Addressing Communication Needs of Young Adults with Autism in a College-Based Inclusion Program

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Abstract: This article provides a review of the literature regarding changing communication profiles of individuals with autism as they reach adolescence and young adulthood. The impact of these language patterns on social and vocational functioning is addressed. Guidelines for assessment, goal development, and intervention are presented through a transdisciplinary college-based model. Instructional concerns and recommendations to improve communication skills for transition programming are presented.

Numerous studies have addressed the communication disorders and needs of young children with autism spectrum disorders (ASD), but relatively few have addressed the communication needs of adolescents and young adults (Schall, Cortojo-Doval, Targett, & Wehman, 2006). This article describes the communication functioning of adolescents and young adults with ASD, with attention to the impact of language patterns on social and vocational functioning. Questions of how best to assess and teach communication skills to post-secondary students with autism, as well as where these skills should be taught, are discussed based on research and evidence-based practices. Instructional concerns and recommendations to improve communication skills for transition programming are presented.

Speech-Language Functioning of Adolescents and Young Adults with ASD

Follow-up studies of young children diagnosed with ASD have demonstrated that there is substantial improvement in language functioning with age among higher functioning individuals (Howlin, Mawhood, & Rutter, 2000). For example, a study by Seltzer et al. (2003) found that approximately 70% of the individuals in their study developed some functional speech, and that there was a substantial reduction in pronoun errors as students became more mature. This percentage reflects a finding that is higher than results from earlier studies. In 1997, Lord and Paul reported that approximately 50% of students with ASD in their study acquired functional use of language. Seltzer et al. suggest that increased opportunities for intensive early intervention might have led to improved language skills in individuals in their study. In fact, a small number of children with autism that were followed by Seltzer et al. no longer met the diagnostic criteria for ASD.

Although significant progress in language functioning has been documented, research following young children with autism into adulthood demonstrates that language impairment continues to be “central to the disorder and might underlie many other areas of dysfunction” (Howlin et al., 2000, p. 572). Areas that remain problematic in older individuals have been described in several studies. Specifically, continued use of stereotyped utterances and inappropriate questions was found by Seltzer et al., (2003); and problems with the use of non-verbal communication, such as eye contact were described by Howlin et al. Language deficits make it difficult for adolescents with ASD to participate in peer conversations. Adolescent conversations are rapid, abstract, filled with figurative and non-literal references, and dependent on the ability to take another’s perspective. Such ad-
Advanced language skills are rarely well-developed, even in high functioning individuals with ASD (Brinton, Robinson, & Fujiki, 2004). Adults with Asperger’s Syndrome (AS) reported difficulty with these skills in vocational settings. The inability to understand idioms, double-meanings, and body language resulted in communicative misunderstandings with co-workers. Also reported were problems with making irrelevant comments and knowing when to ask questions (Hurlburt & Chalmers, 2004).

Because research has focused mainly on the language deficits seen in ASD, the contribution of speech and prosody to the communication difficulties is often overlooked. Significant speech and prosody issues however were found in a study by Shriberg et al., (2001). This study assessed the speech of 15 males aged 10 to 50 who were diagnosed with AS or High Functioning Autism (HFA). Significantly more articulation errors were found in both the HFA and AS group than in a comparison group without ASD, and both groups differed significantly from the control group on both prosody and voice. Disfluencies such as sound/syllable/word repetitions, and word revisions were frequent, especially in the AS population. These disfluencies may reflect the high level of demand placed on the language formulation system during conversation of even high functioning individuals. Additionally, voices tended to be too loud and too high-pitched. An inability to use stress patterns appropriately to identify what was new to the listener was observed in many of the subjects. The authors described the problem as a “reduced disposition to monitor the vocal signals associated with appropriate discourse” (p. 1110). In other words, conversational competence was limited by reduced awareness of the meaning expressed by stress patterns in their voices and the voices of conversational partners.

