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Supporting Independence in Adolescents on the Autism Spectrum

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Abstract

The development of independent behavior is a critical, challenging process for all youth as they pass through the high school environment into adulthood. Although most high school students gain skills related to independence, the independent behaviors of their peers with autism spectrum disorder (ASD) plateau and decline. These skill deficits and resulting poor post-secondary outcomes for students with ASD highlight the great need for programming in this area. This article begins by defining independence and the influence of independence on post-secondary outcomes, and explores the factors that contribute to the difficulties in independence for individuals with ASD. Then, a review of school-wide positive behavior support and focused evidence-based practices (EBPs) related to independence is presented. Recommendations are made for practitioners and caregivers implementing interventions intended to support student independence, and recommendations for future research and practice are offered.

Keywords

secondary, autism, independence, high school, special education

Adolescents with an autism spectrum disorder (ASD) are often challenged in the areas of social communication and social interaction, and by the presence of behaviors that are characterized as maladaptive, repetitive, and/or rigid (American Psychiatric Association, 2013). Despite difficulties across these domains, and the behavioral excesses often demonstrated, individuals with ASD are able to continually gain skills across curriculum areas throughout adolescence when appropriate support is provided (Smith, Maenner, & Seltzer, 2012). However, concerns arise as adolescents with ASD enter early adulthood and independent demonstration of these skills is expected (Taylor & Seltzer, 2011). Although adolescence is typically a time of increasing independence and behavioral autonomy, research indicates that in young adulthood, functional independence for those on the autism spectrum begins to plateau and eventually decline (Smith et al., 2012). There exist a set of behavioral "absences" related to independence that may be as debilitating for adolescents with ASD as the presence of maladaptive behaviors. Difficulty in independent performance in adolescents and young adults in secondary settings and beyond is gaining attention in the field, as recent longitudinal studies indicate bleak post-secondary outcomes for adolescents with ASD across the spectrum (e.g., individuals with and without co-morbid intellectual disability), highlighting the need for programming around this area (e.g., National Longitudinal Transition Study 2 [NLTS-2]; Newman, 2007).

In this article, we examine issues around independence, including the importance of developing independence during adolescence and student demonstration of independence in secondary settings, the influence of independence on secondary and post-secondary outcomes, and factors that contribute to difficulties in independence in individuals with ASD. In addition, a review of interventions designed to promote independent demonstration of skills and reduce behaviors that may inhibit skill acquisition is included, along with recommendations for future research and practice.

What Is Independence?

Independence has been defined in the behavioral literature, for example, "Independent functioning is defined . . . as on-task engagement in an activity in the absence of adult

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prompting" (Hume & Odom, 2007, p. 1172), as well in the developmental literature, for example, "Enacting self-governed, self-regulated behaviors that are based on one's personal decisions" (Zimmer-Gembeck & Collins, 2003). Across disciplines, the concept of independence requires that an individual demonstrates capacity to behave on his or her own. The distinction between autonomy, characterized by acting on one's own interests, preferences, and abilities (Wehmeyer, 2000), and functional independence, the ability to complete an activity or task (which may or may not reflect one's interests or preferences) absent prompting, is important to consider. Though independence may not be synonymous with behavioral autonomy, which also requires independent decision making in addition to demonstrating behavior independently, both concepts indicate the ability to complete tasks without close proximity, guidance, prompting, support, or advice from others (e.g., caregivers, school staff, peers; Zimmer-Gembeck & Collins, 2003). This article will provide a brief review of the typical development of autonomy, but will focus primarily on the issues around the promotion of functional independence. In addition, this article will highlight the importance and complexity of supporting the development of independence and the broader questions that school teams, families, students, and community members must begin to discuss related to independence. These may include: Is the goal of high school to prepare students for the challenge of adult life? Or to help them function in school so they can graduate? What are the implications related to independence for these goals? (Brinckerhoff, Shaw, & McGuire, 1992).

