Toward A Model Of Promoting Literacy For Students With Autism Spectrum Disorder In The General Education Classroom

Robin LaBarbera and Ivannia Soto-Hinman

Robin LaBarbera, Assistant Professor, Biola University
Ivannia Soto-Hinman, Association Professor, Biola University

Abstract

A significant number of students with Autism Spectrum Disorders (ASD) who attend partially or fully integrated classrooms in the United States in increasing numbers, show distinctive difficulties in reading comprehension and difficulty acquiring the foundational oral language skills necessary for reading development. In this paper we describe a Student Shadowing Project in which preservice teachers observed and reported on opportunities for students with special needs to participate and engage in classroom literacy practices. Results revealed that students with ASD were given few opportunities to actively engage in classroom dialogue and academic language (defined here as the language of school, testing, and textbooks) production. Given that gaining meaning from print is largely dependent on a child's proficiency in language, we suggest that teachers increasingly include students with ASD in whole-class and small-group interactions, to facilitate the development of language skills which may in turn lead to reading comprehension improvements.

Introduction to Autism in the Inclusive Classroom

An increasing number of students with autism spectrum disorders attend partially or fully integrated classrooms (Chiang and Lin 2007; Mirenda 2003), with a wide range of abilities (Fein and Dunn 2007). Students with autism may have strong basic academic skills, such as decoding or mathematical calculations, but may also have difficulty with reading comprehension, writing, and drawing inferences (Fein and Dunn 2007; Nation, Clarke, Write, and Williams 2006; Nation and Norbury 2005; O'Connor and Klein 2004; Whalon and Hanline 2008).

Asberger's Syndrome, a disorder included within the autism spectrum, is characterized by deficits in social interactions and display of repetitive behaviors (Gibbons and Goins 2008). In addition to the patterned, repetitive, and focused behavior and resistance to change found in Asberger's, traditional autism shows symptoms of language, cognitive, or other developmental delays (Gibbons and Goins 2008). An impaired ability to understand cause and effect relationships and to draw inferences is present in most children with autism, and most have difficulty with language comprehension, often associated with academic language across the content areas, and the social use of language (Fein and Dunn 2007). Students on the autism spectrum often struggle in classrooms due to their literal, concrete thinking (Gibbons and Goins 2008) and difficulty understanding what they have read, especially if it requires making inferences rather than just literal understanding (Fein and Dunn 2007).

In a typical classroom, students generally acquire information either verbally or by reading silently, which can be challenging for students with autism. Myles et al. (2002)

examined the reading performance of sixteen children with Asperger Syndrome and found that when asked to read silently, student performance was below grade level for many in the classroom. Yet, when students were given opportunities to read out loud, reading ability improved, likely due to the additional auditory input. It is unfortunate that a classroom structure in which students are expected to read silently a majority of the time, rather than active oral participation in classroom academic language, "may be one that facilitates learning problems in children and youth with AS," (Myles 2002, 46).

Weaknesses in oral language can also have an impact on reading comprehension for students with autism (Lanter and Watson 2008; Nation and Norbury 2005). In a 2005 study for instance, Nation and Norbury were able to attribute reading comprehension impairment to oral language. Supporting evidence was also found in a subsequent study (Nation et al. 2006). In fact, "the less skilled comprehenders showed impairments in vocabulary, and in oral language comprehension, relative to the skilled comprehenders" (Nation et al. 2006, 915). Lanter and Watson (2008) provided additional support for those findings, and further suggested that oral language interventions are crucial for children with ASD to achieve higher levels of success in general academics.

Cognitive challenges may make it somewhat difficult for a student with autism to achieve certain educational goals in the general education classroom (Fein and Dunn 2007). Such challenges include difficulty with the practical aspects of language, problems with attention span, difficulties making inferences, and problems applying the rules of reading and grammar (Vacca 2007). Unfortunately, students with developmental disabilities are viewed as being too impaired to participate in meaningful literacy learning experiences with their typical peers (Humphrey 2008; Kluth and Darmody-Latham 2003; Mirenda 2003; Vacca 2007), and research promoting effective strategies for facilitating literacy development has yet to be published in sufficient numbers (Chiang and Lin 2007).

