Diagnostic Observation Schedule–Generic

(Lord et al., 2000) and the Autism Diagnostic Interview–Revised (Lord, Rutter, & Le Couteur, 1994).

At the beginning of the school year, participants received a 3-hr COMPASS consultation that took place at the child's school, followed by four 60- to 90-min teacher coaching sessions that occurred about every 5 weeks during the remainder of the school year. In most instances, the consultation included the two consultants, the child's teacher, and one of the child's parents. In some instances, other individuals were involved: preschool coordinator, classroom teacher, teacher's aide, additional consultant, speech and language pathologist, outreach coordinator from an autism treatment program (attended two separate consultations), reporter (medical writer), director of special education, and special education instructional coach. However, because these other individuals only accounted for 1.5% of the total speech acts during the consultations, the speech acts by these individuals were omitted from the overall analyses. The consultants were the first author and the codeveloper of COMPASS (Ruble & Dalrymple, 2002), who both have significant experience working with students with autism and teachers.

Measures

Speech acts and exchanges. The Psychosocial Processes Coding Scheme (PPCS) was applied to code speech acts and exchanges. Four research assistants were responsible for the segmenting of the transcriptions, of which three were also responsible for the coding of the transcriptions. Research assistants underwent training on segmenting and using the coding scheme. Each research assistant independently segmented the speech acts for the same set of five transcriptions. The research assistants then met to discuss any differences in the segmentation for these five transcriptions. To establish coding to criterion, three of the research assistants independently coded three additional transcriptions to calculate and ensure adequate reliability. In previous work utilizing the PPCS coding scheme, interrater reliability (i.e., agreement rates) for the segmenting portion of data coding ranged from 90% to 96%; kappa coefficients for the actual coding of speech acts for four of the transcriptions averaged .79 ($Min = .76$, $Max = .88$) (Sheridan et al., 2002). Our initial analysis resulted in a kappa of .59. One explanation for this finding is due to the overwhelming majority of the speech acts coded positively (i.e., collaborative) and extremely limited number of speech acts coded as any of the three other speech acts (i.e., obliging, withdrawing, controlling). This discrepancy resulted in a highly unequal distribution of responses across categories. Researchers have described the limitations that exist with the use of reporting percentage agreement statistics such as a simple kappa coefficient (Feinstein & Cicchetti, 1990) and that in instances in which rare observations (in our case low frequency codes of obliging, withdrawing, and controlling)

are present, a low kappa does not necessarily indicate low rates of overall agreement (Viera & Garrett, 2005). In such instances in which the probability of responding to one category is nearly 1, the probability of responding to all other categories is nearly 0 and the resulting chance agreement increases significantly, leading to low agreement coefficients (Fay, 2005).

Cicchetti & Feinstein (1990) offered a solution to this dilemma and suggested condensing the 4 × 4 percentage agreement matrix into a 2 × 2 percentage agreement matrix: one category that represents the positive response choice (collaborative) and a second category that represents all other response choices (not collaborative, i.e., obliging, withdrawing, controlling). In doing so, the data can then be analyzed and reported as positive percentage agreement (PPA; collaborative-collaborative) and negative percentage agreement (NPA) with respect to the primary rater (Rater 1) and any other combination of ratings across the two raters (Cicchetti & Feinstein, 1990). We applied this approach and reorganized the data into a 2 × 2 matrix for each combination of raters that reflected positive agreement (collaborative-collaborative) and all other possible speech act codes. For the first combination of raters (1 and 2), the $\kappa = .64$, 95% confidence interval (CI) [.57, .71]. Overall percentage agreement was found to be 90.33%, 95% CI [88.28%, 92.36%]; PPA was found to be 92.21%, 95% CI [90.21%, 94.21%]; and NPA was found to be 78.76%, 95% CI [71.22%, 86.3%]. For the second combination of raters (1 and 3), the $\kappa = .42$, 95% CI [.29, .55]. Overall percentage agreement was found to be 91.16%, 95% CI [88.87%, 93.45%]; PPA was found to be 94.65%, 95% CI [92.76%, 96.54%]; and NPA was found to be 50.00, 95% CI [35.55%, 64.45%].

Satisfaction. To assess satisfaction with the consultation, a 25-item COMPASS Satisfaction Survey was administered to teachers and caregivers. Respondents used a 4-point Likert-type scale (1 = *strongly disagree*; 4 = *strongly agree*). Example items included, I felt involved during the consultation and I felt able to express my views. Sample internal consistency (α) of reliability was .92 for teachers and .90 for parents/caregivers (Ruble, Dalrymple, & McGrew, 2010).

IEP quality and teacher adherence. One goal of COMPASS consultation is improved IEP quality. Teachers are asked to update the IEP immediately following the consultation with three personalized and measurable objectives generated as a result of the consultation. To measure IEP quality, an indicator assessment (see Ruble, Dalrymple, McGrew, & Jung, 2010, for the measure) was developed using standards from the IDEA (2004) and best practices from the NRC for educating students with autism (2001; Ruble, Dalrymple, & McGrew, 2010). This assessment was then adapted to include only the items sensitive to COMPASS consultation: the targeted IEP quality indicator assessment, which consists of 12 items. Items on the scale are rated using a 3-point Likert-type scale (0 = *no/not at all*, 1 = *somewhat*, 2 = *yes/clearly evident*). For the targeted IEP quality measure, three items

focusing on the following features are rated once for each of the three IEP objectives, yielding nine scores: (a) the degree to which each of the three objectives were measurable in behavioral terms, (b) whether the conditions under which the behavior was expected to occur were well specified, and (c) whether the criterion or objective acquisition was explicitly described. Three final questions asked the degree to which communication, social, and independence objectives were present on the IEPs. An overall mean item score was calculated by summing across all items and dividing by the total number of items. Interrater agreement using intraclass correlation for the total IEP quality measure was 0.79 (Ruble, Dalrymple, & McGrew, 2010). The primary coder was not involved in the consultation or coaching sessions.