Independence in Adolescence

One of the striking characteristics of adolescence in typical development is the strides that teenagers make toward independence. A major developmental achievement of the teenage years is the individual's ability to function in increasingly more complex settings without the support, monitoring, or supervision of adults (Sessa & Steinberg, 1991). From early to middle adolescence, which corresponds to the middle to high school years, individuals shift from a focus on and conformity to the opinions and expectations of others (i.e., parents, peers, and teachers), to more independent decision making and behavior (Harter, 1999). Growth in behavioral autonomy during adolescence reflects improved cognitive developmental capacities to think, feel, act, and make decisions on one's own that occur in concert with greater opportunities and demands for independent behaviors in social settings (Zimmer-Gembeck & Collins, 2003). For instance, within families, decision making regarding personal appearance, activities, schoolwork, and social life gradually includes greater input from teens as they progress from age 9 to 14; adolescents' contributions to decision making in these domains increase rapidly from age 15 onward (Wray-Lake, Crouter, & McHale, 2010). Coinciding with these increased expectations and opportunities for independent behaviors within the family is the transition to and progression through high school, which introduces significant demands for independent functioning.

Independence in Secondary Settings

The press for independent behavior in high school arises from the structure and organization of high schools. Structural features of schools include aspects of the physical environment, as well as the organization of teachers and students for instructional and non-instructional time (Baker et al., 2001). In a traditional high school, students enroll in as many as eight specialized classes, typically with a different teacher for every class (Baker et al., 2001). Class scheduling is a complicated procedure, given the number of curricular tracks and electives offered in traditional high schools. Consequently, the pool of peers that students experience in each class period often differs, and students infrequently share their full schedule with the same set of classmates (Ellerbrock & Kiefer, 2013). Thus, students may bear the responsibility of finding and getting to their own classes independently. Complicating this challenge is that high schools tend to have large physical facilities and student bodies, requiring students to traverse significant distances between class periods in minimal transition time in crowded hallways (Baker et al., 2001; Cushman, 2006). Taken together, these factors place a demand on students to get where they need to be, on time, and with little support from others.

The multi-period, multi-teacher structure creates an additional press for independent behaviors. Although schools may have general rules and procedures for students, individual teachers establish academic and behavioral expectations for their own classes. Teachers may use a syllabus, website, verbal instruction, or other means to communicate their expectations, but the nature of this communication varies across teachers, and ultimately students are expected to know and follow the teacher's expectations. Moreover, the typical high school teacher is responsible for 120 to 180 students per day, which leaves teachers little opportunity to monitor their students' academic, social, or behavioral progress (Baker et al., 2001). Secondary settings offer a great deal of freedom and opportunities for behavioral autonomy and independence, but these opportunities may involve potentially contradictory expectations for behavior and little adult guidance and support to ensure that students develop the capacity to engage in adaptive, independent behavior.

Role of Independence in Secondary and Post-Secondary Outcomes

Research consistently indicates that students who demonstrate greater independence and/or behavioral autonomy during secondary school are more likely to be employed and live independently after completing high school than students who are more dependent on staff or caregivers (Wehmeyer & Palmer, 2003). Indeed, the Common Core Standards, educational standards in place in 45 states emphasizing preparation for college and career, identify independence as the primary descriptor of students who are most likely to be successful in post-secondary settings (descriptors related to independence include "students who can demonstrate skills . . . without scaffolding . . . without prompting . . . that are self-directed learners . . . can independently discern," Introduction, p. 7; Common Core State Standards Initiative, 2010). For students with and without disabilities, including ASD, the ability to independently complete activities required to fully participate in home, school, and community life ensures greater likelihood of success during and beyond secondary settings (Smith et al., 2012).

Independence and ASD

Functional independence and behavioral autonomy are key contributors to optimal post-secondary outcomes for all students, but play a critical role in the success of students with ASD. The last Office of Special Education Programs (2010) report to Congress indicated that 96% of the adolescents with ASD in the NLTS2 study scored more than two standard deviations below the mean on the Scales of Independent Behavior, the highest percentage of any disability classification (Newman, 2007). In addition, NLTS2 indicated that of the students with ASD surveyed, nearly 80% still live at home and almost half have no jobs or postsecondary training (Shattuck, 2010).