Given that the literature has suggested that children with ASD may experience difficulty in acquiring the oral language skills necessary for effective reading (Nation and Norbury 2005; Whalon and Hanline 2008), and that "we can only comprehend text to the degree we comprehend language" (Whalon and Hanline 2003, 367), it becomes imperative that teachers include students with ASD in the classroom academic discussions. Working toward improving

language through active engagement in academic language may prove to have positive benefits to the development of reading skills in students with autism.

Classroom Interventions

What is inclusion, and how can educators work towards inclusion for students with autism in the general education classroom? First, Humphrey (2008) provided a comprehensive definition of inclusion, stressing the important of *presence* (without the use of withdrawal classes), *participation* (the quality of pupil's education experiences), *acceptance* (by teachers and peers), and *achievement* (greater academic progress and better social and emotional skills). Humphrey's seminal article asserted that inclusion, according to this definition, is rarely fully realized in typical classrooms for students with autism. This may be the case for a number of reasons, including teachers' perceived lack of training and support. In other words, "these pupils are often considered to be more difficult to include effectively" than those with other special needs (Humphrey 2008, 42). Naturally, Humphrey strongly suggests a move from the typical "exclusive" approach to a more "inclusive" classroom, following the four-pronged definition, thereby giving students with autism better opportunities for school success.

Given that students with disabilities are being included in regular classrooms in increasing numbers, it is unfortunate that students with autism are often seen as too impaired to participate in or benefit from mainstream instruction (Humphrey 2008; Kluth and Darmody-Latham 2003; Mirenda 2003; Vacca 2007). An important line of research has consequently been undertaken in recent years to identify effective strategies that improve the learning of students with disabilities. Strategies that increase academic engagement for all students, such as the use of cooperative learning groups and peer-mediated interactions, have been advocated by several researchers (Bedrosian, Lasker, Seidel, and Politsch 2003; Kamps et al. 1994; Whalan and Hanline 2008), and many have shown especially promising results.

The National Reading Panel identified several strategies shown to be effective reading interventions for general education classrooms, including cooperative learning groups and peer tutoring (National Institute of Child Health and Human Development 2000). Yet, in a comprehensive literature review, Chaing and Lin found that little is known about how well those effective methods might work for students with autism. In fact, they found only eleven reading comprehension studies published in English, between 1986 and 2006, in which students with

autism were included. Of the 11 studies, only three explored cooperative learning or peer tutoring, despite the National Reading Panel's report in which these strategies were found to be highly successful among students without disabilities. Since reading deficits are so frequently found among students with autism, Chaing and Lin's (2007) review points to the need for research to identify instructional methods for promoting reading comprehension among this population.

The potential benefits of cooperative and/or peer learning for students with autism in a mainstream setting have been explored in a small number of investigations and have, for the most part, yielded positive results. One such study (Kamps et al. 1994) advocated for cooperative learning and peer tutoring for students with and without disabilities in integrated classroom settings. Three high-functioning elementary-aged students with autism, who had few interactions with their peers, were given opportunities to engage in peer tutoring. During the tutoring, the learner read for 8 to 10 minutes, the tutor provided positive and corrective feedback on the reading, and the tutor asked 3 minutes of comprehension questions. Kamps et al. (1994) found an impressive increase in reading rates and improved performance in reading comprehension in the students with autism as well as their peer tutors. Initially, each of the three students scored approximately 47%, 24%, and 67% (respectively) correct responses on reading comprehension questions, but during peer tutoring were able to increase correct responses to 85%, 85% and 100% respectively. Worth and Reynolds (2008) also recommend the use of class and group discussions for children with autism.

Bedrosian et al. (2003) established the benefits of peer scaffolding with opportunities for meaningful communication to enhance the communicative and written performance skills of students with autism. However, less promising results were reported in a recent investigation (Grey, Bruton, Honan, McGuinness, and Daly 2007). They reported improvement in social interactions but no improvement in task engagement as the result of a cooperative learning intervention in their sample of two students with ASD in the mainstreamed classroom (Grey et al. 2007).