Two consultants, the first author and the codeveloper of COMPASS (Ruble & Dalrymple, 2002) completed a teacher adherence rating immediately following consultations. The single-item adherence measure rated the degree to which the teacher was following the teaching plan recommendations for the year using a 5-point Likert-type rating scale (1 = *not at all or 0%*, 2 = *about 25%*, 3 = *about 50%*, 4 = *about 75%*, 5 = *very much or 100%*). To assess interrater agreement, raters independently rated the adherence item immediately following 80% of the coaching sessions. The interrater agreement was good, Cohen's $\kappa = .90$ (Ruble, Dalrymple, & McGrew, 2010).

Child outcome. The primary outcome measure was goal attainment scaling (GAS; Cytrynbaum, Ginath, Birdwell, & Brandt, 1979; Oren & Ogletree, 2000), a standard progress-monitoring outcome system commonly applied in consultation research (e.g., Sheridan, Clarke, Knoche, & Edwards, 2006; Sheridan, Eagle, Cowan, & Mickelson, 2001; Sladeczek, Elliott, Kratochwill, Robertson Mjaanes, & Stoiber, 2001). At the end of the school year, GAS scores were evaluated by an independent observer unaware of group assignment based on an assessment of the student's attainment of three targeted skills. A 5-point rating scale was used: −2 = *child's present levels of performance*, −1 = *progress*, 0 = *expected level of outcome*, +1 = *somewhat more than expected*, and +2 = *much more than expected.* Thus, a score of 0 represented improvement consistent with the actual description of the written IEP objective, and a score of −2 indicates that there was no improvement (Schlosser, 2004). The GAS scores for each of the three skills were summed at the end of the year following the COMPASS intervention. All of the GAS ratings were based on direct observations rather than teacher ratings. Teachers were instructed to demonstrate for the independent observer each of the three targeted objectives during a curriculum-based instructional situation, which typically lasted for 20 min. Using intraclass correlation, the interrater reliability of the ratings was reported in Ruble, Dalrymple, and McGrew (2010) and was .73 at baseline and .99 at the final assessment.

Procedure

COMPASS consultation. After teacher-student dyads were randomly assigned to the experimental condition, parents and teachers received a 3-hr COMPASS consultation within the first 6 weeks of the school year. Prior to the consultation, parents and teachers completed a questionnaire that consisted of both open-ended and Likert-type rating scales (the questionnaire is available from the first author) used during Step 2 of the consultation (see Figure 1). The questionnaire asked about the child's (a) personal strengths, interests, fears, and frustrations; (b) personal management/adaptive skills; (c) problem behaviors; (d) play and social skills; (e) communication skills

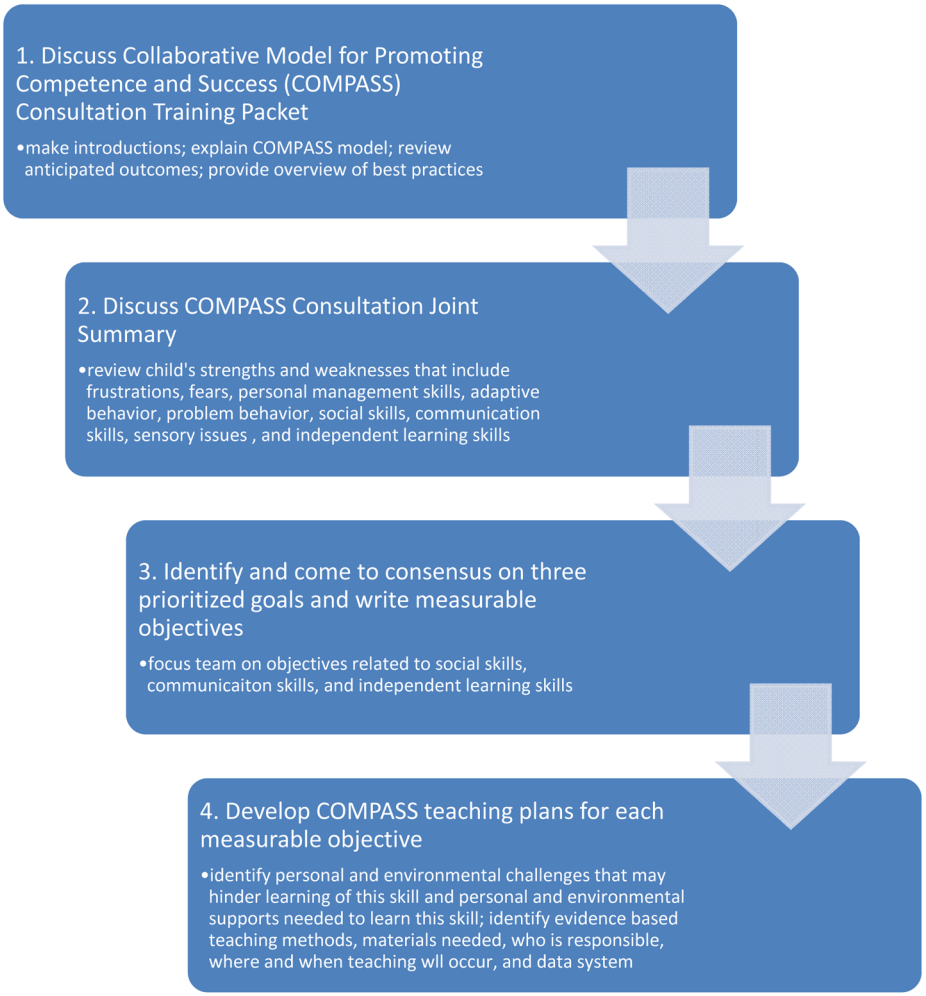

FIGURE 1 COMPASS Consultation Action Plan. (color figure available online)

such as the words or behaviors used to request, refuse, comment, and express feelings; (f) sensory challenges and sensory supports associated with auditory, gustatory, visual, tactile, olfactory, vestibular, and perceptual motor behaviors; and (g) learning skills, such as understanding the concept of *finished*, recognizing and indicating a need for help, and working for short periods of time. The final two questions solicited information on environmental challenges and environmental supports. The questionnaire concluded with a list of summarized priority concerns specifically for social/play skills, communication skills, learning skills, personal management/adaptive skills, and others.

