

Merging Fields: Providing Adventure-Based Transitional Services for Youth with Autism

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This article examines the evidence-based use of outdoor adventure education (OAE) programs as a milieu for providing transitional services to youth diagnosed with an autism spectrum disorder (ASD). With the rising prevalence of ASDs, there is an increased need for services which support youth during their transition into adulthood. OAE programs provide educational opportunities for participants in an authentic and novel learning environment. Drawing upon the philosophies of social and experiential learning, OAE programs require active engagement by the learner through hands-on and practical experiences. This novel experience encourages youth to safely test new behaviors and skills; and thus fosters personal growth, behavior change, positive self-concept, and ultimately increase self-efficacy and independence. These skills are crucial for youth with ASDs to successfully transition into independent living, employment, and higher education.

Prior to 1980, the prevalence of autism spectrum disorders (ASDs) was thought to be relatively low, approximately one in 2,000 or 0.5% of all children. In 2002, research conducted by the Autism and Developmental Disabilities Monitoring Network (ADDMM) indicated that the average ASD prevalence for children 8 years of age was 6.7 cases per 1,000 children. When the 11 ADDMM research sites were reevaluated in 2006, results exposed another increase in ASD prevalence, with most sites ranging between 7.5 and 10.4 cases per 1,000 children (CDC, 2006).

The alarming increase in prevalence of ASDs has brought greater attention to the specific needs of youth learning to live productively with this spectrum of developmental disabilities. In order to promote successful transition into adulthood, the Individuals with Disabilities Education Act (IDEA) mandates outcome-oriented services for all students with a disability. These transitional services consider the student's unique needs during the planning process in order to facilitate the successful transition from school to higher education, adult services, independent living and community participation. In generating transitional plans for individuals with ASD, one must consider varying symptoms such as atypical socialization, communication, and behavioral development in addition to abnormal cognitive, learning, and sensory processing (CDC, 2006). Successful transitional services

focus on the individual preferences and interests in establishing life goals in the educational, vocational and residential domains of function (Nuehring & Sitlington, 2003).

In order to prepare an individual for independent living within a community, transitional programs for youth with ASD must address each of six domains of individual function: social skills; receptive language; executive function; transportation; financial management; and self-presentation (Geller & Greenberg, 2010). In this sense, transitional services become an intersection between educational and behavioral interventions. Goodman and Williams (2007) contend that students with ASDs benefit greatly from educational interventions based on the tenets of experiential education, which promote auditory, visual, social and physical engagement throughout the learning process. In addition to requiring active engagement by program participants, experiential education relies heavily upon social learning, utilizing a combination of behaviorist and cognitive learning components. Experiential education relies upon the three stages of learning: observing, imitating and modeling. Throughout experiential activities the educator utilizes varying degrees direction to purposefully engage learners in a personalized learning experience. The reflection process, then facilitated by the educator, reinforces learning and allows students to internalize

the lessons resulting in an increase in skills, knowledge and clarification of values (Association for Experiential Education, 2011).

One field of experiential education that has seen rapid expansion is outdoor adventure education (OAE). Many OAE program objectives focus on the transference of skills, which promote the psychological, social and cognitive growth of an individual (Cason & Gillis, 1994; Priest & Gass, 1997). This is accomplished through the direct exposure of individuals to adventure based activities, including rock climbing, challenge courses, camping, hiking, boating, and land navigation, as a means to meet specific programmatic goals that lead to both intra- and interpersonal growth (Meyer & Wegner, 1998). The overall objectives of personal growth found within OAE programs are congruent with the transitional goals identified by Nuehring and Sitlington (2003) and align with the specific needs of adolescents with ASD as outlined by Seltzer et al. (2003). OAE programs, based upon the tenets of experiential education, address the six domains of function identified by Geller and Greenberg (2010) as well as the areas of parental concern—situational behavior, social and communication skills, familial impact, educational services, relationships with professionals, and independence and future services—as reported by Fong, Wilgosh, and Sobsey (as cited in Seltzer et al., 2003).

Although there are currently limited quantitative studies regarding the efficacy of OAE or transitional programs, there is a growing interest in developing evidence-based practices. A number of studies conducted in the last decade have investigated the progression of symptomology and needs of clients with ASD across the lifespan, learning processes of children with ASD, efficacy of social skills trainings and interventions, usage of naturalistic behavioral-based interventions (NBI), and the efficacy of OAE curriculum on psychosocial development. In considering the results of the numerous studies, the need for further investigation of using OAE programs in providing transitional services to youth on the autism spectrum becomes obvious. In order to better comprehend the future application of OAE programs in transitional services, this review of literature is organized into the following sections: (1) Addressing Transitional Needs, including Diagnosis and Planning, Current Transitional Strategies and Programs, Components of Effective Programs, and Challenges to Successful Transition; (2) Meeting Transitional Needs Through OAE, including Experiential and Social Learning Theories and Applying Outdoor Adventure Education; and (3) Summary.

