***Conversation Analysis of Shared Reading with Students who Have Significant Support Needs***

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***Abstract***

Shared reading focuses on the interaction between an adult and one or more children as they experience a book together. While research has documented classroom shared reading practices among students with diverse characteristics, few have focused on students with significant support needs. Using a conversation-analytic approach, this study sought to describe the teacher strategies that scaffolded successful interactions during shared reading in two self-contained classrooms serving students with significant support needs. Instances of teachers maximizing student participation, promoting connections with the text, maximizing multiple turn interactions, and encouraging students to take the lead were analyzed. Subsequent conversation analysis revealed that a variety of strategies supported students with significant support needs in interactions during shared reading, such as asking open ended questions, commenting, repeating and expanding student comments, modeling text-to-self connections, and providing think time. The implications for applying such strategies during shared reading with students with significant support needs are discussed.

*Keywords*: secondary, intellectual disability, multiple disabilities, shared reading, communication, conversation analysis

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Students with significant support needs (SSN) experience some of the greatest challenges with language and communication (Erickson & Geist, 2016; Towles-Reeves et al., 2012). Yet, in the United States, these students are primarily educated separately from their peers without communication disabilities in classrooms that often present few opportunities for engagement and interaction (Kurth et al., 2016; Morningstar et al., 2017). For students with SSN, shared reading is one literacy intervention that holds promise for increasing opportunities and improving participation in meaningful conversations about books (Erickson & Koppenhaver, 2020; Skotko et al., 2004). From a social interactionist perspective, the nature and quality of student participation is in large part dependent on how adults scaffold their support during these interactions (Vygotsky, 1978). Therefore, the purpose of this study was to conduct a microanalytic analysis of extratextual conversation during shared reading in order to identify strategies that teachers of students with SSN naturally used to scaffold successful interactions about the text.

Across U.S. public schools, more than 560,000 students (National Center for Education Statistics, 2022) have SSN and participate in alternate assessments based on alternate achievement standards. Students with a range of significant disabilities (e.g., autism, multiple disabilities, intellectual disability) participate in these alternate assessments because their team determines that their disabilities prevent them from achieving grade level academic standards, even with appropriate instruction and accommodations (Office of Special Education Programs, 2007). Among these are students with SSN who have "significant limitations both in intellectual functioning and adaptive behavior" (American Association of Intellectual and Developmental Disabilities, 2017, para. 1) with a combination of cognitive, motor, communication, and sensory impairments (Erickson & Geist, 2016; Towles-Reeves et al., 2012).

In the United States, approximately 80-90% of students with SSN are educated in separate classrooms or special schools (Erickson & Geist, 2016; Kleinert et al., 2015; Morningstar et al., 2017). Classroom observations of these settings report that they offer few opportunities for active engagement and interaction from early childhood (Tsai, 2016) through high school (Kurth et al., 2016; Ruppar, 2015). Teachers in these separate settings invite little communication and interaction, and students with SSN respond to only a small portion of the invitations they do receive (Causton-Theoharis et al., 2011; Pennington & Courtade, 2015). Multiple factors likely contribute to the dearth of engaging and successful discourse within classrooms serving students with SSN, including: complex motor, sensory, and intellectual profiles that preclude student use of speech (Erickson & Geist, 2016); lack of necessary opportunities and supports to develop language using augmentative and alternative communication (AAC; Erickson & Geist, 2016; Geist et al., 2020); and overlooking or misunderstanding unconventional forms of communication (e.g., idiosyncratic gestures, unintelligible vocalizations; Pufpaff, 2008).

Teacher-student interaction is further constrained by structured teaching practices (e.g., task analysis, errorless learning, systematic prompting) that dominate educational practice with students who have SSN in the United States (Brown et al., 2020; Towles-Reeves et al., 2009). Thus, highly controlled, teacher-directed engagement focused on promoting discrete skill mastery (e.g., Browder et al., 2008) displaces authentic, meaningful conversations that can support independent thinking, learning, and communicating (Bock & Erickson, 2015; Kleinert et al., 2009). The prescriptive nature of the initiation-response-feedback cycles associated with structured teaching approaches does not allow space for the authentic, spontaneous, dynamic, and unrehearsed nature of meaningful conversations built around student thoughts, ideas, and interests.

