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Parent–teacher problem solving about concerns in children with autism spectrum disorder: The role of income and race

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Abstract

Problem solving between parents and teachers is critical to maximizing student outcomes. The current study examined the associations among the different components of problem solving, as well as the relationship between various characteristics and problem solving in parents and teachers of children with autism spectrum disorder (ASD). Participants were 18 teachers and 39 parents of children with ASD. Parents and teachers completed a demographic survey, phone interview, and dyad observation. Results indicated that parent and teacher problem solving strategies were correlated with each other. Lower-income parents and parents interacting with White teachers displayed less problem solving. Findings suggest that school-based service delivery models to improve problem solving should consider both skill development, as well as the sociodemographic characteristics that parents and teachers bring to their interactions.

Keywords

autism spectrum disorder; communication; family involvement; parent–teacher relationships; problem solving

1 | INTRODUCTION

In school-based problem solving, parents and teachers discuss child concerns and develop interventions to be implemented at home and at school (Allen & Blackston, 2003; Garbacz & McIntyre, 2015; Sheridan & Kratochwill, 1996/2007). Although problem solving between parents and teachers is important for children in general education, it is particularly critical for children receiving special education services, such as students with autism spectrum disorder (ASD; Garbacz, Sheridan, Koziol, Kwon, & Holmes, 2015; Murray, Ackerman-Spain, Williams, & Ryley, 2011; Wilkinson, 2005). There are many components to effective problem solving (Bergan & Kratochwill, 1990; Sheridan, Swanger-Gagné, Welch, Kwon, & Garbacz, 2009); however, very few studies have examined how these components are used

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together in educational practice. There also is limited knowledge about what factors are associated with parents' use of problem solving techniques with teachers and vice versa. The current study contributes to the literature because understanding the complex processes associated with problem solving may facilitate the development of school-based service delivery models that improve parent–teacher communication and ultimately outcomes for children with ASD. The goal of this study was to examine the associations among the different components of problem solving, as well as correlates of problem solving among parents and teachers of children with ASD.

1.1 | Problem solving and its components in general education

The need for problem solving stems from ecological systems theory, which posits that components of the microsystem (i.e., parents and teachers separately) interact in the mesosystem (i.e., parents and teachers together) to impact children's development and outcomes (Bronfenbrenner, 1992). We define problem solving as a systematic, solution-focused communication process occurring in the context of parent–teacher interactions, wherein parents and teachers share their concerns and agree on strategies to address them (G. F. Azad, Kim, Marcus, Sheridan, & Mandell, 2016; Sheridan & Kratochwill, 1996/2007). This definition of problem solving borrows from decades of research on conjoint behavioral consultation, an established model of problem solving in the school psychology literature (Sheridan et al., 2012).

There are four core elements to problem solving, including (a) identifying a mutual concern, (b) determining why it may be happening, (c) planning an intervention to be implemented at home and at school, and (d) evaluating the effectiveness of that intervention (G. F. Azad et al., 2016; Bransford & Stein, 1984; Embry & Biglan, 2008; Kratochwill & Bergan, 1978). These factors have been referred to as primary behavioral involvement in problem solving (Sheridan & Kratochwill, 1996/2007). Successful problem solving also includes secondary behavioral components, such as sharing information about students' strengths, discussing the school/home environment, and suggesting appropriate expectations (Sheridan & Kratochwill, 1996/2007). In addition to these behavioral components, communicators can be effective problem solvers by interacting in a clear and direct manner, using verbal/nonverbal indicators to convey understanding, and maintaining engagement without dominating the conversation (Bergan, 1977; Bergan & Kratochwill, 1990; Erchul & Martens, 2010; Sheridan & Kratochwill, 1996/2007). These components have been referred to as psychological involvement in problem solving and have been linked to individuals' general predisposition to communicative behavior (Bergan & Kratochwill, 1990; Sheridan & Kratochwill, 1996/2007; Sheridan et al., 2009; Wilkinson, 2005).

Although the importance of problem solving has been widely recognized in general education (Allen & Blackston, 2003; Sheridan & Kratochwill, 1996/2007; Sheridan et al., 2012; Semke, Garbacz, Kwon, Sheridan, & Woods, 2012), in many schools there is limited time for parent–teacher communication. The most efficient and effective use of parent and teacher time may be to target the primary behavioral components, since these are the core elements to problem solving. However, it is unclear how the different components to problem solving are related. For example, we do not know whether it is necessary to display

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the other components (secondary behavioral and psychological) to be successful at the core elements of problem solving (primary behavioral).

To date, very few studies examine the relationship between the different components of problem solving in educational settings. These studies have primarily been conducted in other areas, such as health communication and family psychology. For example, Baker and Watson (2015) reported that outside the health context (i.e., patient–physician communication), Australian patients showed a regular predisposition to communicate, but the characteristics of the health context altered these patients' willingness to communicate about a health concern to their physician. Based on the current literature, it is unclear whether parents' and teachers' general predisposition to communicate is related to the extent that they display the core elements of problem solving. Within families, couples' ability to problem solve relates to their partners' behaviors (Hartley, Papp, Blumenstock, Floyd, & Goetz, 2016). From the current research, we do not know whether teachers' problem solving behaviors may impact parents' willingness to problem solve and vice versa.

1.2 | Problem solving and special education

Parent–teacher problem solving is particularly critical for students who receive special education services, such as children with ASD (G. F. Azad et al., 2016; Garbacz et al., 2015; Murray et al., 2011; Wilkinson, 2005). By law, planning for special education services should include frequent meetings with parents (Gregg, Rugg, & Souto-Manning, 2011; Tucker & Schwartz, 2013), such as parent–teacher conferences and individualized education planning meetings (McNaughton, Hamlin, McCarthy, Head-Reeves, & Schreiner, 2008). Unfortunately, many families are dissatisfied with these meetings, stating that their views on goal setting and decision making are frequently ignored (G. F. Azad et al., 2016; Lake & Billingsley, 2000). Parents commonly view communication with teachers as lacking respect, empathy, and trust (Bernhard, Lefebvre, Murphy Kilbride, Chud, & Lange, 1998; Lea, 2006; McNaughton et al., 2008).