Language and Friendship Formation

Language functioning appears to be a key factor in friendship formation. Howlin et al. (2000) found that both past and current language scores were significantly related to ratings for friendship and social competence in older individuals, and Seltzer et al. (2003) reported that the symptom of autism that had shown the least improvement was the ability to form friendships. Orsmund, Krauss, and Seltzer (2004) found that among 235 adolescents and adults with autism, only a small percentage had a friendship that met the ADI-R criteria for defining a friendship (i.e., “same-aged friend with whom varied, mutually responsive and reciprocal activities were engaged in outside of organized settings” p. 250). The effect of language ability on the development of friendships becomes more apparent with age due to the increasingly complex linguistic demands of adolescent verbal communication (Brinton et al., 2004). Carter and Hughes (2005), in their review of successful interventions for increasing interactions between children with ASD and Developmental Disabilities (DD) and general education students, also stress the ability to adjust to the communication needs of others and to use inferential and figurative language as factors that contribute to establishing and sustaining friendships.

A study by Reed, McLeod, and McAllister (1999) of the features that typically developing adolescents value in the communication skills of their peers found that the skills rated most highly were the ability to comprehend feelings and meanings nonverbally (using body language, facial expression, etc.); the ability to understand another person’s perspective; and the ability to interpret meaning through vocal tone (for example, sarcasm versus sincerity). Similar results were found in a study in which adolescents were asked to rate skills that were important when others were talking to them (Henry, Reed, & McAllister, 1995). The importance of eye contact was rated higher on this questionnaire than on the previous one. Reed et al. noted that inability to conform to peers’ expectations for communication actually put adolescents at risk of being ostracized by their peers. In discussing the importance of resonance and other voice variables, Shriberg et al. (2001) point out that mild differences in pitch, resonance, and loudness have been shown to affect listeners’ perceptions of speakers with these variations thereby causing significant obstacles to social integration and vocational acceptance. Speech that is too loud and/or high pitched may be perceived of as
overbearing. Speech that is too slow and/or nasal may suggest condescension. Listeners have a narrow tolerance for what is acceptable in prosody and/or voice. Vocal presentation of individuals with ASD typically creates an impression of oddness.

**Language and Vocational Success**

In relation to vocational success, Muller, Schuler, Burton, and Yates (2003) found that people with ASD were frequently fired because of social and communicative difficulties rather than for poor job performance. In interviews with individuals with AS, communication difficulties consistently emerged as a job issue. One woman with autism stated, "...I think that jobs usually are 80% social (conversation, lunch breaks, chit chat) and 20% work. People with autism are better the other way around" (Hurlbutt & Chalmers, 2004, p. 219). Other individuals described difficulty in knowing what to say on job interviews, and confusion about being fired for being too "blunt" or asking too many questions, (Hurlbutt & Chalmers).

In summary, although high functioning adolescents and adults with ASD show continued improvement when compared with their earlier language functioning, the language deficits that remain may present significant obstacles to social and vocational success. Issues such as the inability to understand the listener’s perspective; use of inappropriate prosody, voice and articulation; difficulty with nonverbal communication; and difficulty with metalinguistic skills such as interpreting figurative and non-literal utterances suggest the need for continued accessibility of developmentally appropriate speech-language therapy services in this population (Seltzer et al., 2004). Yet despite studies that confirm the need for continued speech-language intervention and support, these services are often eliminated when individuals reach high school or transition ages (Eskow & Fisher, 2004; Howlin et al., 2000).

**Guidelines for Assessment**

The speech-language pathologist is a crucial member of the team that assesses students as they transition from high school to vocational or higher education settings (Neubert, 2003). As with any good educational plan, transition goals are based on relevant and thorough assessment procedures. Interestingly, the use of traditional standardized language tests often results in failure to qualify for services for older students with HFA or AS since these tests predominantly focus on syntax and semantics rather than pragmatics (Paul & Sutherland, 2003). To avoid this pitfall, the speech-language pathologist should assess the following areas using both standardized and nonstandardized methods of testing (Paul & Sutherland):

1. Conversational skills, such as the ability to maintain another person’s topic and consider the conversational partner’s intentions and knowledge.
2. Narrative skills, such as the ability to tell a story from a wordless picture book or to construct a story about personal experience.
3. Metalinguistic skills, such as the ability to understand figurative language.
4. Academics, including difficulty understanding the motives and emotions of characters in a story.
5. Hidden curriculum or the social rules of the classroom or work setting.
6. Nonverbal communication, including the understanding and use of nonverbal gestures, facial expressions and gaze to express and respond to subtle intention such as sarcasm and other non-literal meanings.
7. Speech and voice, including the identification of prosody and voice involvements and the linguistic and social contexts in which these problems occur (Shriberg et al., 2001).