Most of the literature base in shared reading with students with SSN reflects this structured teaching pedagogy, with a focus on teaching students to provide correct responses to narrowly defined stimuli or questions (Browder et al., 2008; Fleury et al., 2014; Fleury & Schwartz, 2017; Hudson & Test, 2011; Mims et al., 2012; Ruppar et al., 2017). For example, these teacher-directed, structured approaches have effectively taught students with SSN to produce targeted responses (Browder et al., 2008), increase their time on task (e.g., Mucchetti, 2013), and increase their participation in response to a prompt (Fleury & Schwartz, 2017). Unfortunately, these approaches do not help students learn to initiate interactions or make the kinds of connections required to read or listen with increased comprehension in the future (Fleury & Schwartz, 2017; Kintsch & van Dijk, 1978; Morrison & Wlodarczyk, 2009). In other words, students with SSN

can learn to respond correctly to an adult's stimuli with repeated readings of a book (e.g., "Who loved his dog?"), but these interactions may not support students in building their own understandings about the books they are reading (e.g., "I love my dog too!").

Counter to the teacher-directed, structured approaches that dominate the literature base and classrooms of students with SSN, a Vygotskian (1978) approach to instruction emphasizes that language acquisition occurs within the context of social interactions of high-quality, adult-student engagement, as adults scaffold children's successful participation in increasingly more sophisticated ways. This social interactionist perspective is embedded into the shared reading literature for students without disabilities (DeTemple & Snow, 2003; Massey, 2013). Within approaches built upon this social interactionist perspective, the adult may initially need to scaffold a balanced exchange with the student, but the ultimate goal is to have the student lead the interaction (Ezell & Justice, 2005; Whitehurst et al., 1988). Given the extant literature base in teacher-directed, structured approaches for students with SSN (Hudson & Test, 2011), teachers of students with SSN may require guidance in how to best support student-led communication during shared reading interactions (Kaderavek & Rabidoux, 2004). This is especially important given the critical role of student-led communication in maximizing language and literacy learning outcomes (Zwiers et al., 2014).

Social-interactionist approaches offer an alternative means of teaching students with SSN to make important connections and initiate interactions during shared reading. They do so by offering more flexibility in how teachers engage students through strategies such as attributing meaning to communication behaviors, demonstrating examples of how to talk about the text, following student interests, and using questions or comments that extend beyond the text (Erickson & Koppenhaver, 2020). There is a small but growing literature base reflecting the use of this approach to shared reading with students who have SSN. Skotko et al. (2004) examined the impact of this approach to shared reading on communication outcomes for girls with Rett syndrome. The researchers encouraged parents to (a) acknowledge all communication attempts and attribute meaning to them, (b) use natural comments and questions rather than directives, (c) provide sufficient wait time, (d) ensure that the girls looked when demonstrating the use of communication symbols, and (e) make use of the speech-generating device and symbols provided through questions and comments. As a result, the girls exhibited increased labeling, commenting, and engagement during shared reading interactions. Sennott and Mason (2016) focused on language modeling and responding to student communication during shared storybook reading with a young boy with autism and reported an increase in turn-taking, use of speech, and use of a speech generating device. While there is still a great deal to learn about social-interactionist approaches to shared reading with students with SSN, approaches that emphasize connections, active engagement, and student-initiated interactions may promote better long-term outcomes than structured, teacher-based approaches.

**The Context of the Current Study**

Tar Heel Shared Reader[1] is a five-year project intended to create an implementation model to help teachers use shared reading with their students with SSN using a student-centered approach (http://sharedreader.org). The long-term goal is to create the products and resources that would assist teachers in navigating the interactive goals of shared reading such as maximizing student participation, making connections with the text, maximizing multiple turn interactions, and

encouraging students to take the lead. During the first development year in which this study took place, a primary goal of the project was to observe classroom shared reading interactions for the purpose of identifying naturally occurring teacher strategies that supported student-initiated communication and interaction. After providing a short professional development that contrasted teacher-directed and student-led approaches, it was of interest to see how teachers naturally (i.e., in the absence of training on specific strategies) engaged their students when asked to implement a student-led, social-interactionist approach, which we termed "student-centered". The data gathered from this study were used to inform the development of a series of five open-source, online professional development modules on a student-centered approach to shared reading (http://www.sharedreader.org/professional-development/) in self-directed and facilitated formats, as well as open-source, online resources (http://sharedreader.org) for parents, teachers, and coaches. For the purpose of this present study, we had one four-part research question: What teacher strategies or behaviors precede each of four successful interaction outcomes during shared reading with students with SSN: (a) maximizing student participation, (b) helping students make connections with the text, (c) maximizing multiple turn interactions, and (d) encouraging students to take the lead?

## *Method*

### Participants and Setting

The participants included one high school teacher, one middle school teacher, and 10 of their students with SSN whose parents or legal guardians provided consent for them to participate in the project. The female, high school teacher had six years of teaching experience exclusively in special education. She was certified in general elementary education and special education. The female, middle school teacher had 28 years of teaching experience with 19 years in special education. She was certified in early childhood (K-4), elementary education (K-6), and special education. Demographics regarding the student participants are provided in Table 1. Both self-contained classrooms were located in one rural, public school system. In the high school, 28% of the students qualified for free or reduced lunch and in the middle school, 49% of the students qualified for free or reduced lunch.