Children who require more individualized support, such as those with ASD, present with pervasive needs that impact their functioning across home and school settings. Deficits specifically related to ASD, such as rigid thinking, affect children's daily lives in similar ways at home and at school (e.g., challenging behaviors when presented with an unpredictable change). Additionally, evidence-based autism interventions are complex, often requiring multiple steps in specified sequences (Schreibman et al., 2015; Wong et al., 2015). Therefore, it is essential that parents and teachers discuss mutual child concerns across home and school, and use the same strategies to address them. Effective problem solving by parents and teachers of children with ASD will ensure consistency of practices across settings (G. F. Azad, Marcus, Sheridan, & Mandell, 2018).

1.3 | Predictors of problem solving

In general education, studies have examined what characteristics are related to high-quality interactions between parents and teachers. Prior research indicates that some possibilities include the race/ethnicity of parents and/or teachers, parents' socioeconomic status (SES), and the specific concerns related to children. It is possible that schools are not structured to

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facilitate home–school communication that all families can access (Mapp & Hong, 2010). For families from traditionally under-served communities, the underlying values, interaction patterns, and power differentials found in school systems may create barriers to effective communication (Cheatham & Ostrosky, 2011). For example, Howard and Lipinoga (2010) found that Spanish-speaking parents often responded “no” when they were asked by English-speaking teachers if they had any questions because they thought the teachers were dismissive of their views (Cooper, 2009). However, Latino parents were more involved at school when teachers were also Latino. Ethnic/racial match between parents and teachers may facilitate communication by overcoming language barriers, eliminating misunderstandings that may be related to culture, and by helping parents understand the norms and expectations in the school system (Calzada et al., 2015). Unfortunately, research with African American and Latino families suggest that educators often do not welcome, expect, or advance power-sharing, communicative relationships with these families during formal and/or informal interactions (Abrams & the Gibbs, 2002; Cooper, 2009). However, studies show that minority parents from under-served communities are more likely to get involved in their children’s education when teachers initiate effective collaborative partnerships (Kim, 2009).

In addition to the racial/ethnic make-up of communicators, parental SES may affect their interactions with teachers. Economically disadvantaged parents with low formal education may feel insecure about their knowledge of, and participation in, school-based matters, and this often creates a barrier to their communication with teachers (Bæck, 2010; Pena, 2000). For example, parental insecurity may lead to fewer comments when interacting with teachers (Jones & Gansle, 2010). Unfortunately, many teachers assume that a family’s disadvantaged economic status and their racial/cultural background indicate their lack of ability to be involved in their children’s education, when in fact other circumstances impede their involvement (Delgado-Gaitan, 2001). It is important to note that these parents may be engaged in their children’s education in multiple ways that are not easily visible to teachers. Teachers typically make judgments about parental involvement on the basis of visible engagement at school (Jones & Gansle, 2010; Lawson, 2003).

The topics which parents and teachers are concerned about may influence their interactions with each other. Teachers report more frequent contact with parents of children with problem behaviors (Kirkhaug, Drugli, Klöckner, & Mørch, 2013). In contrast, Palts and Harro-Loit (2015) reported that parents with low communication with their child’s teacher were primarily concerned about grades and health issues.

In special education, research suggests that the quality of parent–teacher relationships in general (Gwernan-Jones et al., 2015), and communication in particular (G. F. Azad et al., 2016), may be poor especially between parents and teachers of children with ASD. The more demanding needs of this vulnerable population, in conjunction with the complex interventions necessary to address them (Schreibman et al., 2015; Wong et al., 2015) are probable reasons why communication may be especially difficult between parents and teachers of children with ASD. However, there is limited research that examines parent, teacher, and/or child characteristics that may influence relationship quality and/or interactions between parents and teachers of children with ASD. The very few studies

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suggest that the process of becoming eligible for special education influences parent–teacher relationships. More specifically, when parents of children with ASD are satisfied with the educational eligibility process, they have better parent–teacher relationships. Additionally, hyperactivity in children with ASD has been associated with poorer parent–teacher relationships (Garbacz, McIntyre, & Santiago, 2016). It is possible that child characteristics per se may not be as important as parent and teacher agreement about those characteristics. G. Azad and Mandell (2016) found that although parents and teachers of children with ASD usually agree about their concerns for the same child, they do not necessarily bring it up when presented with an opportunity to discuss their concerns. However, it is also possible that if parents and teachers agree about their concerns, they may work together more collaboratively to problem solve that concern. From the current state of the literature, it is unclear whether the findings in general education relating parent and teacher characteristics (e.g., race, SES, etc.) to their communication would also be true in special education for children with ASD.

In summary, problem solving is a multicomponent process that has been shown to be critical in both general and special education settings. Unfortunately, there is limited time for it between parents and teachers. Given the time restrictions in schools, it is important to examine the different components of problem solving and determine whether it is necessary to display the secondary components to be effective at the core components of problem solving. The very few studies that have examined the relationship between the different components of problem solving have been conducted in health communication and family psychology. For children with ASD, research suggests that the quality of communication between parents and teachers may be relatively poor. However, few studies have examined the characteristics that are associated with high-quality parent–teacher communication for this vulnerable population. A majority of this study is conducted with non-ASD samples in general education. The purpose of this exploratory study is to examine: (a) what components of problem solving are associated with each other in parents and teachers of children with ASD? and (b) what characteristics are associated with parents' and teachers' involvement in problem solving?

2 | METHODS

2.1 | Participants

The participants in the current study were part of a larger study examining family–school partnerships for children with ASD (reference blinded for review) Mandell et al., (2013). There were 39 parent–teacher dyads. A dyad was defined as one parent and one teacher, with one target child in common between them. The dyads came from 18 kindergarten through fifth-grade autism support classrooms. These classrooms were spread across 13 schools in an urban public school district.