**Guidelines for Intervention**

**Intervention Goals**

**Guidelines for Speech-language Pathologists in Diagnosis, Assessment, and Treatment of Autism Spectrum Disorders,** (American Speech-Language and Hearing Association, 2006, p. 20) provides a sample list of intervention goals for later language development, which reflects many of the essential areas, assessed above.
Goals are divided into the following four areas:

1. Joint Attention, such as understanding what others are indicating with gaze and gestures; considering another’s knowledge and intentions.
2. Social Reciprocity, such as engaging in topic maintenance; providing essential background information.
3. Language and related cognitive skills, such as understanding and using intonation patterns to follow emotional states; understanding and using more sophisticated syntax to provide background information for one’s listener.
4. Behavior and emotional regulation, such as preparing and planning for upcoming activities; negotiating and collaborating within interactions with peers.

In regard to goals for speech and voice, Shriberg et al. (2001) suggest that because rate and loudness are easier to address than more complex issues, they should be addressed first. Later goals include identification and production of stress patterns in sentences. Since the choice of which word to stress reflects awareness of which part of the message is new to the listener, Theory of Mind training could be integrated with speech production therapy. Theory of Mind refers to the ability to infer what another person thinks, knows, or feels (Baron-Cohen, Leslie, & Frith, 1986).

Schall et al. (2006, p. 556) suggest providing instruction on the following specific goals for on-the-job communication skills:

1. Requesting more work
2. Requesting help
3. Requesting clarification when given conflicting jobs
4. Talking to co-workers about mutually interesting topics
5. Talking to supervisors and co-workers with respect
6. Learning how to communicate correctly with people of different “ranks” in their lives

Studies by Reed et al. (1999) and Henry et al. (1995) support the need to concentrate on teaching the difference between communicating with coworkers, as compared to communicating with supervisors. Typically developing adolescents surveyed in these studies demonstrated an awareness of the different kinds of skills needed to effectively communicate with teachers, as compared to communicating with peers. Although perspective taking was rated high when communicating with both peers and teachers, turn-taking, logical communication, and clarification ability were rated as being of greater in importance when talking to teachers. These studies suggest that language goals differ when working on communication for developing friendships as compared to goals when working on communication for interacting with individuals in authority.

**Intervention Programs**

Once goals have been determined, a therapeutic program must be designed. A review of effective interventions for increasing and improving social interaction between adolescents with intellectual disabilities and general education peers in secondary schools (Carter & Hughes, 2005) found that successful programs share several characteristics:

1. Support-based and skill-based interventions are positively correlated with effective inclusive secondary programs (Carter & Hughes). Support-based interventions focus on arranging the environment to promote or support peer interaction. Although skill instruction is necessary to help individuals achieve increased independence and successful interactions, opportunities to use these skills must be provided because interactions occur infrequently between typically developing adolescents and those with disabilities. Often secondary schools do not support social interaction between individuals with disabilities and their general education peers (Carter & Hughes) due to the increased emphasis on academics, the lecture dominated format of classes, and the change of classes throughout the day. Therefore, opportunities for social interaction must be purposefully created. On the other hand, opportunities for peer interaction will be counterproductive without "skill instruction
related to communicating with their peers” (p. 191).

2. Intervention methodology is dependent on the specific social skill targeted. For example, cooperative instructional groups may increase reciprocal exchange while interventions that focus on self-management may increase initiation of topics.

3. The time and resources involved in different types of interventions are factors in planning. Some skill-based interventions may be relatively straightforward in terms of time and procedures, whereas some support-based interventions, such as peer training or cooperative groupings in the classroom, may involve substantial time investment or changes in programming.

4. Increasing social interactions between students with and without autism and other developmental disabilities is a shared responsibility among general educators and special educators. Carter and Hughes (2005) note that both general education and individuals with disabilities benefit from these interactions. Indeed, in the transition program to be described below in which high functioning students with autism were integrated into university classes, work settings, and therapy programs, the university students who came into contact with the young men reported very positive outcomes for themselves. Likewise, college students who provided occupational therapy to students with autism and developmental disabilities in a university transition program for individuals with autism and developmental disabilities and who were similar in age to them gave very positive feedback in terms of their own growth (Eskow & Fisher, 2004).