Table 1
*Student Participant Demographics*

| Student | Age | Sex | IDEA Eligibility Category | Communication Modes | Highest Level of Expressive Communication |
|---|---|---|---|---|---|
| Classroom A | | | | | |
| # 1 | 18.1 | M | Multiple Disabilities | AAC, Speech, Sign | Level 6 – Abstract Symbols |
| # 3 | 15.8 | F | Other Health Impairment | AAC | Level 2 – Intentional Behaviors |
| # 6 | 15.1 | M | ID-Moderate | AAC, Speech | Level 7 – Abstract Symbols |
| # 7 | 15.7 | M | ID-Severe | Speech | Level 7 – Abstract Symbols |
| # 8 | 16.3 | F | ID-Moderate | Speech | Level 7 – Abstract Symbols |
| Classroom B | | | | | |
| # 9 | 11.3 | M | ID-Moderate | Speech | Level 7 – Abstract Symbols |
| # 10 | 12.8 | F | Multiple Disabilities | Speech, Sign | Level 7 – Abstract Symbols |

| | | | | | |
|---|---|---|---|---|---|
| # 11 | 11.4 | F | Multiple Disabilities | Speech | Level 7 – Abstract Symbols |
| # 12 | 13.4 | M | ID-Moderate | AAC, Speech | Level 7 – Abstract Symbols |
| # 13 | 10.7 | F | Multiple Disabilities | AAC, Speech | Level 3 – Unconventional Communication |

*Note.* ID = Intellectual Disability; Highest Level of Expressive Communication indicates the highest level that was observed across all areas of the Communication Matrix (Rowland, 2004)

**Research Design**

This study used an inductive, video-based, microanalytic approach supported by verbatim transcripts of the videos. The data were analyzed using methods informed by the traditions of conversation analysis, where the goal is to analyze conversation in a particular context for the purpose of explaining how participants organize and manage turn sequences, by examining recurrent and unique incidents (Schegloff, 2007; Ten Have, 2007).

**Measures**

The Communication Matrix (Rowland, 2004) was used to build a communication profile for the students with SSN across four purposes of communication (i.e., refuse, obtain, engage in social interactions, provide or seek information) using structured observations of communication behaviors across seven levels, as reported in Table 1: (1) pre-intentional behaviors; (2) intentional behaviors; (3) unconventional communication; (4) conventional communication; (5) concrete symbols; (6) abstract symbols for specific referents; (7) language combining symbols.

**Procedures**

Following approval from the university Internal Review Board and the school district, a high school teacher and middle school teacher provided written consent to participate in the project. After teachers provided consent, consent forms were distributed to teaching assistants and the parents of students in their classrooms. Researchers completed structured observations of expressive communication skills using the Communication Matrix with students whose parents provided consent. Each teacher participated in a 30-minute one-on-one professional development session that provided an overview of a student-directed approach to shared reading. Minimal information on specific strategies was provided because the goal was to identify naturally occurring teacher behaviors or strategies that preceded successful student interactions based solely on introductory information about a student-directed approach to shared reading.

This study focused on four shared reading sessions that were video recorded, two in each classroom. In the high school classroom, Teacher A stood in the front next to an interactive whiteboard and students were seated in chairs or wheelchairs in a semi-circular fashion. In the middle school classroom, Teacher B was seated near the interactive whiteboard behind a semicircular table, with students seated in chairs or wheelchairs around the table. The four video-recorded sessions in the current study ranged in length from 6.1 to 13.7 minutes ($M$ = 8.4). The teachers were encouraged to self-select books from Tar Heel Reader (http://tarheelreader.org), which is an open-source, accessible (i.e., accessible across platforms via switches, eye-gaze, direct selection with options to change color contrast, use text-to-speech), online library of more

than 75,000 texts for beginning readers of all ages. All of the books have one picture on a page and no more than three lines of text. Teacher A read *Being Nice at Dinner* (DLM, 2014) and *Exercise* (Charna, 2013), and Teacher B read *Movie Night* (CLDS, 2015) and *Growing My Sunflower* (Nick L., 2011).

**Data Collection**

The videos were transcribed verbatim by a graduate research assistant and then the accuracy of the transcripts was checked as the first two authors repeatedly reviewed each video and expanded upon the verbatim transcripts to create a detailed record of interactions. Next, the authors viewed and discussed the videos in collaborative data sessions to build detailed transcriptions of the four shared reading sessions. During these transcription sessions, two or more authors watched videos several times with reference to the transcripts, and then discussed the analytic observations through shared observation and analysis (Ten Have, 2007). This approach supports the validity and reliability of the conversation-analytic approach (Perakyla, 1997). The first two authors used consensus during these transcription sessions to identify incidences of interactional sequences that resulted in teachers successfully achieving one of four mutually exclusive shared reading interaction goals: (a) maximizing student participation (i.e., nonsymbolic and symbolic communication that did not represent making connections, a multiple turn interaction, or taking the lead), (b) helping students make their own connections with the text, (c) maximizing multiple turn interactions, and (d) supporting students to take the lead. The resulting data were comprised of 295 successful, fully transcribed interactional sequences (See Table 2).

