Outcomes of a Social and Vocational Skills Support Group for Adolescents and Young Adults on the Autism Spectrum

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Adolescents and young adults with autism spectrum disorders (ASD) frequently experience social isolation and vocational failure. Although social skills groups are vital, relatively few model programs have been developed for this age group. This article reviews the model and evaluation of the Aspirations program, an 8-week social and vocational skills support group for adolescents and young adults with ASD. Self-report measures, including appraisal of peer relations and empathy, were completed pre- and post-Aspirations. Data from structured observations were also examined for changes in frequency of contributions made by group members over the course of the program. In addition, notes taken during staff meetings and feedback sessions with group members, and separately with their parents, were reviewed for further evidence of the program's success. The results from these measures support the efficacy of the Aspirations program and provide insight into implementing a successful model for this population.

Individuals with an autism spectrum disorder (ASD), including autism, Asperger syndrome (AS), and pervasive developmental disorder–not otherwise specified (PDD-NOS), experience a range of challenges in the social world. Persons with high-functioning autism (HFA) and AS often lack the ability to form age-appropriate peer relationships and have limited understanding of social cues, reciprocal conversation, and appropriate use of humor (Attwood, 2000). The result of these challenges frequently is social isolation and vocational failure (Tantam, 2000).

Despite these common social and vocational challenges, few interventions exist for adults on the autism spectrum (Moxon & Gates, 2001). The paucity of social and vocational skills supports and interventions is likely to become an increasing problem as the incidence of ASD rises (Fombonne, 2001) and as more individuals benefit from early intervention and become included in community-based environments. In addition, evaluation of the efficacy of existing social skills interventions is also lacking (Rogers, 2000). Aspirations, a social and vocational skills support group for high-functioning adolescents and young adults on the autism spectrum, aims to fill this gap and provide a replicable intervention model.

Individuals with HFA and AS often have a desire for social interactions and friendships and are aware when these are not accessible to them (Barry et al., 2003). Despite their desire, they often have few friends, and many have been teased or rejected by peers (Ozonoff & Miller, 1995). Persons who do report having friendships often have difficulty defining what a friend is, and their friendships are often focused on common interests, with minimal social interaction (Orsmond, Wyngaarden Krauss, & Seltzer, 2004). A recent study found that although many children with HFA were reported by their mothers to have at least one friend, parents played a crucial role in initiating and maintaining these friendships. Also, persons with autism were reported to have less stable friendships, met their friends less often, and engaged in activities involving less social exchange than individuals in the typically developing comparison group (Bauminger & Shulman, 2003). Similarly, in an investigation of peer relationships among adolescents and adults with autism, Orsmond et al. (2004) found that few respondents reported friendships with same-age peers that included a variety of activities, were reciprocal, and occurred outside prearranged settings. Almost 50% of their sample had no peer relationships outside of prearranged settings.

Social skills are directly related to employment success (Chadsey-Rusch, 1992). While employers place the greatest importance on functional aspects of a job, socialization and integration into the workplace are also important. As a result, the social impairment of individuals with ASD makes obtaining and keeping a job difficult even among individuals with normal intelligence (Barnard, Prior, & Potter, 2000; Morgan, 1996). Even for persons with recognized qualifications, em-

ployment levels and occupational status are typically low (Barnard et al., 2000; Mawhood & Howlin, 1999). Many have to rely on support from their families to find a job (Howlin, 2000). A recent study of adults with autism revealed that less than one third were in some form of employment, and the majority remained highly dependent on other adults for support (Howlin, Goode, Hutton, & Rutter, 2004). These issues emphasize the importance of interventions aimed at increasing social and vocational skills among this population.

