Development of the Conversation Participation Rating Scale

Intervention Planning Implications for Two School-Age Children With Autism Spectrum Disorders

Geralyn R. Timler, William J. Boone, and Amelia A. Bergmann

Purpose: School-age children with autism spectrum disorders (ASDs) have pervasive challenges in social interactions with peers. This study examined the feasibility of eliciting children’s perceptions of their conversation participation with peers for the purposes of assessment and intervention planning. Methods: Two school-age children with ASD completed a newly developed self-report measure, the Conversation Participation Rating Scale (CPRS), designed for children and adolescents between the ages of 7 and 16 years, with social communication and peer interaction difficulties. Descriptive analyses examined agreement and discrepancy among child self-report, parent report, and standardized social language tests. Results: Both children provided a range of responses on the CPRS, revealing participation strengths as well as awareness of specific activity limitations and participation restrictions. Both children scored within the normal range on a social language test, even though parent report measures revealed significant concerns with pragmatic language and social skills. Discussion: The CPRS results contributed unique information to the assessment process. These results provide preliminary support for the feasibility of using a self-report conversation participation measure as a method for obtaining children’s unique perspective of social communication activities and challenges in school settings. Key words: autism spectrum disorders, conversation participation, school-age children, social (pragmatic) communication disorders, WHO-ICF

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School-age children and adolescents with a diagnosis of autism spectrum disorders (ASDs) exhibit persistent deficits in “social communication and social interaction across multiple contexts” including “difficulties adjusting behavior to suit various social contexts,” “abnormal social approach,” and “failure to initiate or respond to social interactions” (American Psychiatric Association, 2013, p. 50). One framework for viewing the comprehensive and pervasive impact of ASD...
on a child’s everyday life, including the child’s experience of living with this disorder, is the World Health Organization’s (WHO’s) International Classification of Functioning, Disability and Health (ICF; WHO, 2001, 2013). This framework provided the rationale for the development of a new self-report measure of conversation participation for school-age children between the ages of 7 and 16 years to be described in a later section of this report.

WHO-ICF FRAMEWORK: IMPLICATIONS FOR ASSESSMENT

The ICF framework conceptualizes the effects of an individual’s health condition or disorder on that individual’s functioning as well as the reciprocal influences of contextual factors that may support or hinder functioning. Assessment practices supported by the ICF framework account for the individual’s activities or the “execution of a task or action by an individual” and participation or “involvement in a life situation” (WHO, 2001, 2013, p. 8). As such, a comprehensive view of ASD within an ICF perspective incorporates descriptions of the individual’s functioning and potential for disability, including the disorder itself (i.e., ASD in this instance), the activities limited by this disorder (e.g., abnormal social approach), and the restrictions in participation that may occur (e.g., fewer interactions with peers). The term “communicative participation” has been used to refer to life situations whereby “knowledge, information, ideas, or feelings are exchanged” with others (Eadie et al., 2006, p. 309). When applying the ICF framework to communicative participation, activity limitations and participation restrictions overlap because communication activities involve interactions with others (Dempsey & Skarakis-Doyle, 2010).

Contextual factors that influence functioning and disability also are accounted for in the ICF framework. These include personal factors (e.g., a child’s motivation for interaction) and environmental factors (e.g., peers’ acceptance or rejection). For example, children with ASD may have limited motivation for engaging in social interaction (i.e., personal factors) because of previously negative interactions with one or more peers (i.e., environmental influences). The cumulative effects of these contextual factors ultimately will influence a child’s communicative participation. Children with ASD who have fewer interactions with peers also will have fewer opportunities to refine social communication activities, thus further decreasing communication participation.

The ICF framework provides direct implications for the assessment of social communication in school-age children. To obtain a comprehensive account of children’s communicative participation, assessment tools must be selected that can provide evidence for communication activities, personal factors, and environmental factors (Eadie et al., 2006). Traditionally, these assessment tools have included norm-referenced tests, criterion-referenced measures, observations, and parent and teacher report measures (Adams, 2002; Norbury, 2013). Norm-referenced social language tests can be used to elicit children’s abilities to comprehend idioms, convey informative narratives, and identify what to say or do in hypothetical social situations. Spontaneous language samples can be analyzed to document children’s topic maintenance and turn-taking skills. Informal observations can be conducted to view children’s abilities to execute skills in natural settings. Parent and teacher report measures can be used to further document children’s communicative abilities and to provide a view of children’s participation across partners in home and classroom settings.

Although these tools undoubtedly provide valuable assessment information, they do not provide an insider’s perspective about the unique combination of personal and environmental factors that ultimately shape an individual’s communicative participation (Baylor et al., 2014). For school-age children, communicative participation includes conversations with peers throughout the school day (e.g., sharing secrets, joining group activities with peers). Parents and teachers do
have some knowledge about children’s participation with peers, particularly during the preschool years. However, parent and teacher knowledge may be more limited during the school-age years because peer interactions among elementary and middle school students become more subtle and covert over time (Crick, Casas, & Nelson, 2002). As such, the scope and breadth of peer interaction difficulties may be hard even for parents and teachers to observe. Moreover, parent and teacher reports do not account for how children view their own participation and their perceptions of how peers support or limit their participation. Information about children’s perceptions of conversation participation is important for informing intervention plans, particularly when children appear to know what to do in hypothetical social situations but still struggle with social interactions during the school day.