Addressing Transitional Needs

Diagnosis and Planning

Autism spectrum is an umbrella diagnosis, which classifies a wide variety of complex behavioral symptomatology. For diagnosis with ASD, a child must display delays or abnormal function in social interaction, language and social communication, or symbolic or imaginative play prior to the age of three (APA, 2000). Due to the pervasive nature of ASD, early diagnosis and intervention is crucial. Early educational planning, treatment and provision of community resources lead to the delivery of appropriate services to the child and ultimately a reduction in individual and family stress. Evidence gathered through studies conducted over the last 15 years support the use of early intervention programs. These studies have shown an increase in the rate of developmental progress and intellectual performance of 75% or more in individuals who have early diagnosis and receive appropriate early intervention (e.g., Dawson & Osterling, 1997; Rogers, 1996).

Current Transition Strategies and Programs

In order for successful transition, youth with autism require a continuum of services beginning with early intervention and continuing through adulthood with community support in daily living and vocational services. Transition is a multi-tier process building upon foundational work begun in early intervention programs, with the ultimate goal being to assist youth to become productive members of society as adults. While many public transitional programs focus solely on developing skills to become productive citizens in the community, a small percentage of programs provide more comprehensive interventions. These comprehensive programs go beyond skill development and work to direct students into meaningful employment that is appropriate for the individual's interests, strengths, skills and achievements (Seltzer et al., 2003).

According to Wehman and Revell (1997):

Transition for any student with a disability involves several key components, including: (1) an appropriate school program; (2) formalized plans involving parents and the entire array of community agencies that are responsible for providing services; and (3) multiple, quality options for gainful employment and meaningful post-school education and community living (p. 67).

These key components identified by Wehman and Revell illustrate the complexity of the transition continuum. The transition process is further complicated by the spectrum of abilities and impairments, severity of symptoms and change in manifestation over the lifespan that is characteristic of ASDs. As Seltzer et

al. reported, the manifestation of ASD changes throughout the lifespan. Seltzer's study assessed 405 individuals between the ages of 10 and 53 years, all of whom had been positively diagnosed with ASD during childhood. Using the Autism Diagnostic Interview-Revised (ADI-R) to assess patterns of symptomology, Seltzer et al. found that, at their current level of function, 54.8% of individuals no longer met the criteria for a positive diagnosis of autism. Between the time of diagnosis and adolescence, greatest improvement was observed in the Reciprocal Interaction domain, whereas adults showed continued improvement in the Restricted, Repetitive Behaviors and Interests domain. The study further revealed that throughout the lifespan there was not a significant abatement of symptoms in the area of social communication or creation of friendships with peers (Seltzer et al., 2003). This study supports the notion that one of the largest barriers facing youth with ASDs as they transition into independent living, employment and continued education is their deficit in social skills. This study also brought attention to the need for continued research in the efficacy of transitional programs to not only teach specific life skills, but to also address the social needs of youth with ASDs.

One such study, conducted by Sowden, Perkins and Clegg (2011), addressed the use of naturalistic behavior-based interventions (NBI) in improving both social and communicative function of children with ASD through varied levels of directed interactions. NBI seeks to reduce inappropriate behaviors and facilitate the ability to cope with the dynamic demands of an individual's environment. This is accomplished by incorporating intervention strategies into other activities. When specifically geared toward preschoolers, NBI consists of short teaching sessions that are initiated by the child and embedded into various play activities. Techniques utilized by educators included modeling of desired responses, operant conditioning, time delay procedures and the use of incidental teaching (Warren & Gazdag, 1990).

This qualitative pilot study followed eight pre-school aged children with ASD during their experience in the Explorers program. The program ran three days a week for 2.5 hours each day. The majority of the program was comprised of one-on-one interaction between the child and educator, which was digitally recorded every two weeks. In analyzing the data, the context of interactions was identified and each interaction was classified as play, directed tasks or other activities. Data was then further analyzed to determine the communication strategies utilized by the staff in order to elicit desired social communication skills of the child (Sowden, Perkins, & Clegg, 2011).

When considering all the data that was analyzed, there appeared to be three levels of directiveness in communication strategies utilized that promoted the

highest levels of communication from the children. These three levels—suggest, require and instruct—combined the support of the instructor, while allowing for experimentation, self-expression and interpretation by the child. Although these levels of directiveness were identified to be the most effective, Sowden et al. (2011) argue that when utilizing NBI to foster spontaneous social communication, practitioners must discern the appropriate level of direction and adapt to the changing needs of the child and environment.