Several studies indicate that adults with autism with and without intellectual disability rely heavily on others for support in employment, living, and relationships. In a study of 68 adults with ASD who had Intelligence Quotients (IQs) above 50 in childhood, over 50% had outcomes described as poor or very poor (Howlin, Goode, Hutton, & Rutter, 2004). Eight of the 68 adults were independently employed, an additional 14 worked in a sheltered setting, and 36 were unemployed (Howlin et al., 2004). A more recent study of the outcomes of 48 young adults with ASD demonstrated similar results, with 50% of respondents across the IQ range indicating poor outcomes (Eaves & Ho, 2008). Concerns also exist for individuals with ASD who do not have co-morbid intellectual disability. Research indicates that individuals on the spectrum with high IQs also have impaired adaptive functioning (Saulnier & Klin, 2007). Although significant deficits in cognitive functioning and core deficits in social and communication skills certainly contribute to the concerning outcomes of individuals with ASD, it is likely that other factors, such as limited independent performance and an overreliance on prompts and feedback, are also significant contributors (Hume, Loftin, & Lantz, 2009).

Why Is Functional Independence Difficult for Adolescents With ASD?

The development of independence/behavioral autonomy can be challenging for all adolescents as high school students struggle to understand and respond to expectations of caregivers, multiple school staff, and peers, while also beginning to assert their own ideas and decisions (Harter, 1999). For students with ASD, however, these challenges in independence are compounded by characteristics related to the diagnosis of ASD, co-morbid conditions, and their cognitive profile. These challenges are further exacerbated by the complexities and expectations of secondary settings as described above.

Characteristics of ASD. Deficits in the core areas impacted by ASD (social and communication domain, engagement in restricted, repetitive, and stereotyped behaviors) certainly contribute to the challenges with independent performance. For example, the ability to learn by observing others (observational learning) is compromised in individuals with ASD for a number of reasons, including deficits in attending to multiple cues in the environment (Plavnick & Hume, 2013). This may limit an adolescent's ability to observe peers/classmates in an effort to learn skills necessary for independent functioning. Deficits in communication skills may also be an underlying contributor to difficulties in independent functioning (Howlin, Mawhood, & Rutter, 2000), as they may inhibit one's ability to ask questions, seek clarification about expectations, and/or express preferences (Hurlbutt & Chalmers, 2004). In fact, having verbal skills is a significant predictive factor of participation in post-secondary education (and thus, increased independent skills) for high school graduates with autism (Chiang, Cheung, Hickson, Xiang, & Tsai, 2012). Finally, the excessive resistance to change, or need for sameness, characteristic of adolescents with ASD, may create difficulty when caregivers or staff attempt to fade or remove prompts previously provided during skill acquisition, consequently impacting long-term independent functioning (Hume et al., 2009).

Co-morbid conditions. A number of studies indicate that adolescents with ASD with a co-morbid intellectual disability (16%–30% of the ASD population) (de Bildt, Systema,

Kraijer, & Minderaa, 2005) demonstrate lower levels of daily living skills, a measure of functional independence, along with slower rates of change than individuals with ASD without intellectual disability (Freeman, Del'Homme, Guthrie, & Zhang, 1999; Smith et al., 2012). Adaptive behavior, skills required for everyday living, has proven to be increasingly delayed in adults with ASD relative to intellectual functioning even when compared to other populations with intellectual disability (e.g., adults with Down Syndrome; Loveland & Kelly, 1988). This indicates that the functional independence of those with ASD is severely lacking (Esbensen, Bishop, Seltzer, Greenberg, & Taylor, 2010). Co-morbid psychological disorders (e.g., depression, anxiety) are also linked to reduced independence, in general, among individuals with ASD (Esbensen et al., 2010). Higher rates of affective disorders have been reported in the ASD population, and they tend to peak in adolescence or early adulthood (Gillberg & Billstedt, 2000). In a study of 70 adults with ASD, 60% of the population was receiving psychological or psychiatric services, thus indicating a large percentage of the population with ASD whose independent functioning may be compromised because of co-morbid psychopathologies (Esbensen et al., 2010).