Individuals with HFA and AS often know the social rules and can learn the skills but do not know how to apply those skills. Social skills must be learned in the context of social situations (Meyer, 2001). Previous research has shown that teaching skills in a natural setting can lead to improvement in social skills (Bellini, Peters, Benner, & Hopf, in press). Teaching and applying social skills in a support group format where opportunities are provided for interacting and practicing social skills is also a successful approach. Barnhill, Cook, Tebbenkamp, and Myles (2002) and Mesibov (1984) suggested that teaching social skills in a group setting allows participants to develop new skills while using those skills to form relationships within the context of the group. Further, participants often value the friendships they gain more than the skills learned during the course of such a program. A group specifically for persons on the autism spectrum would avoid the high social and communication demands of a typical group, create a greater sense of belonging and safety (Mishna & Muskat, 1998), and therefore provide an environment in which social risks could be taken more easily (Marriage, Gordon, & Brand, 1995).

There have been few other reported attempts to establish social skills support groups for adolescents and young adults on the autism spectrum, but those reported have shown some success. Mesibov (1984) reported on a 12-week group for adolescents and young adults with autism that lasted for two terms. Improvements in initiating and maintaining conversations, clearer perceptions of themselves, and improved ability to understand and express emotions were all identified as positive outcomes. Anecdotal reports supported the generalization of skills learned in the program to other situations.

Ozonoff and Miller (1995) conducted a 4½-month-long social skills group intervention for 5 young adults with ASD and included a no-intervention comparison group of 4 young adults. Intervention group participants showed significant improvement in social–cognitive skills relative to the members of the no-intervention group; however, these gains did not seem to generalize to everyday, naturalistic situations.

Positive qualitative and quantitative outcomes of a year-long social skills group for 10 adults on the autism spectrum were reported by Howlin and Yates (1999). Pre- and post-measures of conversational skills showed that members of the group had improved their ability to initiate and maintain conversations as well as respond more directly and appropriately to questions. A decline in inappropriate utterances and repetitions occurred concurrently.

Weidle, Bolme, and Hoeyland (2006) reported the outcomes of three social skills support groups for adolescents with AS that involved a total of 21 adolescents, who met once per month for nine sessions. After completing the sessions, the majority of the participants rated satisfaction with the group as high or very high.

The present article reviews the planning, implementation, and evaluation of Aspirations, an 8-week program designed to foster the development of social and vocational skills for adolescents and young adults on the autism spectrum. The program has a unique focus on vocational skills and employment-related issues. Empirically, Aspirations extends previous work by including standardized pre- and postintervention measures. The primary purpose of the study was to determine whether group members responded differently to various questions on measures completed before and after the program. A secondary purpose was to examine observational data to determine whether contributions by group members changed in frequency or type over the course of the program. Finally, notes taken during staff meetings and feedback sessions with the group members, and separately with their parents, were reviewed for further evidence of the success and efficacy of the program.

Method

Participants

Thirteen individuals—11 men and 2 women—who completed the Aspirations program participated in this study. Criteria for membership in Aspirations included a prior diagnosis of an ASD, age between 18 and 30 years, and a commitment to attend the sessions. It was not necessary for the members to be employed. Members paid a nominal amount of money for the eight sessions, which also included the monthly reunions and parent support groups.

Participants were recruited from a large city in the Midwest. The average age of the participants was 19 years (range = 18–23 years). One group member had a diagnosis of autism, 4 were diagnosed with PDD-NOS, and 8 had a diagnosis of AS. ASD diagnoses were confirmed using the *Gilliam Asperger's Disorder Scale* (GADS; Gilliam, 2001), and all of the participants met cut-offs on this instrument.

Intelligence quotient (IQ) data were collected for each participant using the *Wechsler Adult Intelligence Scale* (WAIS; Wechsler, 1997). Two participants did not complete an IQ test due to low verbal skills. Mean full-scale IQ was 108.08 (range = 81–141), verbal IQ was 112.92 (range = 83–133), and performance IQ was 100 (range = 73–139). Three participants currently held jobs, and 6 had previously held jobs. Group members were recruited via brochures describing the program that were sent to targeted referral sources. Written consent was obtained from all participants, and all components of Aspirations were carried out in accordance with the guidelines of the

Institutional Review Board of the university at which the program was offered.