One successful program for improving social language use in an adolescent male with language impairment (Brinton et al., 2004), pointed to additional factors that contributed to the success of intervention. Factors included motivation to communicate with peers, metacognitive ability of the student, parent involvement, and time investment. The adolescent in the intervention program described by Brinton et al. was strongly motivated to interact with his peers, had the metacognitive ability to differentiate between the kinds of language used in formal versus informal conversations, and had significant parent support. Involvement of parents and other caregivers outside of the school or vocational setting may be one key to success considering the amount of time spent away from these settings (Lindstrom, Doren, Metheny, Johnson, & Zane, 2007). Finally, it was noted that even for modest gains, a significant investment of time was required (Brinton et al.).

Services for Post-Secondary Students with ASD in College Settings

Many language skills that are needed in adulthood, such as engaging in spontaneous conversation, are similar to those necessary in childhood and adolescence. Some adult communication needs, however, are more situation-specific for employment and independent living. Over the past several decades, research consistently has shown that persons with autism are more apt to acquire skills successfully when instruction occurs in community-based and/or naturalistic settings (see, for example, Falvey, 1989; Forgan & Jones, 2002). Instruction in natural environments increases the likelihood of generalization and maintenance (Gena, Krantz, McClannahan, & Poulston, 1996) by teaching skills and behaviors in situations where they will actually be used, and by incorporating naturally occurring reinforcers into real-life situations. In light of voluminous research findings that demonstrate benefits of instruction in natural environments (see, for example, Renzaglia, Kavonen, Drasgow, & Stoxen, 2003; Zager, 2005), it is clearly advantageous to teach employment-related communication skills in settings where these skills and behaviors will be used.

Legislation does not specify a particular setting for the provision of secondary services for students with disabilities, but does direct educators to offer services in the least restrictive environment possible. Least restrictive environment implies that, to the extent possible and beneficial, education should be provided in proximity to nondisabled peers. Students with disabilities are eligible for public school services until the age of 21. Because nondisabled peers exit high school programs by age 18, secondary schools are no longer the least
restrictive environments after age 18 for students with disabilities, who may continue to receive educational services until age 21.

College-based inclusion programs offer opportunities for the continuation of academic and communication instruction in the presence of chronologically age-appropriate peers. In addition, flexible scheduling, along with accessibility of numerous varied vocational training sites, affords opportunities for interaction and communication in academic classes and in job sites. It is possible to provide a full array of education services on college campuses, to students with ASD, aged 18-21, using funds available through students’ public schools (Zager, 2006). Through collaborative planning among public school personnel and university personnel, students with ASD can participate in the selection of college classes, engage in vocational training experiences, receive speech-language and counseling services, and participate in college-sponsored social activities (Alpern, Salisch, Klainberg, & Zager, 2006).

Provision of Speech-Language Services for a College-Based Inclusion Class

A model campus-based inclusion class (CBIC) consisting of four young men with autism and cognitive impairment, aged 19-21, is described in this section. The program was formed through a partnership between a large urban school district and a local university. Various departments within the university participated in the program, including the School of Education, Counseling Center, Liberal Arts College, and Communication Sciences and Disorders Program. In keeping with the focus of this paper, the speech-language services provided to the students in the CBIC will be described. These services were provided by undergraduate students in the Communication Sciences Program under the supervision of a licensed speech-language pathologist.

Students in the CBIC participated in two speech-language therapy sessions a week. Voice and speech goals were addressed in individual sessions, while goals for improved social communication were addressed in a group setting. A major goal of the group sessions was improvement of perspective-taking in conversational interactions.

The Pragmatic Judgement subtest of the Comprehensive Assessment of Spoken Language (CASL) (Carrow-Woolfolk, 1999) was administered to provide a baseline assessment measure and to determine specific pragmatic goals for the CBIC students. Paul and Sutherland (2003) cite the CASL as one appropriate measure for students with HFA and AS. Raw Scores and Age Scores, both pre- and post-therapy data for the students are found in Table 1. Pre-therapy scores were low and not necessarily reflective of the subjective impression of the students’ functioning in naturalistic social contexts. An examination of the task requirements of this subtest suggested that problems associated with Theory of Mind may have contributed to the difficulty experienced by the young men in responding to this test. The test consists of short vignettes that are read to the student who then must reply in a pragmatically appropriate way to a question concerning what he or someone else would say in these situations. For example, “Josh is thinking about his two new dogs. He’s going to name this one Rusty. What name would you