Table 2
*Frequency Counts of Teacher Strategies Preceding Successful Interaction Outcomes with Students*

| Interaction Outcome<br>Teacher Strategy | Teacher A<br>Reading 1<br>5 students | Teacher B<br>Reading 1<br>4 students | Teacher A<br>Reading 2<br>4 students | Teacher B<br>Reading 2<br>5 students |
|---|---|---|---|---|
| Maximizing Student Participation | | | | |
| Animated reading | 3 | | 6 | 1 |
| Comment about book | 3 | 15 | 2 | |
| Open-ended question | | 14 | 2 | 1 |
| Attribute meaning | 1 | 1 | 1 | 1 |
| Pause and expectant look | 1 | 1 | 2 | |
| Repetition as question | 2 | 14 | 2 | |
| Yes/No question | | 13 | 21 | 2 |
| Total | 10 | 58 | 36 | 5 |
| Helping Students Make Connections with the Text | | | | |
| Model self-to-text connection | | 12 | 1 | 5 |
| Contingent question | | 5 | | |
| Total | 0 | 17 | 1 | 5 |
| Maximizing Multiple Conversational Turns | | | | |
| Model text-to-self connection | | 1 | | |
| Surprise Token | 5 | 1 | | 1 |
| Repetition and addition | 4 | 3 | 2 | 8 |
| Attribute meaning | | 1 | | |

| | | | | |
|---|---|---|---|---|
| Expansion | 3 | 17 | 17 | 4 |
| Extension | | 3 | 1 | |
| Repetition as question | | 7 | | 2 |
| Pause | 3 | | 1 | |
| Yes/No question | | 5 | | 2 |
| Comment about book | | 11 | | 14 |
| Closed question | | | | 6 |
| Repetition | | | | 9 |
| Total | 15 | 48 | 21 | 46 |
| Encouraging Students to Take the Lead | | | | |
| Surprise | 2 | 4 | 2 | |
| Pause | 8 | | 3 | |
| Repetition as question | 2 | | 6 | |
| Comment about book | | | | 1 |
| Repetition of text | | | | 2 |
| Expansion | | | 1 | |
| Total | 12 | 4 | 14 | 3 |
| Missed Opportunities for Interaction | | | | |
| *No Contingent Response | 13 | 3 | 9 | 2 |
| Total | 13 | 3 | 9 | 2 |

**Data Analysis**

Through repeated analysis of these sequences, conversation-analytic conventions were applied to code the characteristics of these interactions. The data were grouped according to the frequency of each type of teacher action that preceded a successful interaction sequence. Consensus building was used to discuss and resolve uncertain cases. Conversational excerpts were prepared using traditional conversation analysis methods (Jefferson, 2004) and AAC transcription conventions (Von Tetzchner & Basil, 2011). See Appendix A for coding conventions. Given the challenges associated with documenting pre-symbolic communication (Wilkinson & Kitzinger, 2017), one consented student in each classroom who did not use conventional non-symbolic or symbolic communication was excluded from analysis. All communication turns by, to, or in response to two nonconsenting students ($n$ = 27, $n$ = 5 respectively) in Teacher A's classroom were removed from the data set and further analysis.

## *Results*

**Maximizing Student Participation**

Asking questions was one of the primary means by which Teacher A (28 times) and Teacher B (26 times) invited participation. Response to yes/no and closed questions elicited a 1- to 2-word response from students 80-84% of the time, and open-ended questions elicited 3- to 6-word responses 50% of the time. During the session of *Movie Night*, Teacher B posed an open-ended, inferential question, "So how do you know it's daytime?". Student #11 correctly answered the question while pointing to the picture, "Because the sun is out." Then Student #10 also pointed to the picture on the screen. The teacher acknowledged the non-symbolic communication by producing an affirmative token, repeating the gesture, and attributing meaning to the student #10's communication, "Uh-huh. You see over there the sun is out."

Demonstrating comments was another teacher behavior that preceded student participation. During the session of *Being Nice at Dinner*, after Teacher A read the text, Student #7 responded with interest and clapped his hands. The clapping signaled engagement, but this nonsymbolic communication appeared semantically incongruent with the text. Next, Teacher A demonstrated the use of a 2-word verbal comment with familiar vocabulary (line 71) and Student #7 responded with a verbal symbolic repetition plus addition (line 72). Thus, Teacher A's model supported the student in shifting from nonsymbolic to symbolic participation and also scaffolded the student's production of a semantically congruent expansion using the modeled syntactic framework.