Design

Aspirations was designed to be an 8-week program consisting of weekly 1-hour meetings. The goals, objectives, and curriculum were established over a 6-month period by a multidisciplinary team consisting of psychologists, social workers, rehabilitation service providers, speech pathologists, and a parent of an individual with ASD. The overall aims of the program were to foster understanding of a range of social and vocational issues, to enhance insight and awareness, and to provide social opportunities for group members. Each session was planned around a specific objective based on hypothesized weaknesses in insight or understanding. Topics and objectives were selected based on findings in the literature evidencing the need for support in particular areas, including successful employment (e.g., Howlin, 2000; Howlin et al., 2004); friendships and interpersonal problem-solving (e.g., Orsmond et al., 2004; Ozonoff & Miller, 1995); and social communication and theory of mind (e.g., Baron-Cohen et al., 2000; Baron-Cohen, Wheelwright, & Jolliffe, 1997). In addition, staff members drew on their own experience' working with individuals on the autism spectrum, either as family members or in a clinical or vocational rehabilitation setting, to select useful topics.

The sessions were designed to be directed by the group members, with the group facilitators guiding the discussion and ensuring that participants remained on topic. The format approximated a counseling support group model rather than a teacher-directed approach in which specific skills are explicitly taught. Group members learned and gained greater understanding by sharing personal experiences and listening to the experiences of others, by giving each other advice, and by creating problem-solving strategies as a group. At the beginning of each session, a group facilitator introduced the topic for the session and the areas to be covered. Each session ended with a review of what had been covered and a discussion by the group members of what they had learned in the session.

To establish an atmosphere of belonging and acceptance, groups were restricted to between six and seven individuals and two group facilitators. Both group facilitators held graduate degrees and were experienced in managing social skills support groups. Meetings took place early in the evening (6:30–7:30 P.M.) and were held in a spacious room with participants seated in a semicircle.

After completing the program, group members attended monthly reunions. Reunions facilitated transfer of skills learned in the group to real-life social situations and provided a relaxed and unstructured environment where group members could strengthen friendships. In addition, in recognition of the importance of parent involvement, parents were encouraged to attend a weekly self-directed parent support group. At the con-

clusion of the program, parents were encouraged to join a monthly parent group that also offered information and support.

Evaluation

Self-Report Measures. As part of the evaluation of the impact and efficacy of the Aspirations program, group members completed a range of self-report measures before and after the program. The measures were completed during a 1-hour session in a quiet room at the university. Pre- and postintervention responses were analyzed and compared using nonparametric statistics (Wilcoxon signed ranks test).

Measures used included modified versions of the *Index of Peer Relations* (IPR; Hudson, 1982), which questions how participants view and evaluate persons in their peer group and whether they are accepted and liked by their peer group. Participants rate their peer relations (e.g.,"I get along well with my peers) on a scale of 1 to 7 (with 1 representing *none of the time* and 7 representing *all of the time*). The IPR has demonstrated excellent reliability and validity (Hudson, Nurius, Daley, & Newsome, 1990).

The *Autism Spectrum Quotient* (AQ; Baron-Cohen, Wheelwright, Skinner, Martin, & Clubley, 2001) measures self-evaluation on a range of traits known to be associated with ASD, such as specific behaviors, responses to social situations, and making friends; it has a test–retest reliability of $r = 0.7$. Participants respond to statements such as "I prefer to do things on my own than with others" with *definitely agree*, *slightly agree*, *slightly disagree*, or *definitely disagree*. Two points are given for responses of definitely or slightly agree on questions referring to behaviors typically associated with ASD, and 1 point is given for responses of definitely or slightly disagree for behaviors not typically associated with ASD, such as "I am good at social chitchat."