<table>
<thead>
<tr>
<th>Subject</th>
<th>CA</th>
<th>Raw Score</th>
<th>Age Equivalent</th>
<th>Raw Score</th>
<th>Age Equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>20.5</td>
<td>18</td>
<td>6–0</td>
<td>18</td>
<td>6–0</td>
</tr>
<tr>
<td>2</td>
<td>18.10</td>
<td>15</td>
<td>5–7</td>
<td>19</td>
<td>6–1</td>
</tr>
<tr>
<td>3</td>
<td>18.10</td>
<td>5</td>
<td>2–9</td>
<td>12</td>
<td>5–1</td>
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<tr>
<td>4</td>
<td>20.2</td>
<td>5</td>
<td>3–5</td>
<td>9</td>
<td>4–6</td>
</tr>
</tbody>
</table>

TABLE 1
Pre- and Post-intervention CASL Scores

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give to his other dog?” All of the students did much better on items such as the example above which asked the question, “What would YOU say in this situation?” than in later items which tended to ask, “What would X say in this situation?” For example, “Jason needs help carrying his books and football equipment to school. Tell me how he could ask his brother to help him” (Carrow-Woolfolk). In these items, each of the students had to place himself in the role of another person. It is possible that difficulty taking the perspective of another person may have interfered with success in responding to these vignettes. Perspective taking was mentioned in a variety of contexts and by a variety of authors throughout this article as one of the areas that interfere with successful social communication in HFA and AS. Furthermore, training social skills in adolescents through the use of role-play and Theory of Mind tasks has been described in a number of social skills intervention programs in the literature (Attwood, 2003; Gray, 1998; Ozonoff & Miller, 1995; Silver & Oakes, 2001; Timler, Olswang, & Coggins, 2005). Therefore, it was determined that working to improve perspective taking through practice in responding to similar vignettes would be an appropriate goal for these students.

Using Theory of Mind as a theoretical basis for the intervention procedures, it was determined that students would engage in role-playing situations in which they would first act out scenes in which they played themselves, and then act out scenes in which they took the role of someone else. For all scenarios, each student took both roles in the conversational dyad. It was hypothesized that having concrete, although staged, interactions where they could actually take turns being both themselves and then other people, might help them to become more aware of both sides of a conversation. Examples of the vignettes presented to the students to role-play are found in Table 2. Note that after each session, the students’ special education teacher was included in a discussion of the scenarios for that session and was asked to provide some practice in these situations during the following week.

Following an eight-week intervention program, the CASL was re-administered. All the students showed improvement in their raw scores except the student with the highest score initially. The results demonstrated that perspective taking as measured by a standardized instrument can be improved in a structured setting. In addition, the students’ special education teacher reported improvement in the students’ interactions in other settings in the university. Future programming includes plans to formally incorporate these skills into the vocational, social, and academic settings within the university.

Theory of Mind procedures have not always been successful in spontaneously transferring to other contexts (Ozonoff & Miller, 1995; Paul & Sutherland, 2003); on the other hand, few supported environment programs have made this a priority. Future therapeutic research will be needed to determine the best way of addressing these issues in light of the importance of perspective taking for successful communication. For example, a more effective approach may be choosing a vocational setting where co-workers have been trained to understand the problems of those with HFA and AS rather than training the individuals with ASD (Schall et al., 2006).

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### TABLE 2

**Sample Vignettes Used in Role-Play**

<table>
<thead>
<tr>
<th>Type A- Student answers as himself</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. You go to the library to request a book for your class. What do you say?</td>
</tr>
<tr>
<td>2. You are outside near City Hall. Someone asks you for directions. What do you say?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type B- Student takes the role of someone else</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. John comes home and sees his brother Daniel washing the dog. What does John say to Daniel?</td>
</tr>
<tr>
<td>2. Mike’s computer is not working. His friend Steven comes in and sees Mike having a hard time with the computer. What could Steven say to Mike?</td>
</tr>
</tbody>
</table>

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Conclusion

In conclusion, a transdisciplinary, collaborative program in a university setting can provide an appropriate inclusive experience for young adults with ASD to learn alongside their chronologically-aged peers. Speech-language services that continue to develop voice and language goals, including conversational interaction, contribute to the success of post-secondary programs. The campus-based transition model can facilitate generalization of skills learned in speech-language therapy sessions to campus activities. Such collaborative planning will enable students to transfer skill-based learning to real-life situations (McDonnell, Hardman, & McDonnell, 2003), especially in the areas of communication and socialization.

References