69. Teacher: *Helen threw food and dishes*. ((reading))
70. Student #7: ((claps with laughter))
71: Teacher: *Do not*.
72: Student #7: *Do not* [*plate*].

**Helping Students Make Connections with the Text**

Teacher B helped students learn to make connections by modeling her own text-to-self connections (12 when reading *Movie Night*, and 5 when reading *Growing My Sunflower*). Prior to the following extract from *Movie Night*, Student #11 read, "You can watch a movie with your dog". Teacher B made a text-to-self association about her own dog (line 186), and student #11 used similar syntax to share similar experiences of watching movies with her cat (line 189). After Teacher B asked student #11 a yes/no contingent question (line 190), Student #12 joined the dialogue, making his own text-to-self connection regarding his puppy (line 192).

186. Teacher: *Man*, [*I watch movies with my dog*].
187. Assistant: *Do you watch movies with your dog*? ((talking with student #10))
188. Student #10: *Yeah*! ((leans toward TA 2))
189. Student #11: *I watch movies with my cats.* [*cat*].
190. Teacher: [*Do you watch*] *movies with your cat*?
191. Student #11: *Yah*.
192. Student #12: *My puhpuh my puhpuh* ((moves fingers on table like typing or playing piano))
193. Teacher: *Does your puppy watch movies*?
194. Student #12: *Day* {verbal approximation of yes}. ((smiles))

While less frequent, teachers also supported students in elaborating upon personal connections to the text by asking contingent questions (six times). In the following extract from *Exercise*, Student #4 made a text-to-self connection by identifying himself as a soccer player (line 166). Teacher A's contingent question at line 167 then elicited an elaborated multi-word comment from the student (line 168). Teacher A's open-ended question then extended the text-to-self connection at line 169, and two students made successive contributions (lines 170 and 171). Teacher A then repeated the comment made by Student #6 and Student #1 joined in, resulting in a multiparty exchange on a student-initiated topic.

165. Teacher: *People can play soccer with friends to get exercise*. ((reading text))
166. Student #7: *Me*. ((raises hands))

167. Teacher: *You*?
168. Student #7: *We frie:nd*. (Name of student) *and* (name of student). ((points to left*)*)
169. Teacher: *Ok.* [*What are you guys gonna do?*]
170. Student #7: "*FRIEND*." [*Friends*.]
171. Student #6: *"Soccer"*.
172. Student #7: "*BASKETBALL*"
173. Teacher: *Soccer*!
174. Student #1: "*Unintelligible"*. "*Play*".

**Maximizing Multiple Turn Interactions**

There were 149 instances of multiple turn interactions found in the transcripts. Repetitions (i.e., exact repetition of student utterance; nine times), repetitions with additions (i.e., repetition that adds information; 17 times), and expansions (i.e., repetition that is grammatically correct; 41 times) were used frequently by both teachers to support multiple turn interactions. For example, in the following extract from *Being Nice at Dinner*, Student #6 initiated a topic by labeling an item in the picture (line 77). Teacher A repeated the student's utterance, and followed it with an addition at line 78. This response brought Student #7 and Student #1 into the conversation as they repeated the previous label and each produced a new label (lines 79 and 80). Teacher A acknowledged the latter contribution with an expansion that provided a more adult-like model of the word (line 81). These teacher repetitions of student contributions extended the dialogue over additional conversational turns, as multiple students enthusiastically contributed by labelling the picture, naming semantically related items, and commenting about the food.

77. Student #6: [Chicken nuggets. ((*points to screen*.))]
78. Teacher: Chicken nuggets. You see those chicken nuggets.
79. Student #7: Chicken nuggets.
80. Student #1: Let…((*points to screen*))
81. Teacher: Lettuce.
82. NP: [(Non-participant statement)]
83. Student #7: [Pi:ckles.]
84. Student #6: French fries.
85. Teacher: Pickles. [I don't know.] I don't see pickles.

Although it only happened once, when Teacher B modeled a text-to-self connection, it led to the longest sequence of 14 conversational exchanges. In the following extract from *Movie Night*, Teacher B made a text-to-self connection (line 392). This led Student #11 to extend the personal connection and resulted in seven authentic questions, three of which are included in the extract that follows (lines 393, 395, 398). Sometimes Student #11's questions related to information that was previously known about Teacher B as it applied to the book. At other times, Student #11 applied new information to extend the conversation (line 395). In making text-to-self connections, Teacher B provided a catalyst for Student #11 to engage in a multi-turn exchange that included appropriate questions based on the content of the book and curiosity about how they connected to their teacher.