The *Empathy Quotient* (EQ; Baron-Cohen & Wheelwright, 2004) questions participants' perceptions of other people's feelings and their own behavior in social situations. It is structured similarly to the AQ, with ratings from *strongly agree* to *strongly disagree*. Two points are scored for responses of definitely agree and 1 point for slightly agree on questions referring to empathic behaviors, such as "I can easily tell if someone else wants to enter a conversation." Two points are awarded for definitely disagree and 1 point for slightly disagree on questions indicating a lack of empathy, such as "Friendships and relationships are just too difficult, so I tend not to bother with them." Test–retest reliability for the EQ is $r = .097$ (Baron-Cohen & Wheelwright, 2004). These measures were modified to reduce their length so that group members could complete them in one session. In addition, questions that were not relevant to an evaluation of Aspirations (e.g., "I usually notice car number plates or similar strings of information," "I am not very good at remembering people's date of birth") were removed, thereby increasing their utility for our evaluation purposes. Decisions on modifying the measures were made independently by two staff members. Discrepancies on

questions selected for removal were discussed by the two staff members until agreement was reached.

Observations. Structured observations were conducted to determine whether contributions made by group members changed in frequency over the course of the 8-week program. Two trained observers conducted observations of each session via a one-way mirror. Observers were trained by the authors through familiarization with and discussion of the observation categories, and by practicing coding example sentences that might be stated during a group session. Frequency of interactions between group members was recorded, as was type of interaction, defined as either *relevant* (e.g., on topic, appropriate to the current topic of discussion) or *irrelevant* (e.g., inappropriate to the topic of discussion, a diversion from current topic, or possibly a member's "special-interest" topic).

Review. Three methods were used to obtain qualitative information, including staff review meetings, feedback from group members, and feedback from parents. Notes taken during these sessions were later examined for evidence supporting the success and efficacy of Aspirations.

Weekly meetings among the Aspirations staff members continued throughout the program, focusing on evaluation of the success and appropriateness of the curriculum, consideration of the developing group dynamics, and adoption of any necessary adjustments. Meetings occurred after each session, and notes were taken of important observations made by either the observers or the group facilitators during the sessions. At the end of the program, these notes were reviewed to identify (a) observations of changes in behavior or attitudes of group members toward one another and (b) observations of changes in attitudes toward the Aspirations program itself.

During the final session, feedback regarding their experiences in the program was gathered directly from participants (see Table 1 for a list of review questions asked during this session). Notes were taken during the session and were subsequently reviewed to identify (a) attitudes toward other group members, (b) changes in attitudes or behavior experienced during the program regarding social interactions and employment, and (c) participants' opinions of the program.

Notes were also taken during a parent feedback session 1 week following the end of the program. During this session parents were asked three questions:

1. Do you feel your son/daughter has benefited from the Aspirations program? If so, in what ways?
2. Have you noticed any specific changes in your son/ daughter, their attitude, or their behavior?
3. How do you feel the Aspirations program could be improved?

Notes on responses to these questions, as well as on the general discussion between parents and group facilitators that took place during this feedback session, were reviewed to as-

certain (a) parental opinions regarding the success and efficacy of the program and (b) parental observations regarding effects or changes in their son or daughter that they perceived were attributable to attending the group.

Results

Pre- and Post-Aspirations Self-Report Measures

Responses on each measure were compared pre- and post-Aspirations, with data from both groups combined. The data were analyzed nonparametrically, using the Wilcoxon signed ranks test, due to the type of data collected and the small number of participants; hypotheses were two-tailed. Responses to 17 out of the 25 questions on the *Index of Peer Relations* were higher post-Aspirations than pre-Aspirations, indicating improvement in attitudes and feelings toward peers (see Table 2). However, this improvement did not reach significance ($z = 4.454$, $p = .146$).

Responses on the modified *Autism Spectrum Quotient* did not show a significant difference pre- and post-Aspirations ($z = .105$, $p = .916$). Again, however, responses moved in the expected direction: Eight out of 14 questions received lower ratings after the Aspirations program, indicating improvement in those areas (see Table 3). The modified *Empathy Quotient* did show significant differences before and after participants completed the Aspirations program ($z = 2.520$, $p = .012$). Responses on 12 out of 15 questions showed lower ratings after Aspirations, indicating improvement in empathic skills (see Table 4).