To account for children’s perception of conversation participation in the school setting, the authors have begun piloting a self-report measure for school-age children and adolescents, between the ages of 7 and 16 years, which is called the Conversation Participation Rating Scale (CPRS; Timler & Boone, 2012). The long-term goal for the development of the CPRS is to inform intervention planning and progress/outcome monitoring for school-age children with social (pragmatic) communication disorders and peer interaction difficulties. Targeted populations include children with diagnoses such as ASD, attention-deficit/hyperactivity disorder (ADHD), language impairment, traumatic brain injury, and fetal alcohol spectrum disorder.

Rating scale development

The WHO-ICF model provided the conceptual framework for the CPRS. The CPRS is composed of an item bank or set of statements to reflect a range of conversation activities and participation goals and situations that occur in the school setting such as greeting others, talking about a range of topics, sharing secrets, and knowing how to enter an ongoing conversation. Children read each item (or the item is read aloud to children) and select one of four response rating categories: never/almost never, sometimes, often, and almost always/always.

Rasch measurement theory guides the refinement of the CPRS items and the response format (Bond & Fox, 2007; Rasch, 1960). Some of the advantages of the Rasch measurement theory are that this model transforms raw data into measures on a standardized equal interval scale, provides a distinct ordering of items and persons (i.e., item difficulty and person ability are independently ranked), and allows for examination of item bias and functioning of response categories (Boone & Scantlebury, 2006). Rasch measurement theory has been used to develop a number of report measures in education and health care. In the field of speech-language pathology, Rasch theory has supported the development and refinement of the Communicative Participation Item Bank for adults with communication disorders (Baylor et al., 2014; Baylor, Yorkston, Eadie, Miller, & Amtmann, 2009).

To the authors’ knowledge, a similar participation item bank for school-age children and adolescents has not yet been developed. One barrier to this development may be historical perceptions that self-report measures from children and adolescents with disabilities are not valid (Spence & Liddle, 1990). Researcher and clinician doubt regarding the validity and reliability of child self-report has been further compounded by findings of limited agreement between children’s self-ratings and proxy ratings by others. Challenges are compounded by observations that children and adolescents tend to rate personal behaviors more positively than teachers and parents (e.g., Burgess & Turkstra, 2010; Foley Nicpon, Doobay, & Assouline, 2010; Kolko & Kazdin, 2014).
Self-Report of Conversation Participation

Disagreement among raters is not a reason to disregard self-reported information, as there is no way to truly determine which source is ultimately correct. Each report represents each individual’s distinct perspective, and one viewpoint should not be favored while disregarding another’s perspective (Kalyva, 2010; Li & Bornholt, 2009). Even in situations where all raters are in agreement except for one, that individual’s perceptions provide important considerations for the intervention plan. For example, if a child rates himself or herself significantly more positively than his or her parents and teachers do, the intervention plan would need to account for this discrepancy perhaps by including lessons whereby the child is asked to discriminate good and not so good social communication behaviors. As such, child self-report measures are an integral part of a multi-informant approach to assessment (Dowell & Ogles, 2008; Eiser & Morse 2001; Gresham, Elliott, Vance, & Cook, 2011; Kalyva, 2010). Moreover, use of the multi-informant approach in communication assessment and intervention is endorsed within the American Speech-Language-Hearing Association’s (2004) Preferred Practice Patterns.

In recognition of the important perspective of children and adolescents with ASD, recent studies have utilized self-report measures to elicit perceptions about a variety of traits, including quality of communication life (Burgess & Turkstra, 2010), friendship qualities (Bauminger, Shulman, & Agam, 2004), loneliness (Bauminger et al., 2004; White, 2009), anxiety (Chalfant, Rapee, & Carroll, 2007; White, 2009), symptoms of autism (Johnson, Filliter, & Murphy, 2009), and social skills (Kalyva, 2010). Moreover, several commercially published measures for clinical practice are available that provide parent, teacher, and child report versions of skills related to social communication. For example, the Social Skills Improvement System (SSIS; Gresham & Elliott, 2008) provides a student version to elicit self-ratings about social skills and problem behaviors. Some items that overlap with social communication activities and participation include “I make friends easily” and “I feel bad when others are sad.”

Although this measure provides insight into children’s abilities for peer interactions, few items address the skills and activities that school-age children and adolescents execute in conversations (e.g., staying on topic, asking questions) and that speech–language pathologists (SLPs) target in social communication interventions. Moreover, few items address specific participation with peers in school settings. The CPRS was developed to specifically address these omissions. Accordingly, the items for the pilot version of the CPRS item were created from review of the existing pragmatic and social skills literature, existing test and self-report measures, and interviews of school-age children and their parents. More information about the CPRS follows in the “Methods” section.