To recruit teachers, an email was sent to all teachers who had participated in a previous study. Thirty-three teachers from 22 schools received emails describing the project. Of these, 27 teachers from 18 schools consented to participate. The consented teachers were asked to send parents a packet of information describing the study. Parents from 18 classrooms in 13 schools consented to participate. A total of 46 parents provided written consent to

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participate; however, seven parents were dropped from the study. More specifically, six parents could not be contacted and one parent was no longer interested in participating. Each classroom contained between 1 and 6 parent participants. Only one parent was allowed to participate per child. Final recruitment numbers were 18 teachers and 39 parents from 13 schools.

Parent characteristics are presented in Table 1. A majority of the parents (94.9%) were mothers. They averaged 34.9 years of age (*SD* = 6.2). Their racial/ethnic make-up was as follows: 23% White, 56% African American/Black, 12.8% Hispanic/Latino, 3% American Indian/Alaska Native, and 5% other. Approximately 59% of the parents reported high school/vocational school or less as their educational attainment; 77% reported <45 k income. Fifty percent of the sample was unemployed and 64.1% reported not being married.

Teacher characteristics also are presented in Table 1. Approximately 88.9% were female with an average age of 36 years (*SD* = 11.3). Although a majority identified as White (83.3%), there were some teachers who identified as African American/Black (11.1%) or American Indian/Alaska Native (5.6%). All teachers taught in special education classrooms with an autism-specific sample. In the school district where this study was conducted, these classrooms are referred to as autism support classrooms. There were a variety of grade arrangements in these classrooms (e.g., K-1, K-2, or K-3), but more than half of the teachers (55.5%) taught in some arrangement of a kindergarten through third-grade classroom. On average, teachers reported teaching children with ASD for 6 years (*SD* = 3.4).

There were 39 target students with ASD. A majority were boys (70%) who averaged 7.4 years of age (*SD* = 1.6). All students were in elementary school, with 64% in kindergarten through second grades. Approximately 74% were enrolled in free or reduced lunch programs. Many students received school-based services, such as speech therapy (95%) or occupational therapy (77%).

2.2 | Procedures

The university's institutional review board and school district's research review committee approved all research activities. The first author contacted both parents and teachers to briefly explain the study, answer any questions, and schedule a 20-min phone interview. Interviews were conducted separately for parents and teachers. Parent interviews were conducted first. Teachers who had the participation of at least one parent with a child from his or her classroom were then interviewed. This order was chosen because if a parent did not keep their interview, then it was not necessary to interview the teacher. The dyad observation was scheduled at the end of each interview, and usually conducted a few weeks after the initial parent interview. Dyad observations were conducted after the individual phone interviews to establish rapport with parents before the in-person observation on the school premises. The first author conducted all interviews and observations.

2.3 | Measures

2.3.1 | Parent/teacher demographic survey—

Parents and teachers reported on demographic information on the phone just before their interviews. Variables of interest in

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the parent demographic survey were education, income, and race. Our demographic survey had standard classifications for education (eight categories), income (four categories), and race (seven categories). After reviewing the distribution of responses, we collapsed a number of categories due to sparse data. For example, there were not many parents with incomes >60 k, and therefore, we collapsed that category with 45–60 k, such that our higher end income category was >45 k. For parents, education was dichotomized into two categories: (a) high school or less or (b) more than high school. Family income was rated as three categories: (a) <25 k, (b) between 25 k and 45 k, and (c) >45 k. Variables of interest in the teacher demographic survey were race and years teaching in autism support classrooms. For both parents and teachers, the race variables were dichotomized into two categories: White or not White. If participants were not comfortable providing demographic information over the phone, they were provided with an option to complete the demographic form in a written format. However, no participants declined to provide demographic information over the phone.

2.3.2 | Individual interviews—Parents and teachers were interviewed individually over the phone. They were asked about their three main concerns for the child with ASD (i.e. *what are your top three concerns about [insert child's name] right now?*). Responses were both audio recorded and written on de-identified interview protocols. Interviewees were prompted to list their concerns in rank order. For the current study, we used parents' and teachers' agreement on their primary and secondary concerns because many participants did not report a third concern. For the purposes of this study, the main objective of the interview was to obtain information about the extent to which parents and teachers agreed on their concerns about the same child. Through an iterative process, the research team coded parents' and teachers' primary concerns into one of six categories: (a) academics, (b) problem behaviors, (c) self-help, (d) social interaction, (e) communication, or (f) restricted, repetitive, and stereotyped behaviors. This process was repeated for secondary concerns (reference blinded for review).

2.3.3 | Dyad observation—Parents and teachers were given 7 min to respond to the prompt, "*Discuss a problem that [insert child's name] has at home and at school. Provide a solution that can be used in both places*." Seven minutes was chosen because in the school district where the current study was conducted, parent–teacher conferences (where multiple concerns are discussed) usually last 15 min. Therefore, it was hypothesized that 7 min was a sufficient amount of time to discuss one child concern. Each dyad was meeting about one child only. All observations took place in the school and were videotaped for subsequent coding. The main objective of the observation was to examine the extent to which parents and teachers displayed the different components to problem solving.

A modified version of the Parent–Teacher Interaction Quality Scale (PTIQ; Mullaney, Gill-Hraban, Sheridan, Baker, Kwon, & Daro, 2009) was used to code the videos. The original PTIQ was developed to examine behavioral and psychological involvement in problem solving. Behavioral involvement included parents' and teachers' specific actions that demonstrated problem solving, such as actively defining the target concern and sharing relevant information about students' strengths. Psychological involvement included parents'

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and teachers' perceived attitudes and perceptions, such as expressing an understanding of the demands placed on each other (G. F. Azad et al., 2016). A 5-point Likert scale is used by independent observers (i.e., coders trained on the PTIQ) to rate each item. Internal consistency for the PTIQ was α = 0.85 for parent ratings and α = 0.89 for teacher ratings (Mullaney et al., 2009).