Whalon and Hanline (2008) investigated the effectiveness of reciprocal questioning strategies in cooperative pairs on the reading skills of children with ASD. In their intervention, students were aided in asking and responding to questions using a story map framework while taking turns reading with a general education peer. Participants' parents were shown videos of

the intervention sessions and reported improvement in reading and conversation skills. Remarkably, all the children with ASD in the study were able to increase the frequency of question generating and in their recall and interpretation of text (Whalon and Hanline 2008).

Lanter and Watson (2008) offered several suggestions for improving reading comprehension skills of students with autism in the general education classroom. Whether students are in the emergent, conventional, or skilled reading level, they suggest approaches aimed at developing oral language skills. Such strategies include encouraging story retelling, creating dialogue around storybooks, using "think-alouds," helping construct meaning through dialogue, and engage in paired or small-group reading with directed discussions. Lanter and Watson (2008) recommended engaging students in classroom discussions through a variety of means as a major factor in raising academic outcomes.

In light of the research advocating towards cooperative learning and peer interactions, educators may still question whether students with autism can effectively participate in these kinds of classroom activities. Dugan and colleagues (Dugan, Kamps, Leonard, Watkins, Rheinberger and Stackhaus 1995) would most definitely advocate for such inclusion strategies. Their 1995 study examined cooperative learning activities as an instructional strategy for integrating students with autism into a fourth-grade class, and they found remarkable gains in student engagement and attention in all students in the classroom when results were compared to the traditional teacher-lecture format. Dugan et al. (1995) provided vital results in support of cooperative learning groups and peer interaction among students with and without disabilities. Results tend to lend support for the argument that students with autism, when carefully included, can be successful in classroom interactions.

Working cooperatively on group assignments can be a difficult activity for a child with autism, and therefore the educator must take great care in structuring the environment to most effectively meet student needs (Fein and Dunn 2007). One strategy involves choosing groups members. Fein and Dunn (2007) caution that allowing students to self-select their partners may increase the likelihood that the child with autism will be left out, and instead recommended that educators carefully choose group configurations to make certain there is one child in the group who is mature and will support the participation of the child with autism in the groups activities. The importance of helping all children in the classroom to have some understanding of the child with autism and to respect his/her contributions cannot be overlooked. Fein and Dunn insist that

enlisting the aid of classmates "can enrich everyone in the classroom community" (2007, 271). Helping classmates regard the student with autism as a real member of the class and accepting his/her differences is essential. An environment that is beneficial to students with autism is one that inspires all students to "teach on another, take risks, create, collaborate, and see themselves capable of learning" (Kluth and Darmody-Latham 2003, 533). By establishing an accepting environment and highlighting the strengths of all students, educators can "support the idea that your classroom is a community where people are expected to use their strengths to help others with their weaknesses (Fein and Dunn 2007, 273).

Vacca (2007) maintains that teachers could do a much better job of educating students with autism in the classroom, outlining ten strategies for improving reading achievement. Such strategies include creating active, authentic, and structured visual instruction; creating a mindset that students with autism can learn; basing instruction on interests and prior knowledge; creating multisensory instructional activities; modeling what students with autism need to know; and providing students with autism opportunities for practice (Vacca 2007). Such strategies, however, must be embedded in teacher education programs, and preservice teachers must have multiple opportunities to practice them often in order to be successful. Friedlander (2009) agrees that creating order and rituals in the classroom helps reduce troublesome behaviors in children with autism, further advocating that that the environment and the instruction must be differentiated for them to reach their full potential as learners. Daily opportunities to observe and interact with peers provide a rich, inclusive classroom environment, and fosters respect and understanding for all (Friedlander 2009). Such language structures, then, are beneficial to all students, as they allow peer groups to build sensitivities they will need to collaborate with all individuals in society and the workplace. Additionally, Vacca (2007) suggests, "Unless these and other approaches are considered, children with autism…will not achieve their full potential in school" (59).