Study purpose

The purpose of this pilot research study was to examine the contribution of the CPRS to a standard protocol for assessment of social communication in two school-age children with ASD. The protocol included norm-referenced social language tests, norm-referenced parent report measures, and one norm-referenced child report measure in addition to the CPRS. The goal of this study was to examine how agreement and disagreement among the various measures, especially the child self-report (CPRS) and parent report (previously published norm-referenced measure), could be used to inform intervention planning for addressing social communication skills.

METHODS

General procedures

Approval from the authors’ university institutional review board was obtained before recruitment activities began for this study.
Inclusionary criteria were as follows: (1) between 7 and 16 years of age; (2) enrollment in a regular education classroom; and (3) minimum standard score of 85 on the Kaufman Brief Intelligence Test–Second Edition (KBIT-2; Kaufman & Kaufman, 2004).

Both case study participants were tested in their homes during two 90-min test sessions. Because these participants were part of a larger study examining the accuracy of norm-referenced social language tests, more tests were administered than would be completed in a typical clinical protocol.

Participants

**Participant 1**

At the time of testing, Participant 1 (P1) was an 11-year 7-month-old Caucasian boy who lived with his mother, stepfather, and two step siblings. His mother reported that P1 said his first words at 1 year and first sentences at 18 months. His health history was unremarkable, and he was not taking any medications. He had passed several hearing screenings. P1 received a diagnosis of Asperger’s syndrome by a local autism interdisciplinary research center when he was 8 and one-half years old. At the time of the study, P1 had just completed fifth grade in a private elementary school, which he had attended since first grade. He received grades of A and B in school; his mother reported that mathematics and science were his best subjects and that he struggled with reading. She also reported that “he likes school and is very respectful of adults.” P1 received speech–language therapy one time per week throughout the elementary grades and was expected to continue into speech–language therapy in middle school. P1’s mother reported that her primary concern about his communication skills was that he “does not play with children well, does not share.” She also noted that P1 is annoyed by noisy environments and will frequently plug his ears in such environments. P1 was asked to describe what he was doing in speech–language therapy, and he reported that he was in a “social gathering group” to learn about “doing stuff” with others.

**Participant 2**

Participant 2 (P2), a 10-year 5-month-old Caucasian boy, was living with both parents and his younger brother. P2 had multiple diagnoses including ADHD, sensory integration dysfunction, generalized anxiety, obsessive compulsive disorder, and Asperger’s syndrome. His general health was described as good. He had passed several hearing screenings. His mother reported that he said his first words at 10 months and first sentences between 18 and 24 months. At the time of testing, P2 was attending fifth grade in a regular elementary school and was receiving speech–language therapy one to two times per week. He was taking several medications for ADHD and anxiety. His mother reported that he was especially good at mathematics and science but had difficulty in English. She stated that “he is a good student but behaviors in the classroom can be an issue and distracting to other students,” particularly when he is frustrated with his performance. She further reported that she was concerned about P2’s “pragmatics.” P2 described his goals in speech–language therapy as “working on skills to get through times when people are being mean to me” and “trying to make me calmer and fit in more.”

**Standard protocol**

The protocol included administration of the Test of Pragmatic Language (TOPL-2; Phelps-Terasaki & Phelps-Gunn, 2007) and the Social Language Development Test–Elementary (SLDT-E: Bowers, Huisingsh, & LoGiudice, 2008). In addition to the CPRS, children completed a second self-report measure, the student version of the SSIS (Gresham & Elliot, 2008). Two parent report measures were collected including the Children’s Communication Checklist–2 (CCC-2; Bishop, 2006) and the parent version of the SSIS (Gresham & Elliot, 2008). A brief description of each measure is provided later. Further details, including an example item from each measure,
are provided in the Supplemental Digital content, http://links.lww.com/TLD/A27.

Test of Pragmatic Language
The TOPL-2 (Phelps-Terasaki & Phelps-Gunn, 2007) is designed to identify pragmatic language deficits in students between the ages of 6 years 0 month and 18 years 11 months. Students are asked to respond to hypothetical situations and to provide a rationale for their response. The test yields one score, the “Pragmatic Language Usage Index.” The examiner’s manual reports that standard scores between 90 and 110 “are considered average and account for almost 50% of the population. Scores below that range may be “problematic and warrant diagnostic attention” (Phelps-Terasaki & Phelps-Gunn, 2007; p. 20).

Social Language Development Test–Elementary
The SLDT-E (Bowers et al., 2008) includes four subtests: Making Inferences, Interpersonal Negotiations, Multiple Interpretations, and Supporting Peers. Students are asked to interpret various social situations or statements and to formulate hypothetical responses to the situation. The SLDT-E yields four subtest standard scores and a total standard score. No clinical cutoff scores are provided in the manual; however, “1 SD below the norm is universally considered atypical” (L. Bowers, personal communication, January 28, 2014).