Studies of social skill interventions for children with ASD generally report modest improvement in parental and teacher satisfaction and a limited generalization of skills among participants. Contugno (2009) examined the efficacy of a social skill intervention program for youth ages 7-11 with ASD, and reported a strong indication that a process-oriented intervention combined with social skill instruction can benefit youth with ASD. The study assessed 18 children using the Walker-McConnell Scale (WMS) and the MGH YouthCare Social Competence Development Scale (SCDS). Assessments were conducted pre- and post-intervention. At the conclusion of the 30-week intervention, samples were compared to a control group consisting of 10 children without ASD who received no treatment. Following treatment, teacher ratings recorded on the WMS significantly improved across all four domains: teacher preferred social behavior, peer preferred social behavior, school adjustment and total score. The data collected by parents on the SCDS regarding anxiety management, joint attention and flexibility in transitions also displayed general improvement following the intervention; improvement however was more modest and variable (Contugno, 2009).

Effective Interventions

Koegel, Vernon, and Koegel (2009) analyzed empirical interventions shown to successfully improve symptomatology of autism, as well as the strategies used in current interventions that show promise in improving individual social function. Research shows that interventions that encourage social communication are generally the result of natural rewards and the strengthening of operant conditioning (e.g., Koegel & Koegel, 2006; Koegel et al. 1999). In such interventions, verbal reinforcers were directly related to the desired outcome behaviors.

Upon completion of their meta-analysis, Koegel, Vernon, and Koegel (2009) conducted a study of three children diagnosed with ASD to evaluate the use of social interaction as reinforcement in a language intervention program. The study specifically examined how embedded reinforcers influenced child-initiated social engagement, communication and general affect. Social engagement during communication rose from a mean of 2% when social interaction was not

embedded as a reinforcer to 64.67% when the reinforcer was. For all children in the study, this experiment showed a relationship between sessions consisting of embedded social interactions and a higher level of social engagement during communication, as well as higher affect ratings.

Although many intervention strategies and transitional programs focus on the pronounced social deficits associated with ASD, there remain several areas of concern which need to be studied and addressed. In 1993, Fong, Wilgosh, and Sobsey identified six common concerns of parents whose children were currently participating in transitional programs. These concerns included: (1) behavioral problems, primarily tantrums and minimal progress; (2) social and communicative dysfunction, especially inappropriate and inadequate social skills; (3) restriction in family life and the need for supervision; (4) education, service selection and the assessment of management plans; (5) ineffective communication and criticism with professionals and employers; and (6) independence and future services, specifically residential, vocational and leisure services (as cited in Seltzer et al., 2003). In order to truly address the multitude of needs associated with ASD and the concerns of parents, transitional service providers must consider individual function in each of the six domains identified by Geller and Greenberg (2010).

Geller and Greenberg (2010) reported that transitional programs with the highest levels of client and parental satisfaction address social, receptive language, executive function, self-presentation, transportation and financial management. Within each functional domain, goals are established to develop the greatest level of autonomy and independence. Social function goals include improving conversation skills, reading nonverbal cues, assertiveness training, education in appropriate social interactions, relationships and sexual behaviors, as well as leisure interests and planning. Goals improving receptive language function include self-advocacy training, accepting personal responsibility, comprehending and following multi-step directions, and initiating and completing tasks. In order to improve executive function, transitional programs may focus on organizational skills, community resource education, problem-solving performance, time management and activities of daily living. Self-presentation includes developing appropriate personal hygiene, management of emotional responses, and developing interview skills. Other goals may include supporting the use of public transportation, locating appropriate housing, developing budgets and day-to-day financial management. Although unreasonable to expect a single transitional program to address all functional domains identified, by providing a continuum of services beginning with early intervention and utilizing a variety of community resources throughout the lifespan rehabilitation pro-

fessionals are able to better ensure successful transition.

Challenges to Successful Transition

The transitional stage into adulthood poses significant challenges for individuals with ASD and their families. This is a time when youth are striving for independent adult lives, including continuing their education and obtaining meaningful employment. Because ASD poses specific challenges due to the extensive implications of diagnostic criteria, transition into society and independent living is often a very difficult and trying time for youth and their families. Specific factors affecting transition can be divided into four general categories: (1) social competence; (2) sensory and motor function; (3) cognition; and (4) emotional regulation. As reported by Seltzer et al. (2003), social competence is the primary barrier that affects individuals with ASDs throughout the lifespan. Limited social interaction, ability to maintain conversations, fixated and obsessive thought patterns, sensory disruptions, difficulty in oral comprehension, gross and fine motor disruptions, anxiety, depression, and reduced attention all have major implications in the successful transition of a youth with ASD (Geller & Greenberg, 2010). Although individuals may have a number of highly desired and marketable skills, they often display an uneven profile of strengths and limitations that are difficult to overcome in society without adequate and continued support (Grandin & Duffy, 2004).