In summary, a sizeable number of researchers (Fein and Dunn, 2007; Friedlander, 2009; Humphrey 2008; Kluth and Darmody-Latham 2003; Mirenda 2003; Vacca 2007) collectively maintain the children with autism are too often excluded from rich, meaningful literacy experiences in the mainstream classroom. Consequently, they recommend that teachers be purposeful in providing predictable structure and an organized environment, use a range of visual supports (such as graphic organizers) to help make reading an enjoyable experience, spark

enthusiasm, and capitalize on student interest. Most importantly, they stress the importance of developing a mindset that autistic students *can learn and participate* in literacy experiences, and would benefit greatly through such interventions (Kluth and Darmody-Latham 2003; Mirenda 2003; Vacca 2007).

The findings from the research regarding purposeful student interactions (including student-to-student, such as cooperative learning and peer tutoring, and teacher-to-student, such as purposeful instructional strategies), when taken together, point toward the benefits of interaction opportunities to academic achievement. Given the literature establishing a link between engagement in classroom discourse and literacy development, the current investigation explores the types of opportunities students with ASD have to engage in teacher- and student-led classroom discussion. This research questions why, given the literature reporting increased learning for students with autism during cooperative peer-mediated formats, such a small number of teachers are utilizing interactive strategies in inclusive classrooms. When teacher-led discussions are shown to be less effective than peer-mediated strategies in the research, it makes sense to change the status quo. One important way to do this is to systemically change the methods and structures that preservice and inservice teachers are trained in order to ensure that *all* students are included in today's classrooms.

Shadowing Project

The Student Shadowing Project is a technique for examining specific areas of a student's school experience, with a focus on his or her opportunities for engaging on academic language productive and active listening experiences. Shadowing involves the selection of a student, in this case, autistic students mainstreamed in public school settings, and following him/her from 2-3 hours, noting classroom and campus activities. The purpose of student shadowing is to gather information about the daily life of autistic students in order to participate in a larger conversation on improving the educational experiences—especially the literacy experiences—of *all* students.

In a school or district context, teachers may engage in student shadowing projects where they follow a particular student for several hours to gain understanding regarding their educational experiences, as well as obtain qualitative data about their academic lives. Such shadowing projects have been conducted in the Los Angeles Unified School District (LAUSD) and Biola University (La Mirada, CA), to have educators and preservice teachers gain a glimpse

into a day in the life of students with special needs in their school settings. Preservice teachers are trained using a protocol (see illustration that follows) where they monitor the domains of listening and speaking at five-minute intervals throughout a two-hour period.

Student Shadow Study Observation Form

Student First Name: _____ **Grade:** _____ **IEP Information:** _____
Gender: _____ **School:** _____

TIME	SPECIFIC STUDENT ACTIVITY/ LOCATION OF STUDENT 5-MINUTE INTERVALS	ACADEMIC SPEAKING	ACADEMIC LISTENING 1-Way	2-Way	NO LISTENING (*reading or writing silently*)	NOT LISTENING (*student is off-task*)	COMMENTS

Primary Speaker	Mostly to Whom?	Primary Speaker	Mostly to Whom?
Your Student	1. Student	Teacher	5. Student
	2. Teacher		6. Small Group
	3. Small Group		7. Whole Class
	4. Whole Class		

Primary Listener	Listening Mostly to Whom?
Your Student	1. Student
	2. Teacher
	3. Small Group
	4. Whole Class

It is important to note that participants are not ready to formally shadow until they have both studied the elements of academic talk in the classroom (introduced in the literature review here), as well as the different forms of listening that they will monitor. At Biola University, students do not shadow until mid-way through the course when they have amply studied the importance of academic speaking and listening with special needs populations.