Children’s Communication Checklist–2
The CCC-2 (Bishop, 2006) is a norm-referenced parent rating scale for children and adolescents between the ages of 4 years 0 month and 16 years 11 months. Parents are asked to rate the frequency of occurrence of a specific communication behavior from 0 (less than once a week or never) to 3 (several times a day). The CCC-2 yields one composite score, the General Communication Composite (GCC), and one index score, the Social Interaction Difference Index (SIDI). The GCC is a norm-referenced standard score ($M = 100$, $SD = 15$), reflecting overall communication skills; GCC scores of 85 or lower are suggestive of language impairment. The SIDI is a difference index, reflecting the summed difference between structural language scales and pragmatic language scales. SIDI scores ranging from $-10$ to 10 are considered typical; scores within this range were obtained by 90% of the CCC-2 normative sample. Scores of 11 or higher suggest that syntactic/semantic skills are deficient and relatively poorer than pragmatic skills, whereas scores of $-11$ or lower suggest that pragmatic language skills are deficient and relatively poorer than syntactic/semantic skills; this profile is associated with ASDs (Bishop, 2006).

Social Skills Improvement System
The SSIS (Gresham & Elliot, 2008) is a norm-referenced rating scale of social skills and problem behaviors for children, adolescents, and adults between the ages of 3 years 0 month and 18 years 11 months. Both the parent and student versions were collected in this study. Parents rate each item using a 4-point frequency rating from never to almost always. Students rate similar items but are asked to rate how true a statement is using a 4-point scale of not true, a little true, a lot true, and very true. The SSIS parent and student versions each yield a Social Skills Scale score and a Problem Behaviors Scale score ($M = 100$, $SD = 15$). Higher problem behavior scores represent more problem behaviors than same-age peers; thus, lower scores on the problem behavior scales are desirable. Social Skills Scale scores below 85 (i.e., fewer social skills) and Problem Behavior Scale scores above 115 (i.e., more problem behaviors) are considered clinically significant.

The experimental measure
Conversation Participation Rating Scale
The current version of the CPRS (CPRS; Timler & Boone, 2012) includes an item pool of 101 activity and participation items and elicits one of four response rating categories: never/almost never, sometimes, often, and
almost always/always. Application of the Rasch model will be used to refine the set of items. The 101 items are organized across two subsets, which we view as defining two different but related traits as described later.

The first subset of 53 items is titled “What I say and do with other students at my school.” This subset elicits ratings about children’s perceptions of their behaviors with peers. Examples are “I do not talk about the same topic over and over. I talk about different topics” (CPRS Item 11) and “I stay calm when students criticize me” (CPRS Item 50). Additional items in this set elicit ratings about perceptions of children’s knowledge about specific conversation skills. Examples are “I know how to tell students when I am switching topics in a conversation” (CPRS Item 43) and “I know how to join a group of students who are already talking together” (CPRS Item 20).

The second subset of 48 items is titled “What other students say and do with me at school.” This set elicits ratings about children’s perceptions of peer behaviors toward them. Examples are “Students do not talk about the same topic over and over with me. They talk about different topics” (CPRS Item 111) and “Students stay calm when I criticize them” (CPRS Item 145).

Because the Rasch model can be used to examine individual item functioning, multiple items were developed for certain activities to illuminate how item wording may affect response choice and location of the trait defined by the item relative to other items on that trait. For example, both “Students try to be good communicators with me” and “Students are good communicators with me” are included in the current version of the CPRS to examine if item wording differentially affects responses or if the two items align in Rasch modeling. Refinement of the final CPRS will include elimination of similar items after a sufficient sample of child participants has been recruited and the responses have been analyzed.

Pilot samples of 30 individuals with at least 30 items are recommended to elicit an initial estimate of item difficulty and person separation (Wright & Tennant, 1996). Prior to the current study of two students with disabilities, the reference sample for the CPRS consisted of 35 typically developing children and adolescents, including 17 males and 18 females, between the ages of 7 years 8 months and 14 years 11 months. All participants attended regular education classrooms and were not receiving any special services at school. Parents of the participants in the reference sample completed the CCC-2 and the SSIS (described in the preceding section). Inclusionary criteria were similar to those of the two participants described in this report; however, the parent report scores for the typical sample were required to be in the typical range (i.e., standard scores of ≥85).

Children’s response choices were entered into a spreadsheet and analyzed in the Winsteps software program (Linacre, 2011) developed for Rasch analyses. The Rasch model transforms raw data into measures on a standardized equal interval scale and provides a distinct ordering of items and persons (Boone & Scantlebury, 2006). In this case, CPRS items with lower scores reflect items that were rated as almost always/always by more participants than items with higher scores. For example, “I try to be a good communicator” (Item 29) and “I try to talk with students during free time” (Item 34)” were rated as occurring more frequently than items such as “I share secrets with students” (Item 27). Table 1 presents the order of the five most frequent items, that is, the items that received the most ratings of almost always/always, and the five most infrequent items or the items that received the fewest ratings of never/almost never for each CPRS subset as rated by the typical sample.