Executive functioning. It is well established that individuals with ASD demonstrate a variety of impairments in *executive functioning*, which also contribute to independence difficulties (Ozonoff & Schetter, 2007). Executive function is a term used to describe cognitive processes such as goal-initiation, planning, working memory, and flexibility. These processes are often impaired in individuals with ASD, specifically the ability to plan multi-step sequences of events (e.g., steps required to complete a homework project) and to demonstrate mental flexibility (e.g., shift quickly from one idea or plan to another). Of particular difficulty for people with ASD is dealing with new situations and processing complex information (Minshew, Meyer, & Goldstein, 2002), which are common occurrences when functioning independently in everyday life. For additional information on how the cognitive profiles of adolescents with ASD may impact independence, see Fleury, Hedges, Hume, Browder, Thompson, et al. (in this special issue).

Other contributors. The presence of *interfering behavior* (often termed maladaptive or challenging), behaviors that interfere with everyday activities and include self-injurious behavior, withdrawal, uncooperative behavior, aggression, and destruction of property, also contribute to difficulty in independent functioning (Shattuck et al., 2007). In a sample of 241 adolescents and adults with ASD, followed for almost 5 years, Shattuck et al. (2007) reported that at Time 2, 67% of the population had an interfering behavior (internalizing, externalizing, or asocial), indicating the continuing need for support for adolescents in this area. There was, however, significant improvement across interfering behavior domains between Time 1 (baseline assessments) and Time 2 (approximately 5 years later), demonstrating a reduction in these behaviors as the individual with ASD aged (Shattuck et al., 2007). Interfering behaviors remain a concern of caregivers (Fong, Wilgosh, & Sobsey, 1993) and school staff into adolescence, and interventions targeting independence should incorporate strategies to both reduce behavior excesses, while also targeting and increasing behavioral absences (e.g., independent skills).

Students with ASD have historically demonstrated *difficulty in the generalization of skills*, or demonstrating skills across setting, person, or task (Hume, Plavnick, & Odom, 2012). For example, if an adolescent has learned to complete a task analysis on his or her iTouch in English II, he or she may not be able to complete a similar task analysis in Biology or History class. A number of theories are offered as contributors to this difficulty, including poor mental flexibility (e.g., difficulty shifting thoughts or actions according to changes in the environment; Ozonoff, Strayer, McMahon, & Filloux, 1994), difficulty relating new stimuli to past experiences (e.g., highly specific memory and the inability to integrate experiences; Williams, Goldstein, & Minshew, 2006), and lack of responsiveness to cues (e.g., difficulty attending to multiple cues; Cunningham & Schreibman, 2008).

A final contributor to consider is the *prompt dependency* of many students with ASD (MacDuff, Krantz, & McClannahan, 2001). Prompt dependency means that students respond primarily to cues provided by others, rather than environmental cues/events expected to elicit a behavior (e.g., when a student runs out of a material he or she waits for a prompt from a teacher to ask for more, rather than asking when the materials are gone or getting more on his or her own). An overreliance on verbal cues from staff and/or failure of staff to fade prompts over time may contribute to this dependency. Prompt dependence impedes potential success in the independent performance of the skill during generalization activities, may reduce the student's level of participation, and can increase overall passivity (Goodson, Sigafoos, O'Reilly, Cannella, & Lancioni, 2007).

Evidence-Based Interventions to Support Independence in Adolescents With ASD

This section describes two overarching types of interventions: (a) school-wide interventions that have been implemented in high schools and are either appropriate for students with disabilities, or those students who would

receive Tier 3 (most intensive and individualized) interventions and (b) focused, evidence-based practices (EBPs) specific to individuals with ASD, which are derived from the National Professional Development Center on ASD (NPDC; 2013, http://autismpdc.fpg.unc.edu/). Focused intervention practices refer to a set of EBPs that are used to target specific behavioral or developmental outcomes (e.g., independence, communication), and are typically implemented for shorter durations of time (Odom, Collet-Klingenberg, Rogers, & Hatton, 2010). The focused EBPs included met the following NPDC review criteria: (a) experimental study that employed rigorous single-case or group designs, (b) are applicable to students with ASD aged 14 to 22 years, and (c) have evidence to demonstrate improvements in students' independent functioning or challenging behaviors. The identified EBPs are based on the NPDC's recent review of the autism intervention literature, which included articles published from 1997 to 2011.