392. Teacher: …*Like this weeke:nd, I went to the beach with my sister and my mama*.

393. Student #11: *Did you take Muffins*?
394. Teacher: *I took Muffins. And I got to sit and watch* [*a movie with my sister*].
395. Student #11: *Does your* [*sister have-does your sister have*] *a pet*?
396. Teacher: *No. Just me. And I got to sit and watch a movie with my sister, and that was more fun than watchin' it by myself.*
397. Assistant: ((pats, then holds and rubs right hand of Student #2, who smiles*))*
398. Student #11: *Does Muffins watch movies with you*?
399. Teacher: *She does. She likes to watch movies with us too*.

While attributing meaning was rarely used by teachers to support student communication efforts, it did facilitate one multiple turn interaction for a student with complex communication needs. In *Movie Night,* the class was deciding whether a picture was showing a boy watching a movie in an airport. Student #12 touched the teacher's sleeve with his left hand, while saying, "Nay, nay. Nay nay". Then he lifted his shirt in front of his face and made a kissing sound with a big smile, followed by a verbal comment "maybe!" The teacher contingently responded to the student's multimodal contribution by attributing meaning to the entire communication effort, "Yeah, you'd kiss 'em." And Student #12 continued by saying, "No!" while shaking his head, followed by "Maybe?" with a smile. Attributing meaning honored the student's communication efforts, modeled a more sophisticated linguistic turn, and supported the student's continued participation in a multiple turn interaction, even if the connection to the meaning of the story or group conversation was unclear.

**Encouraging Students to Take the Lead**

Finally, teachers encouraged students to take the lead in the interaction 34 times, with Teacher A accomplishing this most frequently (26 times). Pausing and providing think time not only encouraged students to participate or take turns in multiple turn interactions, but also most frequently preceded students taking the lead. In the following extract from *Growing My Sunflower,* Teacher B turned the page and described the picture of a sunflower seedling. The picture elicited a surprise token from Student #10 at line 131. During the teacher's 3.5-second pause, Student #12 used multimodal communication to signal he needed more time to take a turn (line 132). After Teacher B signaled that Student #12 could hold the floor (line 133), Student #12 used his speech-generating device to label the picture at line 134. Teacher B produced a linguistic expansion and then an addition of semantically related information (line 135).

130. Teacher: *A seedling. It's like a baby. It starts to* [*grow like a little baby*.]
131. Student #10: [*hhh*((inhalatory))] *Grow*! ((claps hands))
(3.0)
132. Student #12: *Yuh nee ta nee*? ((raises index pointer finger as if to say 'wait a moment'))
133. Teacher: *Ok*.
134. Student #12: "*Sunflower*".
135. Teacher: *There's a sunflower! It will be a BI:G* ((*makes a big arm circle*)) sunflower.

Displays of surprise also frequently preceded students taking the lead in the interaction, as well as participating in multiple turns. The expressions of surprise provided valuable feedback about the unexpectedness of the students' contributions, while validating the conversational turn and providing authentically generated encouragement for the discourse to continue. In the following

extract from *Being Nice at Dinner*, Student #7 provided a topical lead about the action in the text, with supportive prosodic contours and gestures at line 143. Teacher A coupled a response token of surprise with a rhetorical question that affirmed receipt of the message, expanded on the students' linguistic utterance, and encouraged the student to continue (line 145). This reaction led the student to further elaborate with onomatopoeia and nonverbal sound effects at line 146. Teacher A recycled her surprise token and added a semantic extension (line 147) that prompted another student to join the exchange with an agreement token (line 148).

142. Teacher: *Helen threw her bo::wl:*!((reads))
143. Student #7: [*Broke!* ((motions with hands to emphasize statement))]
144. Student #1: [*Bowl*.]
145. Teacher: *Oh my goodness*! *You think it would break*?
146. Student #7: *Yah! Pow*! ((claps hands for emphasis))
147. Teacher: *Oh my goodness! Just like that*?
148. Student #6: *Yeah*!

**Missed Opportunities**

While the primary purpose of this study was to identify teacher behaviors that supported successful interaction aligned with the goals of shared reading, there were some patterns of missed opportunities for engagement that appeared throughout the transcripts. Most of them occurred in Teacher A's classroom. She missed 22 opportunities to provide contingent responses to student communication efforts, particularly when students used a speech-generating device. In the following extract from *Exercise*, Student #6 was the first to make a comment using his device after Teacher A read (line 107). He then repeated his original comment with his speech-generating device at line 109 without any contingent response. Teacher A provided a contingent response to the spoken contribution of Student #7 (line 110) but offered no response to Student #6. Student #6 interjected his comment with his speech-generating device two more times (lines 112 and 115) as the verbal exchange continued between Teacher A and Student #7 (lines 110, 111, 113 and 114). After Student #6 made a fourth attempt (line 115), Teacher A finally acknowledged his comment by repeating it (line 117).