Analysis plan

First, standard scores were computed for the various norm-referenced measures. Second, child responses on the CPRS were examined to identify items self-rated as never/almost never and sometimes; these ratings reveal child self-perceptions of
Table 1. CPRS item rank order as rated by the pilot sample of typically developing participants.

<table>
<thead>
<tr>
<th>Subset 1: “What I Say and Do With Other Students at My School”</th>
<th>Subset 2: “What Other Students Say and Do With Me at School”</th>
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</thead>
<tbody>
<tr>
<td>Most frequent items (most ratings of almost always/always)</td>
<td>Most frequent items (most ratings of almost always/always)</td>
</tr>
<tr>
<td>34. I try to talk to with students during free time (lunch, between classes).</td>
<td>127. Students enjoy talking with me.</td>
</tr>
<tr>
<td>6. When students try to talk with me, I talk with them.</td>
<td>105. When students talk with me, they look at me.</td>
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<tr>
<td>44. When students are talking with me, I give them my full attention.</td>
<td>107. Students do not do all of the talking, they let me have turns to talk too.</td>
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<tr>
<td>28. I enjoy talking with students.</td>
<td>119. Students understand what I try to say.</td>
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<td>29. I try to be a good communicator with students.</td>
<td>146. Students are good at starting friendships with me.</td>
</tr>
<tr>
<td>Least frequent items (fewest ratings of almost always/always and more ratings of never/almost never)</td>
<td>Least frequent items (fewest ratings of almost always/always and more ratings of never/almost never)</td>
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<tr>
<td>27. I share secrets with students.</td>
<td>125. Students talk with me about their personal problems.</td>
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<tr>
<td>26. I talk with students about personal problems.</td>
<td>145. Students stay calm when I criticize them (tell them something they did wrong).</td>
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<tr>
<td>4. When I am talking with students, I ask questions.</td>
<td>124. When I say something positive to fix a disagreement, students do what I say.</td>
</tr>
<tr>
<td>10. I try to talk about topics that students are talking about even if I do not like the topic.</td>
<td>123. Students try to say something positive to fix a disagreement with me (e.g., they might say, “Let’s take turns”).</td>
</tr>
<tr>
<td>21. When I see a group of students talking, I try to join the group.</td>
<td>112. Students try to see if I am sad, happy, or angry.</td>
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</table>

Note. CPRS = Conversation Participation Rating Scale.

limitations in conversation activities and participation. Finally, items that elicited ratings of identical behaviors from the CPRS child self-report and the parent report SSIS measures were examined to view areas of agreement and disagreement among the children and their mothers and to identify skills and activities to pursue in intervention.

RESULTS

Participant standard scores for the two social language measures (the TOPL-2 and the SLDT-E) and the norm-referenced report measures (CCC-2, SSIS parent, and SSIS student report) are presented in Table 2. Table 3 presents CPRS child self-ratings and SSIS parent ratings on similarly worded items.

Participant 1

Norm-referenced tests/report measures

P1 scored within the average range on both the TOPL-2 and the SLDT-E. His mother’s SSIS ratings revealed significantly lower levels of social skills and higher levels of problem behaviors including externalizing and bullying behaviors and limitations in empathy and self-control. The CCC-2 GCC score was more than 2 SDs below the mean and the SIDI revealed a profile suggestive of pragmatic language impairment. In contrast to his mother’s lower ratings on the SSIS, P1’s SSIS self-report of social skills and problem behaviors revealed self-ratings in the normal range. In fact, P1 rated his problem behaviors nearly 1 SD below (i.e., fewer) than self-ratings by students.
Table 2. Participant test and report measure composite scores

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</thead>
<tbody>
<tr>
<td>P1: 11 years 7 months</td>
<td>105/126</td>
<td>108</td>
<td>97</td>
<td>95</td>
<td>108</td>
<td>106</td>
<td>117</td>
<td>77</td>
<td>117</td>
<td></td>
</tr>
<tr>
<td>P2: 10 years 4 months</td>
<td>112/127</td>
<td>95</td>
<td>Incomplete</td>
<td>74</td>
<td>108</td>
<td>106</td>
<td>77</td>
<td>117</td>
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Note. Bolded numbers represent performance of 1 SD or below on relevant measures; for all measures, \( M = 100; SD = 15 \) except for the CCC-2 Social Interaction Difference Index; scores between −10 and 10 are obtained by 90% of the normative population; scores of 11 or higher suggest syntactic/semantic impairment, and scores of −11 or lower suggest pragmatic/linguistic impairment. (Phelps-Terasaki & Phelps-Gunn, 2007).

in the normative sample. Clearly, P1’s and his mother’s ratings revealed discrepant perceptions of P1’s skills; his mother’s ratings revealed significantly more concerns with P1’s problem behaviors.