The PTIQ-R was modified for the purposes of the current study. For example, behavioral involvement was broken into two components, primary and secondary. Additionally, some items were divided into two items (e.g., "provided relevant information regarding this student's strengths or needs" was divided into two items) to obtain more specific information. The final PTIQ-R consisted of 23 items that yielded a total score on primary behavioral involvement, secondary behavioral involvement, and psychological involvement, as well as a combined score on behavioral and psychological involvement in problem solving. All revisions were approved by the developer of the PTIQ. The components to problem solving were operationalized as follows: (a) Primary behavioral involvement reflected core, specific actions related to problem solving. Examples include defining a target concern or planning specific intervention steps. (b) Secondary behavioral involvement referred to additional components that facilitated the problem solving process, but were not core components. Examples include sharing relevant information on student's strengths or suggesting expectations. And (c) Psychological involvement reflected parents' and teachers' perceived attitudes and perceptions. Examples include maintaining engagement without dominating the conversation or expressing an understanding of the demands placed on the other person.

Training on the PTIQ-R occurred in a sequential process. First, two undergraduate coders and the first author (as the expert coder) watched videos together and discussed examples and non-examples of the codes. These "training" videos were all coded together. Coders were then assigned practice videos to watch independently and then discuss together with the first author. These "practice" videos were first coded independently, and then coded as a group to generate consensus codes. Training and practice videos were utilized to help the coders achieve a predetermined standard for meeting reliability. Each coder was required to obtain 80% reliability with the first author. Coders were assigned a separate list of videos once they achieved familiarity with the codes. These assigned videos were coded independently. A portion of the assigned videos (20%) were coded by both the independent coders and the first author to maintain reliability standards. These tapes were first coded individually, discussed as a group, and then completed with consensus codes. On average, percent agreement was 86.9%.

2.4 | Data analysis

Pearson's correlations were used to address our first research question about the associations between the different components of problem solving. For the second research question pertaining to the characteristics that predicted problem solving, linear regression models were used. Parent demographic variables that served as independent variables were education, income, and race. Teacher demographic variables that served as independent variables were teachers' race and a number of years teaching in autism support classrooms.

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Additional independent variables were a total score on primary behavioral involvement (from the other person in the dyad) and agreement between parents and teachers regarding student concerns. Percentages were computed for agreement between parents and teachers. We used agreement between parents and teachers on their primary or secondary concerns because G. Azad and Mandell (2016) suggested that while parents and teachers agree on their top two concerns, there is very little agreement on just the primary concerns. For income, "<25 k" was used as the reference variable. The race variable was dummy coded 0 = not White and 1 = White with the former used as the reference variable. Dependent variables of interest were parents' or teachers' score on primary behavioral involvement.

Separate models were run for parents' and teachers' problem solving. In the unadjusted models, separate linear regressions were used to test for associations between each independent variable and the dependent variable. In the adjusted models, all of the variables were entered with a $p < 0.20$ (in the unadjusted model) as independent variables. To account for the clustering in our data (i.e., multiple parents nested in a classroom), we ran linear regression models using Complex Samples in SPSS (SPSS Inc., 1996). Complex samples use generalized estimating equations to adjust standard errors to account for the nonindependence created by clustering.

3 | RESULTS

For the current study, there were two research questions of interest. First, *To what extent are the components of problem solving associated with each other in parents and teachers of children with ASD?* Table 2 presents the results from the correlations. Two significant correlations were present. First, parents' and teachers' primary behavioral involvement in problem solving were correlated ($r = 0.37$, $p = 0.019$). This finding indicated that as primary behavioral involvement increased in one communicator, it also increased in the other communicator. Additionally, parents' and teachers' psychological involvement in problem solving were correlated ($r = 0.41$, $p = 0.009$), suggesting that as psychological involvement increased in one communicator, it also increased in the other communicator. No other significant correlations were present.

Second, *What characteristics are associated with parents' and teachers' involvement in problem solving?* Linear regression models using Complex Samples were used to determine what characteristics were associated with parents' and teachers' primary behavioral involvement in problem solving. Table 3 shows the results from the unadjusted models. For parents, education ($B = 1.11$, $p = 0.002$) and income over 45 k ($B = 1.47$, $p = 0.008$) were significantly associated with parents' primary behavioral involvement in problem solving. Income between 25 and 45 k, teachers' race, parents' race, teachers' years teaching in autism support classrooms, agreement on primary or secondary concerns, and teachers' score on primary behavioral involvement were not associated with parents' primary behavioral involvement in problem solving. For teachers, parents' score on primary behavioral involvement was significantly associated with teachers' score on primary behavioral involvement in problem solving ($B = 0.41$, $p = 0.011$). None of the other variables were statistically significantly associated with teachers' primary behavioral involvement in problem solving.

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As seen in Table 4, in the adjusted model predicting parents' primary behavioral involvement, income was significantly associated with parents' score on primary behavioral involvement ($B = 0.72$, $p = 0.014$; $B = 1.06$, $p = 0.024$). More specifically, parents with income between 25 and 45 k had on average a score on primary behavioral involvement that was 0.72 units higher than those with incomes less than 25 k. Additionally, parents with income over 45 k had on average a score on primary behavioral involvement that was 1.06 units higher than those with incomes <25 k. Additionally, teachers' race was significantly associated with parents' primary behavioral involvement ($B = -1.27$, $p = 0.006$). When teachers were White, on average parents score on primary behavioral involvement was 1.27 units lower than when teachers were not White.

For teachers, the adjusted model predicting teachers' primary behavioral involvement was identical to the unadjusted model with parents' primary behavioral involvement as the independent variable and teachers' primary behavioral involvement as the dependent variable. The identical nature resulted because there was only one variable (i.e., parents' primary behavioral involvement) in the unadjusted analyses with a $p < 0.20$. For teachers, parents' score on primary behavioral involvement was significantly associated with teachers' score on primary behavioral involvement in problem solving ($B = 0.41$, $p = 0.011$).