Using the student shadowing protocol, participants monitor, at every five-minute interval, who the primary speaker is—either the student or teacher—as well as who the primary speaker is speaking to. In addition, the type(s) of listening involved in the interaction are also monitored, whether it is one-way or two-way. One-way listening is an interaction where students are taking in information, such as a lecture. Typically, in one-way listening, there is not room for

clarification or questions. In contrast, two-way listening allows for clarification to be made, because the interaction is dialogue-based. That is, the interaction is considered a conversation. Throughout the shadowing project, participants are often astounded by the fact that the teacher will do most of the talking, with much of the interaction being lecture-based, despite the research that substantiates the role of oral language development in literacy.

Below is an example of the shadow study form filled out for two intervals of a classroom interaction.

TIME 	SPECIFIC STUDENT ACTIVITY/ LOCATION OF STUDENT 5-MINUTE INTERVALS	ACADEMIC SPEAKING	ACADEMIC LISTENING 1-Way	ACADEMIC LISTENING 2-Way	NO LISTENING	NOT LISTENING	COMMENTS
10:20	*"Never Give Up" English/language arts song. Summing up— "make a long story short"*	7		*singing*			*Preparation for lesson B. paying attention, watching Head nodding to "Ready?"*
10:25	*Instructional Read aloud of Miss Rumphius*	10	2				

Primary Speaker	Mostly to Whom?	Primary Speaker	Mostly to Whom?
Your Student	1. Student	Teacher	5. Student
	2. Teacher		6. Small Group
	3. Small Group		7. Whole Class
	4. Whole Class		

Primary Listener	Listening Mostly to Whom?
Your Student	1. Student
	2. Teacher
	3. Small Group
	4. Whole Class

In the first language exchange at 10:20 we see that the student has just engaged in a song during English/Language Arts time. Therefore, academic talk has been coded as a 7, because the primary speaker is the student singing with the entire class. Singing has been noted in the two-way listening exchange as the student is interacting in talk as well and not merely listening as he sings. Under the comments section, the observer has written down any anecdotal notes important to the interaction. Here, specifically, the observer has noted that the student is attentive and nods that he is ready to sing.

In the 10:25 exchange, the student engages in an instructional read aloud. Here, the exchange has been coded 2 under academic one-way listening because the student is taking in information and not asked to respond. Academic speaking has been coded 10 because the

teacher is doing the talking while she reads the book aloud to the whole class. Students continued to code interactions this way every five minutes for two to four hours.

The shadowing project allows students to begin to find patterns regarding who is doing most of the speaking in classrooms, and what kinds of listening students are often asked to undertake. Preservice and inservice teachers soon begin to notice that the primary speaker in classrooms is often the teacher, which is the second box under primary speaker (and numbers 5-7). Similarly, educators find that the listening interactions are often one-way, or in lecture mode, with little room for questions or clarification on the part of autistic students.

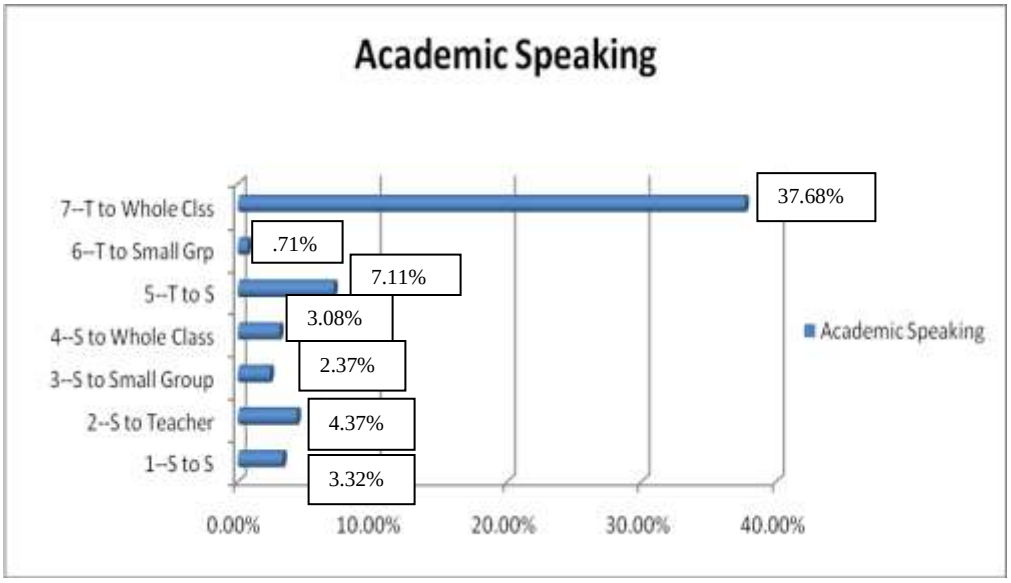
In this manner, the shadowing project illuminates for teachers the absence of opportunities for academic language practice in the classroom, especially for special groups of students such as those with autism students. Through this process, educators are able to reflect on their own instructional practices, and how such practices may positively or negatively impact literacy progress and therefore student achievement. For example, one teacher in LAUSD's District 6 stated, "The person talking most is the person who is learning most. . . . *And I'm doing most of the talking in my class!"* This process, then, creates an urgency for changing instructional practice across levels.