Observational Data

Two trained observers watched each of the group sessions and kept a tally of comments made by each group member. These were categorized into relevant comments and irrelevant comments. The tally of responses was assessed for interrater reliability between the two observers. Data collected by the two observers were compared for half of the sessions (Weeks 2, 4, 6, and 8) using the formula agreements, divided by agreements plus disagreements, multiplied by 100. The mean agreement across the 4 weeks was 94%. The numbers of comments made during the first half of the program (Weeks 1, 2, and 3) and the last half of the program (Weeks 6, 7, and 8) were examined to determine whether group members were participating more in the group over time. A Wilcoxen signed ranks test revealed that, overall, more contributions were made by group members toward the end of the program than at the beginning ($z = 2.201$; $p = .028$).

Notes

A review of notes taken by the authors during the staff weekly review meetings highlights the efficacy of the group sessions.

TABLE 1
Topics and Guiding Questions Covered in Each Aspirations Session

Topics covered	Guiding questions

Session 1 – Introductions

Topics covered	Guiding questions
1. Member introductions 2. Group rules and expectations 3. Review of members' friendships & vocational experience	1. What do you hope to get out of Aspirations? 2. Tell us about yourself. 3. Talk about your current friendships/work experience.

Session 2 – Employment

Topics covered	Guiding questions
1. Importance of employment 2. Achieving members' employment goals	1. Why is work important? 2. What job would you like/would suit you? 3. What do you need to do to get that job? 4. How does work make you feel about yourself? 5. What is an employer looking for in an employee?

Session 3 – Friendship

Topics covered	Guiding questions
1. Characteristics of a good friend 2. How to find, make, and keep friends	1. Why are friends important? 2. How do you know whether someone is a good friend or not? 3. Are you a good friend? In what way(s)? 4. How can you meet and make friends?

Session 4 – Interpersonal problem-solving

Topics covered	Guiding questions
1. Difficulties that arise during interpersonal relationships (friends, coworkers, family) 2. Strategies to overcome difficulties with others	1. What problems have you experienced in relationships with others? 2. Who has experienced bullying before? 3. Who has had problems with opposite-sex relationships? 4. How can (specific) issues/problems be avoided?

Session 5 – Social event

Social event (pizza outing) to provide opportunity to interact socially, practice social skills, and foster friendships among group members

Session 6 – General problem-solving

Topics covered	Guiding questions
1. Important life problems experienced by members 2. Effective problem-solving strategies	1. What are you struggling with in your lives currently? 2. What do you worry about? 3. What things do you find particularly difficult? 4. What strategies have you tried in order to deal with these problems? 5. What might be good strategies to try in the future?

Session 7 – Social communication and theory of mind

Topics covered	Guiding questions
1. Evaluating interactions with others 2. Discussing how members' behavior influences the opinions of others	1. How do you know whether you are getting on well with someone? 2. What do people think of you (positive and negative)? 3. Are other people's opinions of you important? 4. How do you make judgments about people? 5. Why is nonverbal behavior important?

Session 8 – Review

Topics covered	Guiding questions
1. Review skills learned during program and how these skills will be utilized 2. Feedback regarding program	1. What have you learned in Aspirations? 2. How will what you have learned be useful in the future? 3. What have you learned about yourself and other group members? 4. Will you keep in touch with other group members? 5. Have you seen any changes in yourself? 6. How could the program have been better? 7. What did you like/dislike about the program?