4 | DISCUSSION

Among parents and teachers of children with ASD, the primary behavioral components to problem solving—identifying a mutual concern, determining why it may be happening, planning an intervention to be implemented at home and at school, and evaluating the effectiveness of that intervention—were associated with each other. Parents' and teachers' psychological involvement (i.e., interacting in a clear and direct manner, using verbal/nonverbal indicators to convey understanding, and maintaining engagement without dominating the conversation) in problem solving were also related. More specifically, when parents or teachers systematically discussed concerns about the child and the best ways to address them (i.e., primary behavioral involvement) and were generally "nice" (i.e., psychologically involved), the other person also displayed these same components. Additionally, lower-income parents and parents interacting with White teachers displayed less problem solving than higher-income parents and parents interacting with non-White teachers.

Prior studies have shown that one person's communicative behavior may affect another's (Baker & Watson, 2015). For example, during parent–teacher conferences, Pillet-Shore (2015) showed that parents responded differently to student-praising comments versus student-criticizing comments from teachers. These exchanges, in turn, developed into very different parent–teacher interactions. Since our results were correlational, the direction of effect from teacher to parent or parent to teacher is unclear. It is possible that when teachers bring up a student concern, parents offer suggestions as to why it may be happening, and collectively, both parties discuss interventions and data to be used at home and at school (Tucker & Schwartz, 2013). Further, parents' communicative behaviors may mirror teachers' communicative behaviors (i.e., when teachers nod, parents nod; Pillet-Shore, 2015).

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However, the reverse direction is also possible, such that parents may initiate this sequence of behaviors.

The second finding pertained to the characteristics that were related to parents' and teachers' problem solving. For parents, family income and teachers' race were related to the extent to which they were involved in the primary behavioral components to problem solving. Specifically, parents who reported an annual income of between 25 and 45 k or over 45 k displayed more of the core components to problem solving than those with incomes <25 k. There are two possible reasons why income may affect parents' ability to problem solve. First, parents with a higher income may indeed have better problem solving skills because they are used in professions that require complex communication and collaboration with others (Farh, Seo, & Tesluk, 2012). As a result, these higher-income parents may have different perceptions about bringing up and solving a concern about their child with the teacher.

Expectations are another probable reason why higher-income parents may display more problem solving. Normative expectations about who to share personal family matters with (e.g., concerns about one's child) may be different for higher- versus lower-income families. Studies have shown that schools generally represent middle- or upper-class values of communication, and thus, home–school interactions may be more effective with middle- or upper-class parents because of the similarities in beliefs (Feuerstein, 2000). For the higher-income parents in our study, it may be more normative to "air their dirty laundry" with the teacher.

The second characteristic that was related to parents' problem solving was teachers' race. More specifically, when teachers were White, parents (regardless of their own race) were involved in less of the primary behavioral components to problem solving. One probable reason that parents may be engaging in less problem solving with White teachers is related to role expectations. When teachers are White, parents may perceive their role (i.e., the teachers) as the "expert" or "advice giver" and automatically assume a passive role as the receiver of information (G. F. Azad et al., 2016; Burke, 2012). Parents are often more comfortable in the role of observer, viewing professionals as a source of unquestionable knowledge. This may be particularly true when teachers are White. In our study, parents may have followed the White teachers' lead, and thus limited their own problem solving skills. However with non-White teachers, parents (a majority who were non-White) may have felt more comfortable stepping outside their comfort zone and attempting to problem solve.

5 | LIMITATIONS AND FUTURE DIRECTIONS

There are important limitations to note about the current study. First, our limited sample size prevented us from doing more in-depth analyses. For example, we did not examine other factors that may impact problem solving, such as perceptions of relationship quality or direct measures of cultural beliefs, because of our limited sample size (Sheridan et al., 2012). Second, we coded for parent and teacher problem solving behaviors separately, rather than examining dyadic combinations of how one person's problem solving behavior may

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influence the other person's response. In future studies, it will be important to examine individual, as well as dyadic characteristics that may predict problem solving. Third, we obtained demographic information over the phone. Although no participants opted to complete the demographic form via written format, we do not know whether their responses would have been different in a written format. Fourth, we did not have enough variation in our race variable to examine broader racial categories of interest. Future studies that utilize a large, diverse sample size may be able to address this important issue. Fifth, teachers were allowed to participate with multiple parents from their classroom in the dyad observation. Since each teacher's problem solving approach is likely to be the same across parents, the results of our study should be interpreted with this consideration in mind. Studies in the future may consider using a 1:1 ratio, such that each teacher only works with one parent in his/her classroom. Sixth, because of the small-scale exploratory nature of the current study, we were not able to confirm children's ASD classification. However, the participants in the current study were from "autism support" classrooms in the district. These self-contained classrooms are designed specifically for children who have an educational classification of ASD. Seventh, given that our study design did not include a control group, we cannot confidently say whether the results are specific to ASD. In the future, large-scale, resource sufficient studies with control groups should confirm ASD classification before examining parent–teacher communication.