The teacher and parent assessment forms were collected prior to the COMPASS consultation and consolidated into a single report called the COMPASS joint summary form (see Figure 1). This is the information shared and discussed during Step 2 of the consultation that formed the basis for the specific verbalizations transcribed and coded for this study. The joint summary discussion, which typically lasted between 45 and 60 min, was chosen for analysis because we believe it represents the most critical process and step of COMPASS—the mutual effort of the parent and teacher to share their knowledge and perspectives of the child as the child interacts within a particular context, describing his or her own experiences and observations of the child's personal and environmental strengths and challenges, and learning about the perspectives and behaviors of the child from the other's point of view. Although participants may differ in reports of observed behavior of the child, all information is considered valid. Areas of overlapping concern, as well as differences, are noted by the consultant. A common focus from which the three educational objectives and outcomes are selected is established. The information shared is used again later when the specific teaching methods are developed and personalized to each child. This portion of the COMPASS consultation also is most similar to the problem identification interview of CBC that was used for analysis by Sheridan et al. (2002).

After the initial consultation, which took place within the first 6 weeks of the school year, the consultant met with the teacher about every 5 weeks throughout the remaining school year for a total of four teacher coaching sessions lasting between 60 and 90 min each and occurring at the child's school. More details of the randomized controlled study of COMPASS consultation intervention are provided in Ruble, Dalrymple, and McGrew (2010).

Transcription and segmentation. All 17 COMPASS consultation sessions were audiotaped and transcribed verbatim. After the initial transcription, each transcription was reviewed and modified if needed by another research assistant by simultaneously reading the transcription and listening to the audiotape to ensure accuracy and that all utterances, including utterances such as "Uh-huh" and "Mhmm," were included. Once this was completed, the portion of the transcription representing the second step of

the consultation—discussing the COMPASS consultation joint summary (see Figure 1)—was selected for segmentation into individual speech acts. Once all of the transcriptions were segmented, 5 of the 17 segmented transcriptions were randomly selected and independently segmented once again by a different research assistant. Exact agreement for segmenting for Rater 1 and 2 was 85%, 95% CI [83.95%, 86.05%]; *Min* = 81%, *Max* = 98%. For the 17 transcriptions, each individual speech act was then coded according to the four interaction coding categories (see Table 1). Twenty-four percent of the segmented and coded transcriptions were then randomly selected and independently coded once again by another research assistant. Exact agreement for coding was 91% (CI = 89.78–92.22). A kappa of .59 was calculated. Although the kappa value reported for this study differs from the kappa value reported previously in the work by Sheridan et al. (2002), research suggests that kappa coefficients cannot be compared across studies because one limitation of a kappa value is that it is impacted by the distribution of the finding under observation (Viera & Garrett, 2005).

As was done in the Sheridan et al. (2002) study, three types of speech exchanges were created using the Predictive Analytics Software (PASW) 18.0

TABLE 1 Examples of Speech Acts by Involvement and Influence

Distancing		Affiliative	
Controlling	Withdrawing	Collaborative	Obliging
Directly influences the consultation but causes distance between the speakers. Examples: Controlling, Countering, Resisting others, Rejecting others' responses	*Indirectly* influences the consultation but causes distance between the speakers. Examples: Evading, Delaying participation, Reluctant submission, Nonparticipation	*Directly* influences the consultation and is affiliative in nature. Examples: Mutual affirmation, Constructive elaboration, Initiations of joint activity, Exchanges of information	*Indirectly* influences the consultation and serves the function of preserving social relations in a group. Examples: Going along with others, Willing submission, Seeking support
"There is always some kind of purpose for that behavior so we need to talk some about the behavior thing at home."	"Right. But she could consult with the doctor, you know?"	"Exactly what you said, we look down and we say 'what are some of the influences that may be' and you say 'cousins that play rough.' "	"You all go right ahead. I don't care."
"So, let's just go through them."	"Actually he does that independently . . ."	"The only thing he likes on pizza is pepperoni."	"Okay, that sounds like a good idea."

lag function. Specifically, a speech exchange was coded as affiliative if the speech act between two group members was collaborative or obliging. A speech exchange was coded as distancing if the speech act between two group members was controlling or withdrawing. Finally, a speech exchange was coded as mixed if the speech act between two group members consisted of a mixture of affiliative and distancing speech acts.

Data Analyses

Analyses were based on a combination of descriptive and correlational analysis. First, the speech act proportions were determined based on the total number of speech acts within speakers by type and reported descriptively by participant. Next, the number of speech act exchanges was totaled, and each type was divided by the total number of speech act exchanges. The resultant scores produced percentages of the overall proportion of type of speech act exchange. Finally, correlations were estimated between the three speech act exchange proportions, IEP quality scores following COMPASS consultation, teacher adherence ratings conducted at each of the four follow-up teacher coaching sessions, parent and teacher satisfaction, and child goal attainment outcome scores. The type of correlation was determined by the level of measurement of the two variables. A Pearson's correlation coefficient was estimated if both variables were continuous. A polyserial correlation coefficient ($r_{\text{polyserial}}$) was estimated if one variable was continuous and one was ordinal. A polychoric correlation coefficient ($r_{\text{polychoric}}$) was estimated if both variables were ordinal. All variables were treated as continuous (i.e., proportions or total raw scores summed across items) except for adherence ratings, which were ordinal. Although numerous statistical tests were conducted and the nominal alpha level of 5% is usually adjusted downward to control for the family-wise error rate, it was not done in this study. A critical problem is that control for family-wise Type I error rate tends to further increase Type II error, which is already higher than desirable, because of the small sample size in this study. Given that only one previous study (Sheridan et al., 2002) has examined the relationship among many of the study variables, a conservative two-tailed test was performed for each of these correlations; the critical value was $|z| \geq 1.96$ for the 5% significance level based on using a unit normal test where $z = r/SE$.