TABLE 2
Mean Responses to the Index of Peer Relations Pre- and Post-Aspirations

Statement	Response[a]	
	Pre-Aspirations	Post-Aspirations
I get along well with my peers.	5.42	5.67
My peers act like they don't care about me.[b]	4.75	5.42
My peers treat me badly.[b]	5.83	5.75
My peers really seem to respect me.	5.17	5.00
I don't feel like part of the group.[b]	4.17	5.00
My peers are a bunch of snobs.[b]	6.08	5.75
My peers understand me.	4.83	5.25
My peers seem to like me very much.	5.83	5.17
I really feel left out of my peer group.[b]	4.67	4.75
I hate my present peer group.[b]	6.08	6.08
My peers seem to like having me around.	5.33	5.83
I really like my present peer group.	5.75	5.67
I really feel like I am disliked by my peers.[b]	5.58	5.92
I wish I had a different peer group.[b]	5.50	5.67
My peers are very nice to me.	5.33	5.50
My peers seem to look up to me.	4.00	4.00
My peers think I am important to them.	4.42	4.33
My peers are a real source of pleasure to me.	4.83	5.25
My peers don't seem to even notice me.[b]	5.17	5.50
I wish I were not part of this peer group.[b]	6.08	6.25
My peers regard my ideas and opinions very highly.	4.50	4.92
I feel like I am an important member of my peer group.	3.50	4.92
I can't stand to be around my peer group.[b]	5.58	5.92
My peers seem to look down on me.[b]	5.17	5.25
My peers really do not interest me.[b]	5.25	5.67
Overall	5.15	5.38

Note. Increased scores post-Aspirations reflect improvement.
[a]Responses ranged from 1 through 7. [b]Indicate negative questions where scores were converted.

TABLE 3
Mean Responses to the Modified Autism Spectrum Quotient Pre- and Post-Aspirations

Statement	Response[a]	
	Pre-Aspirations	Post-Aspirations
I prefer to do things with others rather than on my own.	2.46	2.31
In a social group, I can easily keep track of several people's conversations.	2.15	2.46
I find social situations easy.	2.85	2.31
I find myself drawn more strongly to people than to things.	2.69	2.31
I enjoy social chitchat.	2.15	2.62
When I talk, it isn't always easy for others to get a word in edgewise.[b]	2.46	1.92
I find it hard to make new friends.[b]	3.08	2.54
I frequently find that I don't know how to keep a conversation going.[b]	2.54	2.46
I know how to tell if someone listening to me is getting bored.	1.85	2.46
I find it easy to work out what someone is thinking or feeling just by looking at their face.	2.62	2.62
I am good at social chitchat.	2.39	3.08
People often tell me that I keep going on about the same thing.[b]	2.54	2.31
I enjoy social occasions.	2.23	2.15
I enjoy meeting new people.	1.92	2.08
Overall	2.42	2.40

Note. Decreased scores post-Aspirations reflect improvement.
[a]Responses ranged from 1 through 4. [b]Indicate negative questions where scores were converted.

TABLE 4
Mean Responses to the Modified Empathy Quotient Pre- and Post-Aspirations

Statement	Response[a]	
	Pre-Aspirations	Post-Aspirations
I can easily tell if someone wants to enter a conversation.	2.15	1.92
I try to solve my own problems rather than discussing them with others.	1.62	1.69
I find it hard to know what to do in a social situation.[b]	2.85	2.54
Friendships and relationships are just too difficult, so I tend not to bother with them.[b]	2.77	2.15
In a conversation, I tend to focus on my own thoughts rather than on what my listener might be thinking.[b]	3.15	2.46
I find it easy to put myself in somebody else's shoes.	2.77	2.15
I am quick to spot when someone in a group is feeling awkward or uncomfortable.	2.31	2.00
I do not tend to find social situations confusing.	2.08	2.54
When I talk to people, I tend to talk about their experiences rather than my own.	2.77	2.58
I can easily tell if someone else is interested or bored with what I'm saying.	2.31	2.15
Other people often say that I am insensitive, though I don't always see why.[b]	2.85	2.08
If I see a stranger in a group, I think that it is up to them to make an effort to join in.[b]	2.31	2.46
I can easily work out what another person might want to talk about.	2.92	2.62
I do not consciously work out the rules of social situations.	2.77	2.31
I can usually appreciate the other person's viewpoint, even if I don't agree with it.	2.00	1.54
Overall	2.51	2.21

Note. Decreased scores post-Aspirations reflect improvement.
[a]Responses ranged from 1 through 4. [b]Indicate negative questions where scores were converted.