Results

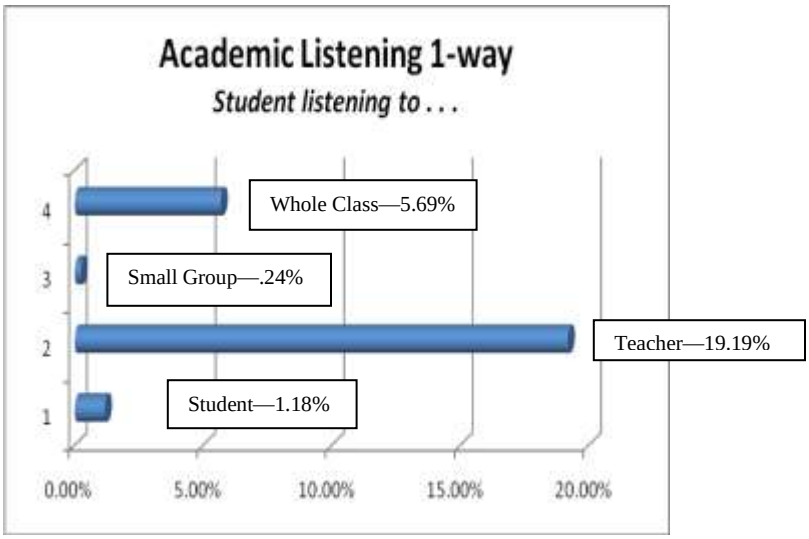
While children on the autism spectrum are increasingly being educated in the general education classroom, they are often excluded from rich and meaningful literacy experiences like whole-class and small-group discussions.

What we found about the limited opportunities for students to engage in classroom discussions/discourse patterns is that students with autism are nearly silent in classrooms where they are included. The study sample for this shadowing project included fourteen students with autism at five elementary schools in Southern California. Fourteen preservice teachers (after being trained in how to use the shadowing protocol) monitored each autistic student's academic speaking and listening patterns at every five-minute interval for three hours, which represented a total of 2520 hours of language monitoring. Teacher talking and initiation of language represented the greatest percentage of talking time in the classroom at 45.5% of the total hours monitored. The most frequent academic speaking exchange was between the teacher and the whole class, which accounted for 37.68% of the total hours monitored. The second most