Despite these limitations, the findings from the current study have important implications about parent–teacher problem solving and the best way to encourage it in school-based service delivery models. Prior studies have indicated that the quality and quantity of problem solving between parents and teachers of children with ASD is limited in schools (G. Azad & Mandell, 2016; G. F. Azad et al., 2016). The findings from the current study suggest that this is even less common among low-income parents and parents interacting with White teachers. Unfortunately, these families are the ones that may benefit the most from effective problem solving with their child's teacher, given limited access to other clinical services (Thomas, Ellis, McLaurin, Daniels, & Morrissey, 2007). Currently, models of teacher preparation and training focus on skill development as it relates to students. For example, the most common type of training reported by teachers is workshops that primarily focus on developing skills related to teaching students (Morrier, Hess, & Heflin, 2011). The results from the current study suggest that teacher preparation and training programs not only focus on skill development with students, but also incorporate topics related to partnering with families, particularly those from diverse backgrounds. It is a disservice to teachers to only train them on how to work with students in the classroom. Teachers should be trained to work with the whole student, including their parents, to effectively address the complex needs associated with ASD. According to Irvine (2012), it is imperative for teachers to build two-way bridges to families and respect differences that might affect forms of communication and collaboration. One critical topic for teacher training is how to address role expectations when problem solving with diverse parents. Once in the classroom, teachers should receive support on how to actively problem solve with parents, particularly those from lower-income backgrounds. Support services, such as coaching and consultations for communicating with diverse families, should ideally be embedded into the infrastructure of schools. For example, prior research indicates that inner-city diverse parents responded

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well to parent involvement programs that focused on empowerment, outreach, and indigenous resources (Abdul-Adil & Farmer, 2006). Teachers may feel more comfortable prioritizing problem solving with parents, when parent– teacher communication is valued in the culture and climate of schools. More research is needed to better understand how to address such topics in a culturally sensitive matter within educational settings.

In addition to teachers, the findings from the current study also have direct implications for school psychologists and school psychology trainers. School psychologists should be highly encouraged to facilitate problem solving between parents and teachers. School psychologists are trained in research-based practices for communication, such as problem solving, and how this may or may not be altered to ensure responsive communication for all families (Christenson, 2004; National Association of School Psychologists, 2010, 2012). According to Pelco, Ries, Jacobson, and Melka (2000), school psychologists strongly believed it was their role to be a direct resource to parents and teachers in developing communication strategies. School psychology trainers also should ensure that students and trainees not only have adequate exposure to the various models of problem solving, but also sufficient time to practice these crucial skills through school-based practicums. These trainers are encouraged to empower students and trainees to see themselves as social change agents in schools who advocate for parent–teacher communication and collaboration.

In summary, this study aimed to examine the relationship between the different components of problem solving in parents and teachers of children with ASD. We also were interested in what variables may be associated with parent–teacher problem solving. Our findings indicated that the core components of problem solving (i.e., primary behavioral involvement) were related for parents and teachers. Further, the extent to which parents and teachers were nice to each other (i.e., psychological involvement) also was related. Parents' income and teachers' race were associated with parents' use of problem solving. These findings are important for teachers and school psychologists to improve the quality of communication between parents and teachers of children with ASD. Supporting school-based staff in encouraging parent–teacher problem solving may strengthen partnerships between systems of care most critical to children with ASD.

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REFERENCES

Abdul-Adil JK, & Farmer AD (2006). Inner-city African American parental involvement in elementary schools: Getting beyond urban legends of apathy. School Psychology Quarterly, 21(1), 1–12.

Abrams LS, & Gibbs JT (2002). Disrupting the logic of home-school relations: Parent involvement strategies and practices of inclusion and exclusion. Urban Education, 37(3), 384–407.

Allen SJ, & Blackston AR (2003). Training pre-service teachers in collaborative problem solving: An investigation of the impact on teacher and student behavior change in real-world settings. School Psychology Quarterly, 18(1), 22–51.

Author Manuscript Author Manuscript Author Manuscript Author Manuscript

Azad GF, Kim M, Marcus SC, Sheridan SM, & Mandell DS (2016). Parent–teacher communication about children with autism spectrum disorder: An examination of collaborative problem solving. Psychology in the Schools, 53(10), 1071–1084. [PubMed: 28392604]

Azad G, & Mandell DS (2016). Concerns of parents and teachers of children with autism in elementary school. Autism, 20 (4), 435–441. [PubMed: 26069200]

Azad GF, Marcus SC, Sheridan SM, & Mandell DS (2018). Partners in school: An innovative parent-teacher consultation model for children with autism spectrum disorder. Journal of Educational and Psychological Consultation, Advance online publication. 10.1080/10474412.2018.1431550

Baker SC, & Watson BM (2015). How patients perceive their doctors' communication: Implications for patient willingness to communicate. Journal of Language and Social Psychology, 34, 621–639.

Bæck UDK (2010). Parental involvement practices in formalized home–school cooperation. Scandinavian Journal of Educational Research, 54(6), 549–563.

Bergan JR (1977). Behavioral consultation, Columbus, OH: Charles E. Merrill.

Bergan JR, & Kratochwill TR (1990). Applied clinical psychology, Behavioral consultation and therapy. New York, NY: Plenum Press.

Bernhard JK, Lefebvre ML, Murphy Kilbride K, Chud G, & Lange R (1998). Troubled relationships in early childhood education: Parent–teacher interactions in ethno-culturally diverse child care settings. Early Education and Development, 9(1), 5–28.

Bransford JD, & Stein BS (1984). The ideal problem solver. A guide for improving thinking, learning, and creativity, A series of books in psychology. New York, NY: W.H. Freeman & Co Ltd.

Bronfenbrenner U (1992). Ecological systems theory. In Vasta R (Ed.), Six theories of child development: Revised formulations and current issues (pp. 187–249). London: Jessica Kingsley Publishers.

Burke MM (2012). Examining family involvement in regular and special education: Lessons to be learned for both sides. In Hodapp RM (Ed.), International review of research in developmental disabilities (43, pp. 187–218). Waltham, MA: Elsevier.

Calzada EJ, Huang K-Y, Hernandez M, Soriano E, Acra CF, Dawson-McClure S, … Brotman L (2015). Family and teacher characteristics as predictors of parent involvement in education during early childhood among Afro-Caribbean and Latino immigrant families. Urban Education, 50(7), 870–896. [PubMed: 26417116]

Cheatham GA, & Ostrosky MM (2011). Whose expertise: An analysis of advice giving in early childhood parent–teacher conferences. Journal of Research in Childhood Education, 25(1), 24–44.

Christenson SL (2004). The family-school partnership: An opportunity to promote the learning competence of all students. School psychology review, 33, 83–104.