School-Wide Interventions for High Schools

School-Wide Positive Behavior Support (SWPBS) is the most well-known, and likely studied, approach for addressing the behavioral support needs of students at risk for or with disabilities. SWPBS is a tiered support system designed to promote the implementation of EBPs to improve students' social, academic, and behavioral outcomes (Sugai, O'Keefe, & Fallon, 2012). Typically, implementation at the school or district level includes the following: formation of a team, data-driven action planning that involves assessment and screening; procedures to select and support EBP implementation; and continuous evaluation of fidelity and student outcome data (Sugai & Horner, 2009). Most of the evidence for SWPBS is based on its implementation in elementary schools. Nonetheless, a combination of efficacy and effectiveness studies has demonstrated its effects on outcomes ranging from disciplinary referrals (Bradshaw, Mitchell, & Leaf, 2010; Horner et al., 2009), school safety (Horner et al., 2009), bullying and peer rejection (Waasdorp, Bradshaw, & Leaf, 2012) to school climate (Bradshaw, Koth, Thornton, & Leaf, 2009). All of these outcomes are relevant for high school students with ASD. Furthermore, there have been some case studies examining the feasibility of implementing SWPBS in high schools (Bohanon et al., 2006; Scott, Hirn, & Barber, 2012), but more empirical studies specific to this context are needed. Still, ample evidence exists demonstrating that SWPBS is an established school-wide intervention that can meet the behavioral support needs of those students most at risk. In addition, some of the tenets of SWPBS, such as team-based decision making, data-driven instruction, use of EBPs and monitoring progress again have direct applicability to school-wide programs supporting the behavioral needs, including independent functioning, of high school students with ASD. The use of SWPBS to address bullying is one way in which it may have direct applicability to high school students with ASD. Current research indicates that SWPBS can be used to reduce bullying and peer rejection (Waasdorp et al., 2012), and adolescents with ASD are quite susceptible to peer victimization (Cappadocia, Weiss, & Pepler, 2012); the use of strategies consistent with a positive behavior support approach (e.g., school rules around respect for others) could help typical peers to be more tolerant of others, reducing peer victimization. Specific to the student with ASD, it is expected that Tier 3 of the SWPBS model (i.e., targeted instruction) versus Tier 1 (universal strategies) or Tier 2 (small group instructions) may be most applicable to supporting these students' behavioral needs and independent functioning. However, a school that has supports in place from those lower tiers should be in a better position to implement more intensive strategies.

Focused EBPs for Independence and/or Interfering Behavior

Through the NPDC review of the literature, 12 EBPs were identified that could be used to support the independent functioning or reduce the interfering (repetitive or disruptive) behavior of high school students with ASD (see Table 1). The EBPs that have included high school–aged participants in their studies are differential reinforcement, extinction, prompting, reinforcement, response interruption and redirection, self-management, task analysis, visual supports, and work systems. The three remaining practices are antecedent-based interventions, functional behavior assessment (FBA), and social narratives. Some of the studies supporting these practices did include middle-school-aged students, although the bulk of the evidence for them, as for SWPBS, is based on elementary-aged students. It is also important to note that many of the identified EBPs are used in the context of SWPBS (e.g., FBA). Overall, this list of EBPs could be used to effectively guide instructional planning to increase students' independent functioning or adaptive skills as well as behavioral plans designed to reduce their interfering behaviors.

Many of the identified EBPs are based on the science of Applied Behavior Analysis (see Boutot and Hume, 2012, for full description) and can be used to target multiple behavioral outcomes. For example, prompt fading can be used to promote independence (e.g., time delay or graduated guidance) and reduce challenging behavior (e.g., use of verbal prompts to provide student reminders of behavioral expectations in a particular setting). However, we highlight some of the aforementioned EBPs across the following three categories to demonstrate their applicability either for promoting independence or decreasing interfering behaviors for high school students with ASD: (a) interventions to promote skill acquisition, (b) interventions to reduce

Table 1. EBPs to Support the Independent Functioning or Reduce the Interfering Behavior of Adolescents With ASD.