RESULTS

A total of 14,040 acts were produced. Of those, 83 (0.6%) were inaudible and 214 (1.5%) were produced by participants other than the teacher, parent, or consultant. A total of 13,826 speech acts were audible and coded, and a total of 9,310 speech exchanges were produced and coded. Consultants

TABLE 2 Percentage of Speech Acts Across Participants by Category

	Parent		Teacher		Consultant	
Category	%	95% CI	%	95% CI	%	95% CI
Collaborative	85.5	83.92, 86.08	87.7	85.9, .19	76.2	74.69, 77.31
Controlling	0.2	.06, .34	0.4	.19, .61	1.7	1.3, 2.1
Obliging	11.8	10.82, 12.78	9.2	8.26, 10.14	20.3	19.07, 21.53
Withdrawing	1.9	1.49, 2.31	2.1	1.63, 2.57	1.4	1.04, 1.76
Other	0.6	.37, .83	0.5	.27, .73	0.3	.13, .47

generated the highest number of speech acts (n = 6,021; 43.5%) followed by parents (n = 4,187; 30%) and teachers (n = 3,618; 26%). Descriptive statistics of speech acts are reported in Table 2. Teachers produced the highest percentage of collaborative speech acts (86.2%) followed by the parent (85.1%) and the consultant (75.3%). The next most frequent type of speech act was obliging. The consultant produced the highest percentage of speech acts within this category (21%) followed by the parent (12.4%) and teacher (10.4%). Very few speech acts were coded as withdrawing (*Min* = 1.5%, *Max* = 1.9%) and even fewer as controlling (*Min* = 0.2%, *Max* = 1.8%). As shown in Table 3, a large majority of speech act exchanges based on proportional counts were affiliative (93.6%). Mixed speech act exchanges were the next most frequently occurring type of exchange (6.1%). Less than 0.5% of the speech act exchanges were coded as distancing.

Examination of the intercorrelation matrix in Table 4 shows that speech exchanges were significantly associated with one another. Affiliative speech exchanges were negatively associated with both distancing and mixed exchanges, $r = -.63$, $p < .001$, and $r = -.99$, $p < .001$, respectively, whereas distancing and mixed exchanges were positively associated, $r = .57$, $p < .001$. IEP quality was directly associated with affiliative and negatively associated with distancing and mixed speech exchanges, $r = .51$, $p = .008$; $r = -.49$, $p = .03$; and $r = -.49$, $p = .03$, respectively. No associations were found between parent and teacher satisfaction and speech exchanges. However, when a more lenient alpha was set (two-tailed, $p = .10$), a negative correlation between distancing exchanges and teacher satisfaction was found, $r_s = -.477$, $p = .05$, indicating less satisfaction with distancing exchanges.

TABLE 3 Percentage of Speech Exchanges by Category (n = 17)

Speech Exchange	%	CI	*SD*	Min	Max
Affiliative	93.55	91.68, 95.42	3.9	86.0	100.0
Distancing	0.34	.33, .35	.42	0	1.0
Mixed	6.1	4.32, 7.86	3.7	0	13.0

Note. 95% CI = $M \pm 1.96\ (SD/\sqrt{n})$.

TABLE 4 Intercorrelations for Child Goal Attainment Outcome Scores, IEP Quality, Proportion of Speech Exchanges Within Triads, Parent and Teacher Satisfaction Ratings, and Adherence to Protocol Ratings ($n = 17$)

Variable	1	2	3	4	5	6	7	8	9	10	11
1. GAS score	—	.21	.22	.21	.29	.56	.46	.47	.07	.41	.31
2. Affiliative	.22	—	.11	<.001	.21	.74	.38	.35	.24	.31	.32
3. Distancing	−.02	−.63*	—	.13	.22	.79	.26	.21	.18	.44	.26
4. Mixed	−.22	−.99*	.57*	—	.23	.68	.41	.36	.24	.30	.32
5. IEP quality	−.14	.51*	−.49*	−.49*	—	.29	.30	.34	.26	.39	.47
6. Adherence 1	−.29	.19	−.63	−.28	.73*	—	.56	.58	.76	.56	.38
7. Adherence 2	.27	−.27	.21	.26	.07	.50	—	.29	.19	.30	.31
8. Adherence 3	.27	−.43	.58*	.39	−.39	−.27	−.07	—	.28	.17	.35
9. Adherence 4	.91*	−.13	.33	.12	−.37	−.22	.71*	.43	—	.34	.29
10. Teacher satisfaction	.12	−.07	.33	.06	.27	−.10	.21	.65*	.19	—	.26
11. Parent satisfaction	−.04	.31	−.30	−.33	.06	.40	−.15	.21	−.18	.36	—

Note. Correlations are in the lower diagonal; standard errors (*SE*s) are in the upper diagonal. Correlations were calculated using the weighted least-squares with mean and variance adjustment (WLSMV) estimator in Mplus 6.1. GAS = goal attainment scaling score at data end of school year; Affiliative = affiliative speech exchanges; Distancing = distancing speech exchanges; Mixed = mixed speech exchanges; IEP quality = IEP quality following COMPASS consultation; Adherence = teacher fidelity of implementation of COMPASS teaching plan at a coaching session.

*$p < .05$, two-tailed or $|z| \geq 1.96$ based on using a unit normal test where $z = r/\text{SE}$ WLSM.

Five positive and statistically significant relationships were observed between teacher adherence ratings and study variables. Specifically, teacher adherence scores at the first coaching session were positively associated with final IEP quality, $r_{\text{polyserial}} = .73$, $p = .01$; adherence scores at the third coaching session were positively associated with distancing exchanges, $r_{\text{polyserial}} = .58$, $p = .006$; and adherence at the fourth and final coaching session was positively associated with final goal attainment scores and adherence scores at the second coaching session, $r_{\text{polyserial}} = .91$, $p < .001$ and $r_{\text{polychoric}} = .71$, $p = .01$, respectively. Adherence at the third coaching session was positively associated with teacher satisfaction, $r = .65$, $p < .001$.