**CPRS ratings**

Descriptive analysis of the CPRS Subset 1 (“What I do with others . . .”) revealed ratings of *never/almost never* for the following items: “When I am talking with students, I look at them to see if they are still interested in what I am talking about”; “I share secrets with students”; “When a teacher says, ‘Work in a group,’ I wait for students to ask me to be in their group”; “I try to sit with students during lunchtime”; and “I talk with students during lunchtime.” In contrast, P1 assigned ratings of *sometimes* for the following Subset 1 items: “I do not talk about the same topic over and over. I talk about different topics”; “I joke with students”; “When I am talking with students, I understand what they are trying to say”; “I know how to join a group of students who are already talking together”; “When I see a group of students talking, I try to join the group”; “I talk with students about my personal problems”; and “I invite other students to do things outside of school.”

P1 rated the following Subset 2 items (about other students’ behaviors toward him) as *never/almost never*: “Students try to sit with me during lunchtime”; “Students talk with me during lunchtime.” He rated these items as *sometimes*: “Students invite me to do things outside of school”; “Students talk with me during lunchtime.” It is important to note that P1 rated many activities and participation opportunities as something that he *almost always/always* does, including such activities as students
Table 3. Participant CPRS and parent SSIS responses on similar items

<table>
<thead>
<tr>
<th>CPRS Item and P1’s Responses</th>
<th>Parent SSIS Item and P1’s Mother’s Responses</th>
</tr>
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<tbody>
<tr>
<td>37. When students are sad, I try to help them feel better: <strong>almost always</strong></td>
<td>8. Tries to make others feel better: <strong>never</strong></td>
</tr>
<tr>
<td>21. When I see a group of students talking, I try to join the group: <strong>sometimes</strong></td>
<td>9. Joins activities that have already started: <strong>sometimes</strong></td>
</tr>
<tr>
<td>7. I do not do all the talking. I let students have turns to talk too: <strong>almost always</strong></td>
<td>10. Takes turns in conversation: <strong>sometimes</strong> (mother added “only if I tell him”)</td>
</tr>
<tr>
<td>12. When I am talking with students, I try to see if they are sad, happy, or angry: <strong>often</strong></td>
<td>18. Tries to understand how others feel: <strong>never</strong></td>
</tr>
<tr>
<td>2. I try to talk with students at my school: <strong>often</strong></td>
<td>19. Starts conversations with peers: <strong>often</strong> (mother added “interrupts”)</td>
</tr>
<tr>
<td>52. I am good at starting friendships with students: <strong>often</strong></td>
<td>31. Stays calm when teased: <strong>never</strong></td>
</tr>
<tr>
<td>16. I ignore students when they tease me in a mean way: <strong>often</strong></td>
<td>40. Uses eye contact when talking: <strong>sometimes</strong></td>
</tr>
<tr>
<td>5. When I am talking with students, I look at them: <strong>often</strong></td>
<td>46. Stays calm when disagreeing with others: <strong>never</strong></td>
</tr>
<tr>
<td>23. When I disagree with students, I stay calm: <strong>almost always</strong></td>
<td>48. Repeats the same thing over and over: <strong>almost always</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CPRS Item and P2’s Responses</th>
<th>Parent SSIS Item and P2’s Mother’s Responses</th>
</tr>
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<tbody>
<tr>
<td>37. When students are sad, I try to help them feel better: <strong>often</strong></td>
<td>8. Tries to make others feel better: <strong>sometimes</strong></td>
</tr>
<tr>
<td>21. When I see a group of students talking, I try to join the group: <strong>sometimes</strong></td>
<td>9. Joins activities that have already started: <strong>sometimes</strong></td>
</tr>
<tr>
<td>7. I do not do all the talking. I let students have turns to talk too: <strong>often</strong></td>
<td>10. Takes turns in conversation: <strong>sometimes</strong></td>
</tr>
<tr>
<td>12. When I am talking with students, I try to see if they are sad, happy, or angry: <strong>never/almost never</strong></td>
<td>18. Tries to understand how others feel: <strong>never</strong></td>
</tr>
<tr>
<td>2. I try to talk with students at my school: <strong>sometimes</strong></td>
<td>19. Starts conversations with peers: <strong>sometimes</strong></td>
</tr>
<tr>
<td>52. I am good at starting friendships with students: <strong>often</strong></td>
<td>31. Stays calm when teased: <strong>never</strong></td>
</tr>
<tr>
<td>16. I ignore students when they tease me in a mean way: <strong>often</strong></td>
<td>40. Uses eye contact when talking: <strong>sometimes</strong></td>
</tr>
<tr>
<td>5. When I am talking with students, I look at them: <strong>often</strong></td>
<td>46. Stays calm when disagreeing with others: <strong>never</strong></td>
</tr>
<tr>
<td>23. When I disagree with students, I stay calm: <strong>almost always</strong></td>
<td>48. Repeats the same thing over and over: <strong>almost always</strong></td>
</tr>
</tbody>
</table>

Note. CPRS = Conversation Participation Rating Scale; P1 = Participant 1; P2 = Participant 2; SSIS = Social Skills Improvement System.
noticing when he is sad, students giving him their full attention, students trying to talk with him, and students complimenting him, among many others.