Practice	Definition	Type of evidence *n* = number of studies including individuals 14–22 yrs old/total number of studies included in evidence base
Antecedent-based interventions (ABI)	ABI are a collection of strategies in which environmental modifications are used to change the conditions in the setting that prompt a learner with ASD to engage in an interfering behavior.	☑ SCD (*n* = 0/3) ☑ Group design (*n* = 0/2)
Differential reinforcement (DR)	DR is a special application of reinforcement designed to promote the occurrence of appropriate behaviors and reduce the occurrence of interfering behaviors.	☑ SCD (*n* = 2/6) ❒ Group design
Extinction	Extinction involves withdrawing or terminating the positive reinforcer that maintains an inappropriate interfering behavior.	☑ SCD (*n* = 1/4) ❒ Group design
Functional behavior assessment (FBA)	FBA is a systematic set of strategies that are used to determine the underlying function or purpose of a behavior.	☑ SCD (*n* = 0/5) ❒ Group design
Prompting	Prompting procedures include any form of help given to learners that assist them in using a specific skill (e.g., verbal, models, visuals, physical guidance).	☑ SCD (*n* = 2/5) ❒ Group design
Reinforcement	Reinforcement describes a relationship between learner behavior and a consequence that follows the behavior. This relationship is only considered reinforcement if the consequence increases the probability that a behavior will occur in the future, or at least be maintained.	☑ SCD (*n* = 4/5) ❒ Group design
Response interruption and redirection (RIR)	RIR involves physical or verbal interruption or blocking of an inappropriate behavior and redirection and subsequent reinforcement for engaging in an alternative behavior.	☑ SCD (*n*=2/5) ❒ Group design
Self-management	With these interventions, learners with ASD are taught to discriminate between appropriate and inappropriate behaviors, accurately monitor and record their own behaviors, and reward themselves for behaving appropriately.	☑ SCD (*n* = 5/13) ❒ Group design
Social narratives	Social narratives are interventions that describe social situations in some detail by highlighting relevant cues and offering examples of appropriate responding.	☑ SCD (*n* = 0/5) ❒ Group design
Task analysis	Task analysis is the process of breaking a skill into smaller, more manageable steps to teach the skill.	☑ SCD (*n* = 2/5) ❒ Group design
Visual supports	Visual supports are any tool presented visually that supports an individual as he or she moves through the day.	☑ SCD (*n* = 2/12) ❒ Group design
Work systems	The individual work system is a visually organized space where learners independently practice skills that have been previously mastered.	☑ SCD (*n* = 1/2) ☑ Group design (*n* = 1)

Note. SCD = single case design; NPDC = National Professional Development Center; ASD = autism spectrum disorder. Definitions of practice and type of evidence are from the NPDC on ASD website.

challenging behavior, and (c) interventions to promote independence.

Interventions to promote skill acquisition. Prompting and reinforcement are two complementary behavioral techniques that are often paired to help students acquire, master, and fluently demonstrate skills. With autism, prompt dependency, or an overreliance on prompts from others, can negatively affect the student's willingness to take initiative and independently demonstrate learned skills (Hume et al., 2009). Thus, prompts should be systematically faded and reinforcement schedules "thinned," when appropriate, to provide an opportunity for the student to display the skill more independently, and without the need for continuous reinforcement from others in their environment.

Interventions to reduce challenging behavior. EBPs that may be most associated with reducing interfering or challenging

behavior are antecedent-based interventions, response interruption and redirection, differential reinforcement, extinction, FBA, and social narratives. Antecedent-based interventions rely on modifying the student's environment to remove or diminish environmental stimuli that set the occasion for the occurrence of problem behavior. For example, if seating the student near the window leads to the student being easily distracted in class, then the student could be seated further away from the window. Response interruption, differential reinforcement, and extinction are all behavioral strategies that involve minimizing or withholding reinforcement for inappropriate behavior, often while simultaneously providing more consistent reinforcement for appropriate behavior. Extinction is often paired with functional communication training, in particular for individuals with co-morbid ID or limited verbal communication, to teach them an appropriate means to obtain access to people or objects in their environment, or escape situations they find unpleasant (Fisher et al., 1993). Finally, social narratives often are used to teach individuals with ASD behaviors that are expected or appropriate to display in particular social situations.