DISCUSSION

Speech Acts and Exchanges

To our knowledge, this is the first analysis of the relational communication from a consultation intervention study based on experimental group design and utilizing an independent rater who conducted direct observation of child outcome. The experimental designed allowed for the analysis of not only concurrent associations but also predictive relationships. Despite using a consultation framework different from CBC, our results overall are consistent with earlier research by Sheridan et al. (2002) on CBC processes and outcomes. First, findings were consistent with our hypothesis regarding

the most frequent type of speech act produced. The overwhelming majority of speech acts generated by all participants was collaborative.

Other findings consistent with previous research (Sheridan et al., 2002) are the frequency rank order of participants in producing collaborative speech acts—teachers, followed closely by parents, and then consultants and the predominance of speech act exchanges characterized as affiliative. In addition, speech acts coded as mixed occurred much less frequently (less than 10%) and distancing speech acts were even rarer, occurring less than 1% of the time overall. Thus, the findings overall suggest that the COMPASS consultation framework is similar to other well-studied parent-teacher collaborative approaches such as CBC in creating a mutual foundation from which subsequent activities are based. Collaborative speech acts as defined by the PPCS are described as having a direct influence on the consultee. The predominance of collaborative speech acts in our data adds further support to Gutkin's (1999) original and Sheridan et al.'s (2002) later contention that effective collaboration can include directive interactions that facilitate, rather than impede, joint efforts.

Correlations Between Type of Exchanges, Predictors, and Outcomes

Examination of the concurrent and predictive associations between speech act exchanges and child and adult outcomes revealed both anticipated and unanticipated findings. First, contrary to expectations, no predictive association was observed between speech act exchanges and child goal attainment outcomes measured by an independent observer at the end of the school year, a finding consistent with Sheridan et al. (2002).

Two explanations are offered. First, the lack of a finding may be due to the temporal distance between the time the consultation occurred (start of the school year) and when the final independent observation of child outcome was conducted (end of the school year). Moreover, there were four additional teacher coaching sessions between the time of the initial consultation and measurement of child outcome. Each session provided additional opportunity to establish or maintain rapport and positive relationships.

Another explanation of the findings is that the overwhelming predominance of collaborative speech acts limited the ability to detect predictive associations with child outcomes due to a lack of variance, a conclusion also reached by Sheridan et al. (2002). Future research on relational communication during teacher consultation sessions will help confirm the relationships between process and outcome, especially when the COMPASS consultations are provided by consultants not associated with the primary research team and are more likely to generate a broader range of communicative interactions and relational communication styles. In particular, examination of

potential subcategories within the larger affiliative category might be warranted. That is, the classification system in its current use may be insensitive to detecting relationships given that 94% of speech exchanges are coded as affiliative. Modification to a more sensitively differentiated coding system might improve the ability to detect associations with outcomes. For example, drawing from the psychotherapy literature, candidate subcategories of the affiliative supercategory include empathic statements, information sharing, self-disclosures, immediacy statements, reflection of feelings, reflection of content, and so on (see Egan, 2010). Another possibility is the Consultation Analysis Record, which has been used previously in research to examine verbal exchanges using categories such as specification, positive evaluation, negative evaluation, inference, summarization, positive validation, and negative validation (Bergan, 1977). This type of coding scheme might allow for more descriptive information to be collected about the content of verbalizations (Benes, Gutkin, & Kramer, 1991; Gutkin, 1996; Witt et al., 1991) and be well suited for analysis of verbalizations when consultations are provided by school-based, rather than research team, consultants.

A second unexpected finding was that in contrast to previous research that showed positive associations between affiliative exchanges and parent and teacher satisfaction (Sheridan et al., 2002), we found no relationship between parent and teacher satisfaction and speech exchange. Similar to the aforementioned explanation, it is likely that the limited range in responses made it difficult to detect associations as parent and teachers reported fairly high satisfaction with the consultation (mean rating of 3.7 out of a possible 4 points), and the overwhelmingly number of speech exchanges were affiliative. Another problem was that the sample size for the analyses was limited to only 12 or 13 (depending on the specific variable), leading to very high Type II error rates. Using a more lenient alpha level to account for the Type II error problem, we found evidence of a trend. There was a negative correlation between distancing exchanges and teacher satisfaction using Spearman's rho $-.477$ (two-tailed, $p = .10$), indicating less satisfaction with distancing exchanges. However, these findings need to be replicated in future research.

Our hypothesis that speech exchanges would be associated with adult-related outcomes was partially confirmed; there was a significant and direct predictive association between affiliative speech exchanges and IEP quality. We consider IEP quality an adult outcome because we ask teachers to update the child's IEP with the objectives that were generated as part of the initial COMPASS consultation. These objectives serve as the primary focus of the follow-up teacher coaching sessions and goal attainment observations of child progress. We reported earlier that IEP quality is important because it partially mediates child outcomes (Ruble, Dalrymple, & McGrew, 2010). That is, teachers who did adhere to our suggestion for updating the IEP were also more likely to have children who made greater progress on accomplishment

of IEP objectives compared with teachers who did not adhere and follow our suggestions for updating the IEP immediately following the COMPASS consultation. These findings also suggest that a positive consultation relationship, established by the use of collaborating and obliging speech acts and affiliative speech act exchanges, partially mediates the likelihood that teacher's will follow consultant recommendations for updating the IEP following the consultation.

Our related hypothesis that distancing speech act exchanges would be associated indirectly with IEP quality was also supported. However, our hypothesis that mixed speech act exchanges would not be associated with IEP quality was not confirmed. Instead, we found that consultations with both more distancing and mixed speech act exchanges tended to be associated with poorer quality IEPs. That distancing and mixed speech exchanges negatively predicted IEP quality indicates that teacher adherence to follow-up consultant suggestions are influenced by both positive and negative influences and involvement during consultation and that mixed exchanges are similar in function to distancing exchanges and represent negative interactions. This preliminary and potentially important finding requires replication in future studies.