**Item review of P1 and parent ratings**

Table 3 presents ratings by P1 on the CPRS and his mother’s ratings from 12 similar items on the SSIS. P1 rated his performance more positively than his mother did for 9 of the 12 items. Rater discrepancies were most apparent for items related to regulating emotions in situations of teasing, accepting criticism, managing disagreements with peers, and in reading and responding with empathy to the emotions of peers. For example, P1 reported that he *often* stays calm when teased whereas his mother rated a similar item as *never*. Even in the three items that were rated similarly, P1’s mother added comments to her ratings, suggesting that she has more concern about P1’s skills than he does. Although P1 reported that he *often* tries to talk with students at school, his mother agreed that he *often* starts conversations with peers but added the comment “interrupts.”

**Implications for intervention planning**

The results of comparing ratings across measures shows that P1 and his mother have different views of his social communication behaviors. His mother’s ratings suggest that she views him as having specific deficits in emotion management and in accounting for the perspectives of others in conversations and conflict situations. This observation parallels expected areas of difficulty associated with an ASD diagnosis. P1’s CPRS self-ratings reveal his perceptions of specific situations of limited participation in the school setting. For example, P1 reported that he never sits with peers at lunch. A follow-up to this rating would be to ask P1 if he would like to do so and discuss his perceptions about why he is not currently joining his peers. Such information may be used as a rationale for the implementation of peer-mediated interventions with P1. Such interventions teach and reinforce typical peers for initiating and maintaining interactions with students who have social communication difficulties (Kasari, Rotheram-Fuller, Locke, & Gulsrud, 2012; Sainato, Jung, Salmon, & Axe, 2008).

P1 also identified that he likely has (and is aware of) difficulty with topic management in conversation with peers, assigning a *never/almost never* rating to the item, “I do not talk about the same topic over and over. I talk about different topics.” A follow-up interview could be done to examine the factors that influenced his rating—both personal factors (e.g., Does he want to talk about different topics?) and environmental factors (e.g., Have his peers said something about his topic choices?). This discussion may lead to support for implementation of a social-cognitive intervention about why it is important to discuss a range of topics and what the payoff might be for doing so (e.g., Dotson, Leaf, Sheldon, & Sherman, 2010; Winner, 2006). Finally, further observations of P1’s management of teasing and conflict situations are warranted because of the divergent ratings in these situations.

**Participant 2**

**Norm-referenced tests/report measures**

P2 scored within the normal range on the TOPL-2. The SLDT-E was not completed because the family had an emergency during the testing and the session was discontinued; unfortunately, the family was unable to continue further testing. P2 did complete two SLDT-E subtests receiving standard scores of 81 (Making Inferences) and 94 (Supporting Peers). Thus, one subtest revealed clinical levels of concern about P2’s ability to interpret what someone in a picture might be thinking. His mother’s ratings on the CCC-2 revealed a GCC score below the clinical cutoff, and the SIDI score of −18 is indicative of pragmatic language impairment. His mother’s SSIS ratings revealed significantly low social skills; however, the problem behavior scale score was within normal limits. P2’s mother rated SSIS
Self-Report of Conversation Participation

Unlike P1, P2 self-rated his social skills on the SSIS almost as poorly as his mother did. He also rated his problem behaviors as more than 1 SD above the norm, indicating awareness of significantly elevated levels of these behaviors. In particular, P2 identified elevated levels of externalizing and hyperactive/inattentive behaviors. Interestingly, parent report of problem behaviors was not elevated.

CPRS ratings

P2 rated the following Subset 1 (“What I do with others . . .”) CPRS items as never/almost never: “When I am talking with students, I can tell if they are sad, happy, or angry”; “When I am talking with students, I look at them to see if they are still interested in what I am talking about”; “I try to say something positive to fix a disagreement. For example, I might say, ‘Let’s take turns’”; and “I talk with students about my personal problems.” Moreover, P2 assigned self-ratings of sometimes for the following items: “I do not talk about the same topic over and over. I talk about different topics.” “When I disagree with students, I stay calm.”

P2 rated two items in Subset 2 (about other students’ behaviors toward him) as never/almost never: “Students invite me to do things outside of school”; and “Students talk with me about their personal problems.” He assigned sometimes to the following: “Students are good communicators with me.” “When a teacher says, ‘Work in a group,’ students ask me to be in their group.” Importantly, P2 also self-rated many items as almost always/always, including items related to students agreeing with him when he tries to fix a disagreement, students understanding what he tries to say, students talking about a topic with him even if they do not like the topic, and students identifying when he is sad, happy, or angry among other items.

Item review of P1 and parent ratings

P2 and his mother rated four of the overlapping items similarly. P2 self-rated two items as occurring less frequently than his mother’s ratings. He perceived that he never tries to see if students are sad, happy, or angry and that he never says something positive to fix disagreement. His mother rated these items as sometimes. The most discrepant rating was for an item pertaining to ignoring students when they tease him; his mother rated a similar item as never, whereas P2 rated this item as often.