Meeting Transitional Needs Through OAE

Experiential & Social Learning Theories

The Association for Experiential Education (2011) defines experiential education (EE) as "... a philosophy and methodology in which educators purposefully engage with learners in direct experience and focused reflection in order to increase knowledge, develop skills and clarify values (2011)." EE is a framework for providing outcome-oriented programs with individualized results. In programs utilizing an experiential framework, relationships between learners and educators are developed and nurtured resulting in an atmosphere based on respect, equality and social learning. Within EE programs the learner is actively engaged in activities which stimulate the individual intellectually, emotionally, socially, spiritually and/or physically. This requires that individuals take initiative within the process and be accountable for their actions both within and outside of the program milieu. The EE framework is dependent upon authentic learning experiences and the progression of the learner through the stages of observing, imitating and modeling behavior. This results in natural consequences and the opportunity to draw upon what has been termed 'teachable mo-

ments'—a time when learning a particular lesson becomes possible, yet was unplanned by the educator (AEE, 2011; Ormond, 1999).

Within the framework of experiential education, the educator's function includes creating suitable experiences, posing realistic problems, setting boundaries which ensure physical and emotional well-being and supporting the learners at an appropriate level while facilitating the learning process (AEE, 2011). This process has a foundation in Bandura's social learning theory, which is considered to be a combination of behaviorist and cognitive learning theories (Ormond, 1999). Bandura theorized that learning occurs through the observation of behaviors that others exhibit and the outcomes of those behaviors. Once a behavior has been observed, the learner imitates the behavior to test for the expected outcome and then later models the behavior for others to learn. Bandura however argues that learning a behavior does not necessarily lead to a behavior change. He speculates that in order for behavior change to occur, cognition is necessary (Ormond, 1999). Many current behavioral interventions draw from Bandura's learning model and rely upon the use of reinforcement and punishments as a catalyst for cognition (e.g., Koegel, Vernon and Koegel, 2009). EE programs facilitate this cognitive-behavioral process by providing immediate feedback to clients through the presence of natural consequences, social reinforcement, and the reflection process (Association for Experiential Education, 2011).

Research conducted by Goodman and Williams (2007) further reinforces the application of EE for youth with ASD. This study analyzed interventions that would increase the engagement of students with autism by field-testing empirically supported and evidence-based strategies. The qualitative study identified a number of unobtrusive methods that increased the probability that behavioral symptoms would be reduced, resulting in higher levels of student engagement. The strategies identified in this field test were classified within four domains of engagement: auditory, visual, social and physical. Within these domains, strategies included the use of song, verbal prompting, visual aids, modeling, encouraging decision-making, facilitating peer interaction, tactile stimulation, motor involvement and imitation or mimicking.

An explanation as to why EE and the use of active strategies increase the likelihood of student engagement, and thus learning, was investigated by Lind and Bowler (2009). The study investigated impairments in episodic memory in individuals with ASD. Although the cause of episodic memory impairment is unknown, the effects can be seen in an individual's inability to encode, store, and retrieve personal experiences and events. This results in a deficit of source memory and autonoetic awareness, limiting the indi-

vidual's ability to focus attention on a subjective experience and recall a mental representation of a past experience. The effects of episodic memory impairment have further implications, including diminished performance in decision-making and judgment. Despite diminished source memory, the study revealed that youth with ASD showed significant improvements in memory when it was associated with an action the participant performed. This study further supports Goodman and Williams's (2007) study regarding the increase of academic engagement of students with autism through external stimuli and prompting.

Applying Outdoor Adventure Education

Outdoor Adventure Education (OAE) is a form of experiential education that utilizes "...direct and purposeful exposure to adventurous activities in an effort to facilitate both intra- and interpersonal growth (Meyer & Wenger, 1998)." Programs range in activities and include elements such as rock climbing, camping, hiking, challenge courses, horseback riding, land navigation and boating. Although based primarily on anecdotal evidence and qualitative surveys of participants, OAE programs are believed to be effective in fostering personal growth in a number of areas including initiative, perseverance, determination, self-restraint, cooperation, and resourcefulness (Luckner & Nadler, 1997; Schoel, Prouty, & Radcliffe, 1988).