Analysis of the second adult outcome—adherence to the implementation of the intervention plans developed as a result of the initial consultation—revealed that only one type of exchange, distancing exchanges, directly predicted teacher adherence and only at the third coaching session. We failed to find any relationship between adherence and affiliative or mixed speech exchanges at any of the other adherence time points. It is counterintuitive why a direct association was found between distancing speech act exchanges and adherence at coaching session three. One possible explanation is that the initial assessment of speech act exchanges as predictors of later teacher adherence is indirect and other variables (e.g., consultation satisfaction) mediate the relationship and are yet to be identified (Sheridan et al., 2002). The general lack of associations between speech exchanges and adherence may also be explained by other reasons, including random error, given the number of correlations examined. Another possibility is that because this analysis involved examination of the influence of speech act exchanges on two adult outcomes—one that was proximal to the consultation (IEP quality) and the other that was distal (teacher adherence)—this finding might reflect the temporal distance between the variables as noted earlier for speech act exchanges and child outcomes. We asked teachers to update IEPs within 2 weeks of the consultation, whereas teacher adherence was collected over the entire year and represented the implementation of the IEP (vs. planning of the IEP) with the first adherence measure collected about 6 weeks following the consultation and a full month later from the time the IEP was changed. It is likely that speech acts are influenced by time and not directly associated with adherence beyond a certain time frame, just as they

were not associated with child goal attainment, but are mediated by other influences that occur between the initial consultation and the subsequent coaching sessions.

Although our study has many strengths—the use of experimental design, including random selection and assignment, and objective case outcome analysis based on direct observation from an independent observer—there were limitations. The relatively low sample size limited power and may also limit generalizability of findings. The participants in this study included relatively young children with DSM-defined autistic disorder and excluded children with Asperger's disorder or pervasive developmental disorder not otherwise specified. Although we have no reason to suspect these findings would be different based on these diagnostic categories, we do not know how well these findings would generalize to other ASD populations. Another limitation of this study is its focus on Step 2 of COMPASS consultation—the discussion of the joint summary form. This discussion sets the stage for future goal setting, intervention planning, and problem solving, and these activities are most closely aligned with the analysis conducted by Sheridan et al. (2002) that we used for comparison. However, we do not know how speech acts change as a result of the other activities in COMPASS consultation, and future research on the communicative exchanges that occur during the goal setting and intervention planning would provide new information.

Although the main purpose of our study was to describe speech acts during COMPASS consultation and examine the predictive associations between speech act exchanges and child and adult outcomes, there were some other intriguing findings in the intercorrelation matrix (Table 4) that may suggest mediating variables and signal which teachers respond best to our intervention. We found that adherence at coaching session Time 2 was associated with adherence at coaching session Time 4, and adherence at Time 4 was associated with child goal attainment outcomes. That is, low adherence at Time 2 seems to be a red flag for low adherence at Time 4. These results suggest that for teachers who are continuing to have difficulty with implementation by coaching session two, the coaching intervention as designed may not be effective. These teachers may require more frequent coaching sessions, more modeling and demonstration, more directive instruction, more feedback, or more team problem solving. Understanding which teachers benefit from the COMPASS consultation framework as designed and which teachers may need something different or more is critical for future comparative effectiveness research. That the quality of the relational communication between consultants, parents, and teachers during the initial consultation impacted variables that partially mediated child outcomes (e.g., IEP quality) serves to illustrates the complexity of consultation and its multiple and indirect influences on child outcomes.

In summary, consultation is perhaps the most effective means available to classroom teachers for improving the quality of educational programs

for children with autism, providing personalized educational programs, and obtaining positive educational outcomes. Given the epidemic increase in the numbers of children with ASD in today's schools, there is a critical need for more research on ways to support teachers; improve services; and as a result, enhance outcomes.

ACKNOWLEDGMENTS

This work was supported by Grant R34MH073071 from the National Institute of Mental Health. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institute of Mental Health or the National Institutes of Health.

We are grateful to Nancy Dalrymple, codeveloper of the Collaborative Model for Promoting Competence and Success (COMPASS) framework, and to the teachers, families, and children who generously donated their time and effort. We thank special education directors and principals for allowing their teachers to participate. We also thank Amanda Smith and Ryan Johnson, who assisted with data coding and entry.

REFERENCES

American Psychiatric Association. (2004). *Diagnostic and statistical manual of mental disorder* (4th ed., Text revision). Washington, DC: Author.

Auster, E. R., Feeney Kettler, K. A., & Kratochwill, T. R. (2006). Conjoint behavioral consultation: Application to the school-based treatment of anxiety disorders. *Education and Treatment of Children, 29*, 243–256.

Benes, K. M., Gutkin, T. B., & Kramer, J. J. (1991). Micro-analysis of consultant and consultee verbal and nonverbal behaviors. *Journal of Educational and Psychological Consultation, 2*, 133–149. doi:10.1207/s1532768xjepc0202_3

Bergan, J. R. (1977). *Behavioral consultation*. Columbus, OH: Merrill.

Busse, R. T., Kratochwill, T. R., & Elliott, S. N. (1995). Meta-analysis for single-case consultation outcomes: Applications to research and practice. *Journal of School Psychology, 33*, 269–285. doi:10.1016/0022-4405(95)00014-D

Cicchetti, D. V., & Feinstein, A. R. (1990). High agreement but low kappa: II. Resolving the paradoxes. *Journal of Clinical Epidemiology, 43*, 551–558. doi:10.1016/0895-4356(90)90159-M

Cytrynbaum, S., Ginath, Y., Birdwell, J., & Brandt, L. (1979). Goal attainment scaling: A critical review. *Evaluation Quarterly, 3*, 5–40. doi:10.1177/0193841X7900300102

Egan, G. (2010). *The skilled helper: A problem-management and opportunity-development approach to helping* (9th ed.). Pacific Grove, CA: Brooks/Cole.