106. Teacher: *People can* [*swim*] *at the gym to get exerci:se*. ((reading))
107. Student #6: ["*Swimming*"].
108. Student #7: [*I been*] *there 'fore.*
109. Student #6: ["*Swimming*"].
110. Teacher: *You've been there*?
111. Student #7: *Yep. My* [*mama papa*].
112. Student #6: ["*Swimming*"].
113. Teacher: Your mama and papa?
114. Student #7: [Yep].
115. Student #6: ["*Swimming*"].
116. Student #8: ((stands to tap the icon to turn the page on whiteboard, then returns to seat))
117. Teacher: *Swimming*?

### *Discussion*

Shared reading is an early language and literacy activity that focuses on interaction and engagement (Ezell & Justice, 2005), which means that student participation is critical. Because communication is challenging for students with SSN, eliciting participation can be difficult for teachers. Across the 4 shared reading sessions included in this study, there were 110 instances of teachers eliciting participation. It is not surprising that nearly half of the time student participation was preceded by a familiar strategy, the use of questions. While questions did facilitate participation, the use of yes/no and closed questions typically resulted in a 1–2-word response that simply answered the teacher's query, ending the interaction.

In contrast, when teachers asked open-ended questions or used comments after reading a page, they elicited student participation and prompted students to use more words to respond or add information beyond the teacher's initial question or comment. Commenting is known to support successful interactions and language development during shared reading (Barnes et al., 2017; Whitehurst et al., 1988). Commenting can focus students' attention on aspects of the text, pictures, real-life connections, and print that help them notice, understand, and respond in more meaningful ways (Justice et al., 2009). Teacher comments also served to elicit multiple turn interactions. Teachers of students with SSN may benefit from training on providing a wide range of comments, with a particular focus on increasing the value of commenting by offering comments in response to student initiations and interests (Bellon & Ogletree, 2000). In addition, teacher training should also emphasize demonstrating the use of key graphic symbols for demonstrating comments with students who use AAC, including speech generating devices. This strategy, aided language input, can support receptive understanding and expressive use of graphic symbols in context (O'Neill et al., 2018; Sennott et al., 2016).

Multi-turn student interaction was often elicited when teachers repeated and expanded on student responses. This strategy acknowledged the student's contribution and also provided a model for students of either a clearer or slightly more complete message (Clarke et al., 2017). Repetition and expansion may have also elicited multi-turn student exchanges by supporting comprehension as all students had one more opportunity to hear a student message and to hear it in a more-clear or complete version. Encouraging teachers to repeat and clarify or expand student messages by adding a word or two may support extended interactions with the teacher and/or peers.

The least frequently occurring interaction outcome was the students' use of text-to-self connections. A student's ability to make connections using a combination of prior knowledge, language-based experience, and the text is critical for text comprehension (Duke et al., 2011), and it also increases their enthusiasm for talking about text (Zigo, 2001). While teachers modeled personal text-to-self connections, there was little evidence of teachers assisting students in making meaning from the text by helping them connect the book's content with information, ideas, or experiences that were familiar or known to the students (Morrison & Wlodarczyk, 2009). Teachers may benefit from learning how to preplan comments or open-ended questions that explicitly make connections between the text and student knowledge and experiences, as well as text-to-text or text-to-world connections.

There were also relatively few instances of students taking the lead during the interaction, which is the ultimate goal of shared reading (Ezell & Justice, 2005; Whitehurst et al., 1988). It is important to note that teacher pauses of at least three seconds most frequently supported this outcome. A wait-time of 3 seconds has been advocated in typical classrooms (Tobin & Capie, 1983) since Rowe (1972) first documented that "wait-time" rarely lasted more than 1.5 seconds, yet resulted in increased elaboration and accuracy after 3 seconds. Yet, many students with SSN may require 15-30 seconds or more of think time in order to process an adult's comment, think about it, and coordinate a reply or a comment of their own (Koppenhaver et al., 2001). Therefore, teachers of students with SSN may require supports in training, self-reflection, and coaching to ensure that the length of wait time matches the needs of their students.

One critical observation across all four shared reading sessions was the teachers' reduced responsiveness to student communication efforts, particularly by those who did not use speech to communicate. The overlooking or misunderstanding of symbolic and non-symbolic communication is reported as one of many classroom participation barriers for students who use AAC (Pufpaff, 2008). In the present study, it appeared the teachers simply missed comments made by students using speech-generating devices, and it took multiple attempts before those students' communication efforts were recognized. This decreased responsiveness to non-speech modalities may be related to a lack of knowledge and skills (Beukelman & Mirenda, 2013) or to self-reported beliefs that there is little teachers can do to support communication outcomes (Zascavage & Keefe, 2004).