Implications for intervention planning

P2’s ratings were actually lower than his mother’s ratings; in fact, P2’s own description of his language therapy goals focused on overcoming problem behaviors: “trying to make me calmer and fit in.” Certainly his ratings reveal an awareness of his difficulties, perhaps a heightened awareness, which could point to areas for further assessment and working toward a healthy balance. It would be helpful to conduct an observation of his peer interactions in the classroom as well to view whether these negative behaviors were a reaction to how peers interact with him. P2 rated more of the “What I do” items as never/almost never than the “What other students do.” This seems consistent with his focus on his own problematic behaviors. P2’s ratings provide further evidence of the effects of his anxiety disorder and point to a need for a cognitive-behavioral intervention to simultaneously address both social anxiety and pragmatic language skills (Hewitt, 2014).

DISCUSSION

The results from the two case studies provide preliminary support for the value of using the CPRS as a measure to view school-age children’s perception of their conversation participation. Moreover, these results underscore the importance of collecting reports from multiple informants for streamlining assessment and intervention planning. In this study, the two participants with ASD identified strengths and challenges in their participation with other students at school. Both participants used all four response
choices ranging from never to almost always/always, revealing nuanced perceptions about their participation and pointing to specific activities and situations for further assessment and observation.

Whereas participant CPRS and caregiver CCC-2 and SSIS ratings documented concerns about specific social communication behaviors, participant performance on norm-referenced social language tests was age appropriate. This finding is not altogether unexpected, as previous studies of children with high-functioning autism have found that parent report measures identified social communication concerns even when children scored within the typical range on norm-referenced tests (Volden, Coolican, Garon, White, & Bryson, 2009; Volden & Phillips, 2010; for counter evidence, see Young, Diehl, Morris, Hyman, & Bennetto, 2005). Discrepancies among test performance and parent and child rating scales provide important information for intervention planning. Adequate test performance, combined with elevated levels of multi-informant concerns (i.e., parents, teachers, and self-report from children), suggests that children have sufficient knowledge about what to say and do in a situation but have difficulty executing this knowledge in functional settings. In such cases, interventions must focus on strategies for supporting execution and generalization of social communication skills within peer interactions in authentic activities and settings (e.g., small-group classroom activities, recess). In addition, these findings lend support for implementation of peer-mediated interventions in circumstances when children perceive lower levels of peer interaction for particular activities.

The long-term goal for the development of the CPRS is to use this measure to inform intervention planning and progress/outcome monitoring for school-age children with peer interaction difficulties including children with ASDs, ADHD, fetal alcohol spectrum disorder, and related conditions. Continued examination of the validity and reliability of the CPRS is in progress. An analysis of a larger sample of children both with and without social communication difficulties is needed to further define the order of items that children perceive as engaging in frequently as well as those they perceive as infrequent.

One use for this ranking would be to inform the order of activities and participation that SLPs target in social communication interventions. Items that receive more ratings of almost always/always by samples of typically developing children indicating that these behaviors occur relatively frequently may be activities and participation opportunities that should serve as initial targets in intervention programs for children with social communication problems. Alternatively, items that receive more ratings of never/almost never from typical samples may be items to target only in older school-age children who have higher levels of conversation participation but continue to have social communication disorders. For example, items such as “trying to talk to other students during free time” and “giving students full attention,” which were ranked as more frequent (i.e., rated at almost always/always) by the pilot sample of typical children (see the first column in Table 1), suggest that these items might be targeted relatively early in a social communication intervention. It is clear from the preliminary item ranking in Table 1 that items such as sharing secrets and personal problems are less frequent even for the typically developing students; this ordering seems to parallel adult experience in which one may only confide in close friends rather than other students. More data are needed to examine how children with and without disorders define words such as “secret” and whether such words are viewed negatively or positively; such views could impact ratings differentially among typical and clinical groups.

The potential of the CPRS to document intervention outcomes remains to be examined. Nevertheless, the case study data presented here suggest that the CPRS provides unique and important data—an insider’s perceptions of conversation activities and participation—that can contribute to planning intervention. Importantly, the CPRS is unique in
eliciting not only perceptions of one’s own performance but also children’s perceptions of how frequently peers approach them. Most report measures of social behavior focus solely on children’s own behaviors and do not account for children’s perceptions of participation with peers in social interaction.

The WHO-ICF model encompasses a more comprehensive view of participation, which can be enriched by gathering data about self-perceptions of the individual’s success as supported by or limited by peers. Ultimately, it is the child and the child’s peers who have the most comprehensive perspective of peer interactions. The CPRS has the potential to identify subtle ways that children with social communication difficulties may be excluded or marginalized among their peers, even in the absence of overt bullying or victimization. To fully address social communication participation, both the individual and the individual’s peer group must be considered.

The WHO-ICF model calls for the continued development of comprehensive assessments of social communication including report measures (Threats, 2008; Volden et al., 2009; Washington, 2007). Information from self-report (along with teacher report and parent report) measures seems vital to the development of valid social communication goals and interventions to support the participation within peer interactions of school-age children with social communication challenges.

REFERENCES