Epstein, J. L. (1986). Parents' reactions to teacher practices of parent involvement [Empirical Study]. *The Elementary School Journal, 86*, 277–294. doi:10.1086/461449

Erchul, W. P. (1987). A relational communication analysis of control in school consultation. *Professional School Psychology, 2*, 113–124. doi:10.1037/h0090534

Erchul, W. P. (1999). Two steps forward, one step back: Collaboration in school-based consultation. *Journal of School Psychology, 37*, 191–203.

Erchul, W. P., & Chewning, T. G. (1990). Behavioral consultation from a request-centered relational communication perspective. *School Psychology Quarterly, 5*, 1–20. doi:10.1037/h0090598

Erchul, W. P., DuPaul, G. J., Grissom, P. F., Vile Junod, R. E., Jitendra, A. K., Mannella, M. C., … Volpe, R. J. (2007). Relationships among relational communication processes and consultation outcomes for students with attention deficit hyperactivity disorder. *School Psychology Review, 36*, 111–129.

Fan, X. T., & Chen, M. (2001). Parental involvement and students' academic achievement: A meta-analysis. *Educational Psychology Review, 13*, 1–22.

Fay, M. P. (2005). Random marginal agreement coefficients: Rethinking the adjustment for chance when measuring agreement. *Biostatistics, 6*, 171–180. doi:10.1093/biostatistics/kxh027

Feinstein, A. R., & Cicchetti, D. V. (1990). High agreement but low kappa: I. The problems of two paradoxes. *Journal of Clinical Epidemiology, 43*, 543–549. doi:10.1016/0895-4356(90)90158-L

Fine, M. J., & Gardner, A. (1994). Collaborative consultation with families of children with special needs: Why bother? *Journal of Educational & Psychological Consultation, 5*, 283. doi:0.1207/s1532768xjepc0504_1

Garbacz, S. A., Woods, K. E., Swanger-Gagne, M. S., Taylor, A. M., Black, K. A., & Sheridan, S. M. (2008). The effectiveness of a partnership-centered approach in conjoint behavioral consultation. *School Psychology Quarterly, 23*, 313–326. doi:10.1037/1045-3830.23.3.313

Grissom, P. F., Erchul, W. P., & Sheridan, S. M. (2003). Relationships among relational communication processes and perceptions of outcomes in conjoint behavioral consultation. *Journal of Educational and Psychological Consultation, 14*, 157–180. doi:10.1207/s1532768xjepc1402_4

Gutkin, T. (1996). Patterns of consultant and consultee verbalizations: Examining communication leadership during initial consultation interviews. *Journal of School Psychology, 34*, 199–219. doi:10.1016/0022-4405(96)00011-8

Gutkin, T. (1999). Collaborative versus directive/prescriptive/expert school-based consultation: Reviewing and resolving a false dichotomy. *Journal of School Psychology, 37*, 161–190. doi:0.1016/S0022-4405(99)00003-5

Hoover-Dempsey, K. V. (1987). Parent involvement: Contributions of teacher efficacy, school socioeconomic status, and other school characteristics. *American Educational Research Journal, 24*, 417–435. doi:10.3102/00028312024003417

Individuals With Disabilities Education Act. (2004). Retrieved from http://idea.ed.gov/explore/view/p/%2Croot%2C

Jung, L., Ruble, L., Johnson, R., & McGrew, J. (2011). *Web-based coaching of teachers implementing autism interventions.* Manuscript submitted for publication.

Kratochwill, T. R., & Bergan, J. R. (1990). *Behavioral consultation in applied settings: An individual guide.* New York, NY: Plenum Press.

Leaper, C. (1991). Influence and involvement in children's discourse: Age, gender, and partner effects. *Child Development, 62*, 797–811. doi:10.1111/j.1467-8624.1991.tb01570.x

Loiacono, V., & Allen, B. (2008). Are special education teachers prepared to teach the increasing number of students diagnosed with autism? *International Journal of Special Education, 23*, 120–127.

Lord, C., Risi, S., Lambrecht, L., Cook, E. H., Jr., Leventhal, B. L., DiLavore, P. C., Pickles, A., & Rutter, M. (2000). The Autism Diagnostic Observation Schedule—Generic: A standard measure of social and communication deficits associated with the spectrum of autism. *Journal of Autism and Developmental Disorders, 30*, 205–223.

Lord, C., Rutter, M., & Le Couteur, A. (1994). Autism diagnostic interview-revised: A revised version of a diagnostic interview for caregivers of individuals with possible pervasive developmental disorders. *Journal of Autism and Developmental Disorders, 24*, 659–685.

Medway, F. J., & Updyke, J. F. (1985). Meta-analysis of consultation outcome studies. *American Journal of Community Psychology, 13*, 489–505. doi:10.1007/BF00923263

National Research Council. (2001). *Educating children with autism*. Washington, DC: National Academy Press.

No Child Left Behind (NCLB) Act of 2001, 20 U.S.C. § 6301 *et seq.* (West 2003).

Oren, T., & Ogletree, B. T. (2000). Program evaluation in classrooms for students with autism: Student outcomes and program processes. *Focus on Autism and Other Developmental Disabilities, 15*, 170–175. doi:10.1177/108835760001500308

Rice, C. (2009). Prevalence of autism spectrum disorders: Autism and developmental disabilities monitoring network, United States, 2006. *Morbidity and Mortality Weekly Report, 58*(SS-10).

Robins, D. L., Fein, D., Barton, M. L., & Green, J. A. (2001). The Modified Checklist for Autism in Toddlers: An initial study investigating the early detection of autism and pervasive developmental disorders. *Journal of Autism and Developmental Disorders, 31*, 131–144.