Sheard and Golby (2006) sought to find empirical evidence that supported the claim that OAE developed desirable psychosocial characteristics in participants. The study consisted of 52 students, ages 16-39. Participants in the study were randomly assigned to one of two groups, each containing 26 individuals. Both groups were measured pre- and post-intervention in the following domains: hardiness, mental toughness, self-esteem, self-efficacy, dispositional optimism, and positive affectivity. The experimental group completed a three month program consisting of rock climbing, land navigation and canoeing components. The course was completed by 74% of the original participants. Although the sample showed significant improvement in total hardiness, the overall effect was non-significant. In contrast to Year 1 OAE students, Year 2 students developed an increased ability to perceive situations in a positive light and experienced a shorter adjustment period to the dynamic nature of the learning environment (Sheard & Golby). This discrepancy in performance between first and second year OAE students supports the long-standing hypothesis that a longer intervention program or more frequent exposure to OAE activities will reinforce and improve the psychosocial constructs measured (Cason & Gillis, 1994).

Although results have been mixed in studies examining the efficacy of OAE programs, research has contin-

ued. A study conducted by Bass, Duchowny, and Llabre in 2009 evaluated the effect of therapeutic riding on the social function of children with ASD. This 12-week equestrian intervention was comprised of mounting/dismounting, exercises, riding skills, games, and horsemanship activities. Thirty-four children participated in the study, 19 in the experimental group and 15 in the control group. When comparing pre- and post-intervention results, children who completed the experimental equestrian intervention exhibited greater sensory sensitivity, seeking of sensory stimulation, and social motivation, as well as a decrease in inattention, distractibility and sedentary behaviors. There are three general hypotheses concerning the significant improvement observed in five of the eight domains. The first is that the multisensory stimulation of the riding experience resulted in a greater cognitive and emotional presence for the child. Secondly, it is possible that the highly structured program elicited a sustained level of focus by requiring the children to listen to directions, verbalize commands to the horses, and complete various cognitive tasks. Finally, there is a potential that the novel experience of interacting with the horse was perceived as a positive reinforcement for behavior change.

A 2010 study measured the development of adaptive social skills of 12 youth diagnosed with ASDs. Subjects were evaluated pre- and post-intervention which consisted of a 4 week summer camp program. The program was designed to promote the adaptive social skills and positive peer interactions, specifically measuring sensory-motor and language based play. Children within the study showed improvement in all 4 subscales being measured—verbal communication, social interaction, attention to task and transitions. In addition to these improvements noted by the assessing therapists, parent reported improvement in verbal communication and social skills. The overall ratings did not significantly differ between therapist and parent. This suggests that the improvements observed in the camp setting were concurrently perceived in the child's home environment. This study provides evidence to support that treatment received in a summer camp or related outdoor adventure setting may improve social and communication skills, thus fostering youth independence (Walker, Barry, & Bader, 2010).

Summary

Providing transitional services to youth with autism is a process that must begin with early diagnosis and intervention. In order to promote the successful transition between adolescence and adulthood, service providers must individualize program objectives and address the wide range of symptomology and manifestations of ASD presented by each client. Although studies continue to be conducted which investigate

the efficacy of components of transitional programs, there is significant evidence to support the use of EE and social learning theories to promote transferrable learning for youth with ASD.

OAE is one of the many genres of EE available to practitioners. Evidence suggests that although brief interventions may not produce dramatic or lasting results, long-term or repeated exposure to novel adventure activities can foster both intra- and interpersonal growth. There are many standing hypotheses as to why such interventions may prove effective. These include: (1) the experience itself being perceived as reinforcement; (2) the experience resulting in multisensory stimulation, which requires greater cognitive and emotional presence; and (3) the structure of the program requiring a sustained level of effort and focus.

Although significant anecdotal and qualitative evidence exists connecting the foundational elements of OAE with increased engagement, behavior change, social interaction, and episodic memory function, further empirical research is necessary. Due to small sample size, the complexity and variance of ASD symptomatology, and the inability to create comparable control groups in experimental studies, data supporting or refuting the future usage of OAE to facilitate successful transition for youth with ASD is neither readily available nor easily deciphered. As pioneers in an expanding field, rehabilitation professionals have a duty to further research and field test potential approaches built upon evidence-based practices and strategies. In order to meet the diverse demands of the growing population of youth with ASD, transitional service providers must address individual symptomology, abilities, interests, and long-term goals. To do so, professionals must look to connect current knowledge between convergent fields. This will result in the continued development of innovative intervention strategies, such as the utilization of outdoor adventure education to facilitate successful transition into adulthood for youth with ASD, available to individuals in a community setting.

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