Cooper CW (2009). Parent involvement, African American mothers, and the politics of educational care. Equity & Excellence in Education, 42(4), 379–394.

Delgado-Gaitan C (2001). The power of community: Mobilizing for family and schooling, Lanham, MD: Rowman & Littlefield.

Embry DD, & Biglan A (2008). Evidence-based kernels: Fundamental units of behavioral influence. Clinical Child and Family Psychology Review, 11(3), 75–113. [PubMed: 18712600]

Erchul WP, & Martens BK (2010). School consultation: Conceptual and empirical bases of practice (3rd ed.). New York, NY: Springer Science and Business Media.

Farh CICC, Seo M-G, & Tesluk PE (2012). Emotional intelligence, teamwork effectiveness, and job performance: The moderating role of job context. Journal of Applied Psychology, 97(4), 890–900.

Feuerstein A (2000). School characteristics and parent involvement: Influences on participation in children's schools. Journal of Educational Research, 94, 29–39.

Garbacz SA, & McIntyre LL (2015). Conjoint behavioral consultation for children with autism spectrum disorder. School Psychology Quarterly, 31(4), 450–466. [PubMed: 25688808]

Garbacz SA, McIntyre LL, & Santiago RT (2016). Family involvement and parent–teacher relationships for students with autism spectrum disorders. School Psychology Quarterly, 31(4), 478–490. [PubMed: 27929318]

Author Manuscript Author Manuscript Author Manuscript Author Manuscript

Garbacz SA, Sheridan SM, Koziol NA, Kwon K, & Holmes SR (2015). Congruence in parent–teacher communication: Implications for the efficacy of CBC for students with behavioral concerns. School Psychology Review, 44(2), 150–168.

Gregg K, Rugg M, & Souto-Manning M (2011). Fostering family-centered practices through a family-created portfolio. The School Community Journal, 21(1), 53–70.

Gwernan-Jones R, Moore DA, Garside R, Richardson M, Thompson-Coon J, Rogers M, … Ford T (2015). ADHD, parent perspectives and parent–teacher relationships: Grounds for conflict. British Journal of Special Education, 42(3), 279–300.

Hartley SL, Papp LM, Blumenstock SM, Floyd F, & Goetz GL (2016). The effect of daily challenges in children with autism on parents' couple problem solving interactions. Journal of Family Psychology, 30(6), 732–742. [PubMed: 27336179]

Howard KM, & Lipinoga S (2010). Closing down openings: Pretextuality and misunderstanding in parent–teacher conferences with Mexican immigrant families. Language and Communication, 30(1), 33–47.

Irvine JJ (2012). Complex relationships between multicultural education and special education: An African American perspective. Journal of Teacher Education, 63(4), 268–274.

Jones BA, & Gansle KA (2010). The effects of a mini-conference, socioeconomic status, and parent education on perceived and actual parent participation in individual education program meetings. Research in the Schools, 17(2), 23–38.

Kim Y (2009). Minority parental involvement and school barriers: Moving the focus away from deficiencies of parents. Educational Research Review, 4(2), 80–102.

Kirkhaug B, Drugli MB, Klöckner CA, & Mørch WT (2013). Association between parental involvement in school and child conduct, social, and internalizing problems: Teacher report. Educational Research and Evaluation, 19(4), 346–361.

Kratochwill TR, & Bergan JR (1978). Training school psychologists: Some perspectives on a competency-based behavioral consultation model. Professional Psychology, 9(1), 71–82.

Lake JF, & Billingsley BS (2000). An analysis of factors that contribute to parent–school conflict in special education. Remedial and Special Education, 21(4), 240–251.

Lawson MA (2003). School-family relations in context: Parent and teacher perceptions of parent involvement. Urban Education, 38, 77–133.

Lea D (2006'You don't know me like that': Patterns of disconnect between adolescent mothers of children with disabilities and their early interventionists. Journal of Early Intervention, 28(4), 264–282.

Mandell DS, Stahmer AC, Shin S, Xie M, Reisinger E, & Marcus SC (2013). The role of treatment fidelity on outcomes during a randomized field trial of an autism intervention. Autism, 17(3), 281–295. [PubMed: 23592849]

Mapp KL, & Hong S (2010). Debunking the myth of the hard to reach parent. Handbook of school-family partnerships, 345–361.

McNaughton D, Hamlin D, McCarthy J, Head-Reeves D, & Schreiner M (2008). Learning to listen: Teaching an active listening strategy to preservice education professionals. Topics in Early Childhood Special Education, 27(4), 223–231.

Morrier MJ, Hess KL, & Heflin LJ (2011). Teacher training for implementation of teaching strategies for students with autism spectrum disorders. Teacher Education and Special Education, 34(2), 119–132.

Mullaney LC, Gill-Hraban KA, Sheridan SM, Baker CM, Kwon K, & Daro P (2009). Examination of parent and teacher engagement in conjoint behavioral consultation. In Poster presented at the annual meeting of the American Psychological Association, Toronto, Canada.

Murray MM, Ackerman-Spain K, Williams EU, & Ryley AT (2011). Knowledge is power: Empowering the autism community through parent–professional training. School Community Journal, 21(1), 19–36.

National Association of School Psychologists (2010). Model for comprehensive and integrated school psychological services, Bethesda, MD: Author.

National Association of School Psychologists (2012). School-family partnering to enhance learning: Essential elements and responsibilities (Position statement), Bethesda, MD: Author.

Author Manuscript Author Manuscript Author Manuscript Author Manuscript

Palts K, & Harro-Loit H (2015). Parent–teacher communication patterns concerning activity and positive-negative attitudes. Trames. Journal of Humanities and Social Sciences, 19(2), 139–154.

Pelco LE, Ries RR, Jacobson L, & Melka S (2000). Perspectives and practices in family-school partnerships: A national survey of school psychologists. School psychology review, 29, 235–250.