Ruble, L. A., & Dalrymple, N. J. (2002). COMPASS: A parent-teacher collaborative model for students with autism. *Focus on Autism and Other Developmental Disabilities, 17*, 76–83. doi:10.1177/10883576020170020201

Ruble, L. A., Dalrymple, N. J., & McGrew, J. H. (2010). The effects of consultation on Individualized Education Program outcomes for young children with autism: The collaborative model for promoting competence and success. *Journal of Early Intervention, 32*, 286–301. doi:10.1177/1053815110382973

Ruble, L., Dalrymple, N. J., & McGrew, J. (2012). *COMPASS: Providing direction. A collaborative model for promoting competence and success for persons with autism spectrum disorder*. New York, NY: Springer.

Ruble, L., Dalrymple, N., McGrew, J., & Jung, L. (2010). Examining the quality of IEPs for young children with autism. *Journal of Autism and Developmental Disorders, 40*, 1459–1470. doi:1007/s10803-010-1003-1

Ruble, L., McGrew, J., & Toland, M. (2011, August). *Randomized controlled study of teacher training in autism*. Poster session presented at the meeting of the American Psychological Association, Washington, DC.

Rutter, M., Bailey, A., & Lord, C. (2004). *Social Communication Questionnaire*. Los Angeles, CA: Western Psychological Services.

Safran, S. P. (2008). Why youngsters with autistic spectrum disorders remain underrepresented in special education. *Remedial and Special Education, 29*, 90–95. doi:10.1177/0741932507311637

Scheuermann, B., Webber, J., Boutot, E. A., & Goodwin, M. (2003). Problems with personnel preparation in autism spectrum disorders. *Focus on Autism and Other Developmental Disabilities, 18*, 197–206. doi:10.1177/10883576030180030801

Schlosser, R. W. (2004). Goal attainment scaling as a clinical measurement technique in communication disorders: A critical review. *Journal of Communication Disorders, 37*, 217–239. doi:10.1016/j.jcomdis.2003.09.003

Sheridan, S. M. (1997). Conceptual and empirical bases of conjoint behavioral consultation. *School Psychology Quarterly, 12*, 119–133. doi:10.1037/h0088954

Sheridan, S. M., Clarke, B. L., Knoche, L. L., & Edwards, C. P. (2006). The effects of conjoint behavioral consultation in early childhood settings. *Early Education and Development, 17*, 593–617. doi:10.1207/s15566935eed1704_5

Sheridan, S. M., Eagle, J. W., Cowan, R. J., & Mickelson, W. (2001). The effects of conjoint behavioral consultation results of a 4-year investigation. *Journal of School Psychology, 39*, 361–385. doi:10.1016/S0022-4405(01)00079-6

Sheridan, S. M., & Kratochwill, T. R. (1992). Behavioral parent-teacher consultation: Conceptual and research considerations. *Journal of School Psychology, 30*, 117–139. doi:10.1016/0022-4405(92)90025-Z

Sheridan, S. M., Meegan, S. P., & Eagle, J. W. (2002). Assessing the social context in initial conjoint behavioral consultation interviews: An exploratory analysis investigating processes and outcomes. *School Psychology Quarterly, 17*, 299–324. doi:10.1521/scpq.17.3.299.20882

Sheridan, S. M., Welch, M., & Orme, S. F. (1996). Is consultation effective? A review of outcome research. *Remedial and Special Education, 17*, 341–354.

Sladeczek, I. E., Elliott, S. N., Kratochwill, T. R., Robertson Mjaanes, S., & Stoiber, K. C. (2001). Application of goal attainment scaling to a conjoint behavioral consultation case. *Journal of Educational and Psychological Consultation, 12*, 45–58. doi:10.1207/S1532768XJEPC1201_03

Stahmer, A. C., Collings, N. M., & Palinkas, L. A. (2005). Early intervention practices for children with autism: Descriptions from community providers. *Focus on Autism and Other Developmental Disabilities, 20*, 66–79. doi:10.1177/10883576050200020301

Viera, A. J., & Garrett, J. M. (2005). Understanding interobserver agreement: The kappa statistic. *Family Medicine, 37*, 360–363.

Wilkinson, L. A. (2005). Supporting the inclusion of a student with Asperger's syndrome: A case study using conjoint behavioral consultation and self-management. *Educational Psychology in Practice, 21*, 307–326. doi:10.1080/02667360500344914

Witt, J. C., Erchul, W. P., McKee, W. T., Pardue, M. M., & Wickstrom, K. F. (1991). Conversational control in school-based consultation: The relationship between consultant and consultee topic determination and consultation outcome. *Journal of Educational and Psychological Consultation, 2*, 101–116. doi:10.1207/s1532768xjepc0202_1

Lisa Ruble, PhD, is an Associate Professor in the College of Education at the University of Kentucky, School Psychology Program. Her research is based on services and the study of issues involved in the provision of evidence-based practices in community-based settings for individuals with autism spectrum disorders.

Jessie Birdwhistell is a third year Doctoral student in the School Psychology Program at the University of Kentucky and a graduate research assistant for the Autism Research Group. Her research interests include peer-mediated interventions with students with autism in addition to beliefs and practices pertaining to educational placements and inclusion of students with autism.

Michael Toland, PhD, earned his Ph.D. in Quantitative, Qualitative, and Psychometric Methods from the University of Nebraska at Lincoln in 2008. His areas of research interest include examining the performance of item response theory (IRT) models, applications of IRT and structural equation modeling to scale development, issues related to longitudinal modeling and measurement invariance, and applications of longitudinal modeling.

John McGrew, PhD, earned his Ph.D. in Clinical Psychology from Indiana University Bloomington. He is Professor of Psychology at Indiana University-Purdue University Indianapolis, and principal or co-principal investigator of more than fifteen grants in the area of mental health services.

Authors Ruble, Toland, and McGrew are co-investigators of a NIH grant that supported this research. Authors Ruble and McGrew are authors of a manual that is in press with Springer Publishing Company. The manual is the consultation intervention described in this study. Author Birdwhistell, is a graduate research assistant and has no financial conflict of interest.

Note: The authors report that to the best of their knowledge neither they nor their affiliated institutions have financial or personal relationships or affiliations that could influence or bias the opinions, decisions, or work presented in this manuscript.