Regarding observations of changes in behavior or attitudes of group members toward one another, notes indicated that each member improved his or her recognition and respect for the perspectives of others. A cohesiveness developed, likely fostered by efforts of the group facilitators to create an atmosphere of acceptance and understanding. The majority seemed comfortable in the group, as demonstrated by their increased self-disclosure. As the sessions continued, there was more open expression of members' feelings, personal experiences, and individual strengths and weaknesses.

Participants also appeared to develop a positive attitude toward the program, and they appeared to appreciate and gain from the opportunity to discuss social and vocational experiences and situations, as well as to listen to those of others. High expectations from the facilitators regarding participation and maturity seemed to be welcomed and reflected in the behavior of the group members.

Feedback was gathered directly from participants during the last program session, and notes were reviewed regarding (a) participants' attitudes toward their fellow group members, (b) changes in their attitudes or behavior regarding social interactions and employment, and (c) their opinions of the program itself. Members reported that they made friends with others in the group and maintained contact by telephone and e-mail. They also organized and initiated gatherings, such as attending one group member's high school play, watching the Super Bowl together, going bowling, and so on. The participants noted changes in their behavior and an increased effort on their part to interact with other persons socially. They reported more positive attitudes toward gaining employment

and a better understanding of the rewards of employment. About the program, participants said they benefited from the opportunity to meet and interact with other persons on the autism spectrum for the first time and to recognize that they are going through similar experiences and challenges. They also appreciated the opportunity to discuss difficult social and interpersonal issues in an environment where they felt comfortable.

Feedback gathered from parents in a post-Aspirations meeting provided further evidence of behavior changes that parents attributed to attending the program. Parents reported that their sons and daughters showed greater interest in social interaction, increased enthusiasm about attending Aspirations, and more pride in their appearance. They also reported that participants took more initiative in finding jobs. All the participants began to attend the monthly reunions, which reflected their desire to spend more time with their peers.

Discussion

As noted previously, participants' responses on the *Empathy Quotient* showed significant improvement following Aspirations. This indicates an increased awareness of other people's thoughts and feelings and an increased ability to look at situations from other people's perspectives. Significant differences did not emerge on the *Index of Peer Relations* or the *Autism Spectrum Quotient*, although responses did indicate some improvement. However, feedback from group members and parents clearly suggested that Aspirations had a positive im-

pact in a range of areas. Many of the benefits reported by participants—such as benefiting from interacting with others on the autism spectrum and profiting from the opportunity to discuss challenging personal issues with others who can relate to them—were subtle, difficult to measure, and not directly tapped by questions on the self-report measures.

Although the measures were useful for evaluation purposes, a wider range of more sensitive and tailored tools would need to be adopted to identify the more subtle changes in behavior and attitude the group members reported experiencing during the Aspirations program. Unfortunately, few standardized measures are available that are appropriate for use with older populations on the autism spectrum. Others have also experienced difficulty quantitatively demonstrating significant changes after social skills intervention programs that have anecdotally demonstrated success (e.g., Barnhill et al., 2002; Marriage et al., 1995; Ozonoff & Miller, 1995).

Future studies of the program should involve more sensitive measures of behavior change as well as pre- and postevaluations by parents, who may be more cognizant of signs of progression than the group members themselves. In addition, an evaluation of skills and perceptions during an 8-week nointervention phase prior to the beginning of the Aspirations program itself may be beneficial. To date, of the reported social skills interventions for this population, only Ozonoff and Miller (1995) have included control comparisons with individuals not involved in the intervention. Additional naturalistic as well as standardized assessment tools are needed in this field, especially as service providers are likely to come under increasing pressure to demonstrate the efficacy of their interventions (Ozonoff & Miller, 1995).

Overall, aside from topics covered in the curriculum, the experience of being accepted into a group, meeting others on the autism spectrum, and having the opportunity to discuss challenging interpersonal issues seemed to have a positive impact on group members. Few services are available to individuals on the autism spectrum once adolescence is reached, and particularly after high school graduation. Improving social and vocational skills is a particularly crucial and challenging area that must be addressed if success and independence are to be achieved by individuals with ASD.

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