Peña DC (2000). Parent involvement: Influencing factors and implications. Journal of Educational Research, 94, 42–54.

Pillet-Shore D (2015). Being a “good parent” in parent–teacher conferences. Journal of Communication, 65(2), 373–395.

Schreibman L, Dawson G, Stahmer AC, Landa R, Rogers SJ, McGee GG, … Halladay A (2015). Naturalistic developmental behavioral interventions: Empirically validated treatments for autism spectrum disorder. Journal of Autism and Developmental Disorders, 45(8), 2411–2428. [PubMed: 25737021]

Semke CA, Garbacz SA, Kwon K, Sheridan SM, & Woods KE (2012). Family-school connections in rural educational settings: A systematic review of the empirical literature. School Community Journal, 22(1), 21–48.

Sheridan SM, Bovaird JA, Glover TA, Garbacz SA, Witte A, & Kwon K (2012). A randomized trial examining the effects of conjoint behavioral consultation and the mediating role of the parent–teacher relationship. School Psychology Review, 41(1), 23–46.

Sheridan SM, & Kratochwill TR (1996/2007). Conjoint behavioral consultation, Conjoint behavioral consultation: Promoting family school connections and interventions (2nd ed.). New York, NY: Springer.

Sheridan SM, Swanger-Gagné M, Welch GW, Kwon K, & Garbacz SA (2009). Fidelity measurement in consultation: Psychometric issues and preliminary examination. School Psychology Review, 38(4), 476–495.

SPSS Inc. (1996). SPSS base 7.0 for Windows user’s guide. Prentice Hall.

Thomas KC, Ellis AR, McLaurin C, Daniels J, & Morrissey JP (2007). Access to care for autism-related services. Journal of Autism and Developmental Disorders, 37(10), 1902–1912. [PubMed: 17372817]

Tucker V, & Schwartz I (2013). Parents’ perspectives of collaboration with school professionals: Barriers and facilitators to successful partnerships in planning for students with ASD. School Mental Health, 5(1), 3–14.

Wilkinson LA (2005). Supporting the inclusion of a student with Asperger syndrome: A case study using conjoint behavioral consultation and self-management. Educational Psychology in Practice, 21(4), 307–326.

Wong C, Odom SL, Hume KA, Cox AW, Fettig A, Kucharczyk S, … chultz TR (2015). Evidence-based practices for children, youth, and young adults with autism spectrum disorder: A comprehensive review. Journal of Autism and Developmental Disorders, 45(7), 1951–1966. [PubMed: 25578338]

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TABLE 1

Demographic characteristics

Variable	Mean (*SD*) or percentage
Parent characteristics	
Fathers	2.6
Mothers	94.9
Other	2.6
Age (in years)	34.9 (6.2)
Caucasian/White	23.1
African American/Black	56.4
Hispanic/Latino	12.8
American Indian/Alaska native	2.6
Other	5.1
High/vocational school or less	59.0
Annual income <45 k	77.0
Unemployed	50.0
Not married	64.1
Teacher characteristics	
Male	11.1
Female	88.9
Age (in years)	36.0 (11.3)
Caucasian/White	83.3
African American/Black	11.1
American Indian/Alaska native	5.6
Kindergarten–third grade	55.5
First grade–third grade	11.2
Second grade–fifth grade	33.3
Years teaching children with ASD	6.0 (3.4)

Note. ASD: autism spectrum disorder.

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TABLE 2

Correlations between the different components of problem solving

	Parent primary behavioral involvement	Parent secondary behavioral involvement	Parent psychological involvement	Teacher primary behavioral involvement	Teacher secondary behavioral involvement	Teacher psychological involvement
Parent primary behavioral involvement	1					
Parent secondary behavioral involvement	0.22	1				
Parent psychological involvement	0.14	0.05	1			
Teacher primary behavioral involvement	0.37*	0.03	−0.01	1		
Teacher secondary behavioral involvement	−0.15	0.17	0.09	−0.08	1	
Teacher psychological involvement	−0.20	0.16	0.41**	−0.09	0.01	1

* $p < 0.05$.

** $p < 0.01$.

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TABLE 3

Unadjusted models predicting parent and teacher primary behavioral involvement in problem solving

	Parents' primary behavioral involvement		Teachers' primary behavioral involvement	
Variables	***B***	***p***	***B***	***p***
Parents' education				
HS or less	–	–	–	–
More than HS	1.11	0.002**	0.19	0.741
Family income				
<25 k	–	–	–	–
25–45 k	0.60	0.053†	0.20	0.703
>45 k	1.47	0.008**	0.51	0.393
Teachers' race				
Not White	–	–	–	–
White	−1.06	0.128	−0.64	0.283
Parents' race				
Not White	–	–	–	–
White	0.47	0.258	0.28	0.531
Years teaching autism support	−0.10	0.056†	0.00	0.996
Agreement on primary or secondary concern	−0.57	0.184	−0.54	0.231
Teacher score on PBI	0.34	0.146	–	–
Parent score on PBI	–	–	0.41	0.011*

Note. HS: high school; PBI: primary behavioral involvement.

*$p < 0.05$.

**$p < 0.01$.

†$p < 0.10$.

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TABLE 4

Adjusted models predicting parent and teacher primary behavioral involvement in problem solving

Variables	Parents' primary behavioral involvement		Teachers' primary behavioral involvement	
	B	***p***	***B***	***p***
Parents' education				
More than HS	0.59	0.167	–	–
Family income				
25–45 k	0.72	0.014*	–	–
>45 k	1.06	0.038*	–	–
Teachers' race (White)	−1.27	0.006**	–	–
Years teaching autism support	−0.07	0.059+	–	–
Agreement on primary or secondary concern	0.10	0.724	–	–
Teacher score on PBI	0.21	0.053+	0.41	0.011*

Note. HS: high school; PBI: primary behavioral involvement.

+ $p < 0.10$.

* $p < 0.05$.

** $p < 0.01$.