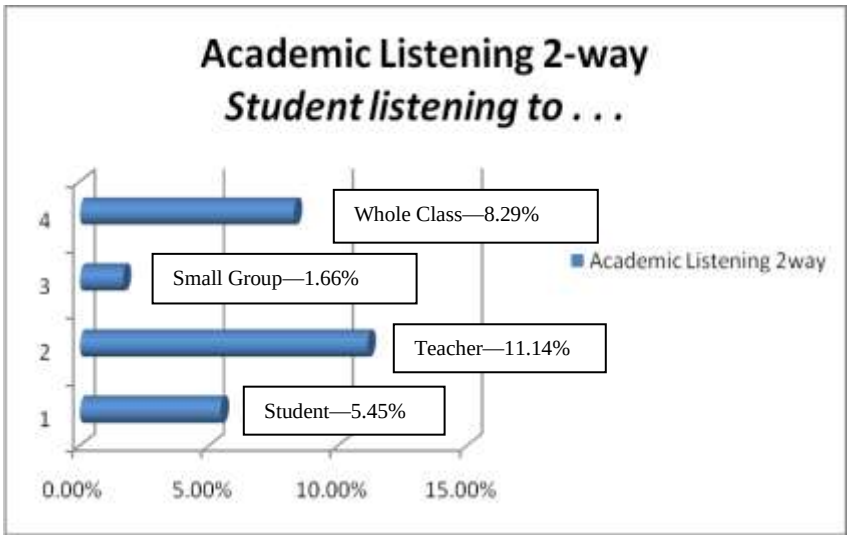
frequent exchange was between teacher and student, which accounted for 7.11% of the total hours monitored, whereby the teacher was still doing most of the talking and initiation of language. Both of these modes of speech represent the traditional, direct instruction model of instruction, where the teacher does most of the talking and thinking, and students reply with one-word responses. On the contrary, students with autism were able to initiate and practice their language resources--either student to student, student to teacher, or student to small group or whole class--only 13.17% of the time. Since students with autism greatly benefit from extended segments of language practice, classroom structures must be embedded whereby they are included in such exchanges.



Most of the one-way listening exchanges during the 2520 hours of monitoring were that of the students listening to the teacher. These one-way exchanges represented 19.19% of the receptive input experienced by students with autism with no opportunity for language production. The rest of the time—which comprised 7.11% —the students listened to either the whole class, a small group of students, or one other student. This again demonstrates the overwhelming input that students with autism are exposed to with very little opportunity for language production. Similarly, when these exchanges are disaggregated, students with autism only had opportunities to listen to other students in small group or one-on-one exchanges 1.4% of the time. These structures are important in that they have the greatest potential for longer stretches of oral and academic language production, which is the foundation of literacy development.



The two-way academic listening exchanges produced similar results as the one-way exchanges in that the majority of the time—19.43%—was spent in traditional language structures of whole class and teacher-driven talk. Although two-way exchanges allow for more discussion than one-way exchanges, with the ability to ask for clarification and formulate responses, small group and student-to-student structures still have the potential of creating the most language. Unfortunately, these two exchanges represented only 7.11% of the total two-way production, with 1.66% in a small group setting, and 5.45% in student pairs. More of the latter two exchanges must occur in order for students with autism to work toward higher levels of literacy, including comprehension.



Conclusion

It appears that too often, students on the autism spectrum are not being provided with opportunities for language production and language practice, which is the foundation of literacy. Teachers must then recognize, and be taught to include language structures, into their classroom settings. By including students with unique learning needs in typical classroom discourse, and structuring those language opportunities appropriately, teachers can craft learning experiences that meet students' needs and facilitate literacy development. Preservice teachers, however, must be taught how include students with special needs into their classrooms, and ensure that they have ample opportunities to have success with such populations. This means that standards for both pedagogical, literacy and management of special needs students, especially autistic students, must be embedded in state teacher certification programs and standards for the teaching profession.

Literacy interventions that target critical oral language and literacy skills for students with autism are being reported in the literature at increasing rates, including those reporting results of cooperative learning and peer-tutoring strategies (Bedrosian et al. 2003; Dugan et al. 1995; Grey et al. 2007; Kamps et al. 1994; Lanter and Watson 2008; Mirenda 2003; Whalon and Hanline 2008). That literature, when combined with the findings of the current investigation, points to the urgency with which teachers must be equipped and supported to open new avenues for learning in the inclusive classroom for students with autism. Enabling teachers to more precisely address the learning needs of students with autism through increased opportunities for meaningful communication appears promising. For students with autism in the general education classroom, "Daily opportunities for interaction with other students are vital to their social, communication, and academic progress" (Friedlander 2008, 143).

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