**Limitations**

While we acknowledge that caution must be used in interpreting these results due to the small sample size, we believe that the in-depth analysis provides a valuable contribution to the dearth of literature about teacher behaviors that promote interaction with students with SSN during shared reading using a social interactionist approach. While this study only includes students who are being educated in separate settings, it is reflective of this population, as more than 90% of students with SSN in the United States are educated in separate classrooms or schools (Erickson & Geist, 2016; Morningstar et al., 2017). As we work to advocate for more access to inclusive settings with students who have SSN, this study provides evidence that students with SSN benefit from the types of early literacy instruction and engagement strategies encountered by their peers in general education settings (Erickson et al., 2009).

**Conclusion**

Shared reading is a powerful intervention for supporting interaction with students who have SSN. The goal of the study was to identify specific teacher behaviors to inform the ongoing development of an implementation model. The results suggest that those strategies that benefit students without disabilities, such as commenting, providing think time, modeling text-to-self connections, and expanding student utterances, also benefit students who have SSN.

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***Acknowledgement***

[1]This document was produced in part under U.S. Department of Education, Office of Special Education Programs Grant No. H327S160005. The views expressed herein do not necessarily represent the positions or policies of the Department of Education. No official endorsement by the U.S. Department of Education of any product, commodity, service or enterprise mentioned in this publication is intended or should be inferred. Project Officer, Terry L. Jackson.

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## *Appendix A*

*Conversation Analysis Transcription Conventions with Modality Modifications*

| Convention | Description |
|---|---|
| [ ] | Beginning and ending of overlapping speech. |
| ↑↓ | More significant pitch movement than in the typical rhythms of speech or in the representation of stops, commas, and questions. |
| → | Features that are relevant to the current analysis. |
| Underlining | Emphasis within individual words. |
| CAPITALS | Louder in volume than typically observed in the rhythms of speech that include emphasis. |
| ∘∘ | Significantly quieter than the normal rhythms of speech. |
| * | Squeaky in delivery. |
| (0.4) | Numbers in round brackets represent pauses that are measured in seconds. |
| (.) | A stop in round brackets represents a micropause that is too short to measure. |
| ((*italics*)) | Italic font in brackets indicates comments from the transcriber about features of interest in context or delivery. |
| :: | Colons in the middle of words indicate elongation of the prior sound. The greater the number of colons, the greater the elongation. |
| hhh | Aspiration. The greater the number of h's, the greater aspiration. |
| .hhh | Inspiration. The greater the number of h's, the greater the inspiration. |
| Well, | A 'continuation' marker indicating that the speaker has not finished, marked by a fall-rise or weakly rising intonation. |
| What? | Questioning intonation, irrespective of grammar. |
| Yeah. | Falling, stopping intonation irrespective of grammar. They are not necessarily followed by a pause. |
| bu-u | A cut-off of the preceding sound. |
| >< | Beginning and ending positions of speech that is speeded up. |
| <> | Beginning and ending positions of speech that is slowed down. |
| done.=we can | Talk is successive and without an interval. It can occur between one or more speakers. |
| *Natural speech* | Naturally spoken elements. |
| "*Synthesized speech"* | Elements generated by speech-generating device. |
| "*MANUAL SIGN*" | Elements produced with manual signs. |

*Note.* Based on conversation analysis transcription conventions (Jefferson, 2004) and AAC transcription conventions (Von Tetzchner & Basil, 2011)

## *Appendix B*

*Shared Reading Module Learning Objectives, and Key Ideas*

| Learning Objectives | Time Ordered Agenda | Key Ideas |
|---|---|---|
| 1. Define the goal of shared reading | 5 minutes: Researcher presented overview of goal of shared reading and characteristics of students who could benefit<br>5 minutes: Participants completed activity focused on current literacy behaviors of each student to identify those who could benefit from shared reading (e.g., not yet interested in books, not yet able to follow text vs. reading independently with comprehension) | • Shared reading focuses on the interaction during book reading |
| 2. Identify the characteristics of teacher-directed and student-directed approaches | 15 minutes: Reacher contrasted teacher-directed and student-directed approaches to shared reading. | • Teacher-directed approaches embed expectations of students remembering content with the goal of having them answer questions with specific answers.<br>• Student-directed approaches embed expectations of teachers responding to student communication acts with attention to things that attract student interest in the book. The goal is to maximize student initiation and interaction.<br>• Student-directed shared reading strategies include encouraging engagement and interaction, providing books that may be of interest to students, following the student's lead, drawing attention to the print, and modelling and supporting communication |