Interventions to promote independence. Hume et al. (2009) identified three practices that could be used to increase independence for individuals with ASD, which included self-monitoring or management, video modeling, and work systems. In addition to these, based on the NPDC list of EBPs, task analysis and visual supports are other behavioral strategies that can be used to promote independence. Self-management or monitoring implies some independent performance on the part of the individual with ASD. Often this takes the form of students monitoring their own behavior to determine if they are engaging in the expected behavior. This places the onus on the student and often requires a certain level of cognitive ability. Thus, self-management strategies may not be as applicable to individuals with more significant intellectual disability. Video modeling and visual supports, such as visual schedules, allow for students' demonstration of independent performance because visuals instead of verbal prompts are used to provide instruction and guidance to the individual with ASD. This decreases overreliance on adults in the student's environment to provide verbal reminders of what is expected. For example with video modeling, videos can be edited, so that any prompts provided to the student when the video was recorded can be removed for the student to see himself or herself independently demonstrate the expected behavior (Bellini & McConnell, 2010). Task analysis involves breaking down complex tasks into more discrete and manageable steps, which allows the student to more easily determine which steps can be performed independently. Finally, work systems (i.e., visual information informing a student what to do while in a work situation) can be used in a variety of settings, such as home, school, or community employment, to promote the student's ability to complete tasks without the need for continual adult monitoring and support (Hume et al., 2012; Hume & Odom, 2007). See Test, Smith, and Carter (in this special issue) for a discussion of strategies to promote self-determination and self-advocacy in adolescents with ASD.

Evidence-based practices do exist that can be used to support the independent functioning and reduce the behavioral challenges of individuals with ASD. To date, the evidence base for many of these practices is based on research with elementary-aged students, thus we must extrapolate findings for this age group to middle- and high school–aged students. In doing so, it becomes important to consider the high school context when implementing these practices and factors specific to this context (e.g., the increased numbers of teachers students must interact with) that may affect intervention implementation and uptake. We also could take lessons learned from the attempts of those involved in implementing SWPBS in high schools (e.g., Bohanon et al., 2006; Scott et al., 2012). For example, Bohanon and colleagues discussed how difficult it was to implement consistent policies for addressing misbehavior in high schools, given the number of staff and students. Their suggestion for dealing with this was to obtain the input of the school leadership team to reach a consensus (a difficult but important process) on how to operationalize the misbehavior, and then implement procedures to address the behavior. Finally, parents continue to play an important role in supporting the independent functioning of high school students with ASD—in particular, these students' ability to learn self-determination—but parents themselves need support to alleviate their worries about their child's ability to function independently in post-secondary settings.

Implications for Practitioners and Caregivers

In addition to better understanding the issues around independence and implementing evidence-based practices to support student independence, there are several additional considerations for practitioners and caregivers. The essential implication for all who support adolescents with ASD is to first recognize the importance of independence as a curricular area for students in secondary settings. Teaching for independence should become the focus of every activity (Brinckerhoff et al., 1992). Teams should examine whether current service delivery models encourage independence—are systems set up to prepare students with ASD for adult life, and/or help them function in secondary school so they can graduate? Although those ideas may or may not be synonymous, adolescents need support in both domains, because along with the dismal employment rates discussed previously, adolescents with ASD also have the lowest

completion rates in high schools when compared with students across all other disability categories (43.6% of students with ASD do not graduate/complete after 8 years; Schifter, 2011). School teams should review how accommodations are provided, examine whether supports provided foster dependence or independence, and discuss how staff and caregivers can function as facilitators to empower students to make decisions and solve problems. For example (per Brinckerhoff et al., 1992), should a student with ASD receive a note-taker during class, receive instruction on how to take notes, or learn how to use a tape recorder during lectures? Each accommodation may be appropriate for some students in some situations, but discussions about how each option fosters independence, or does not, should be made among team members, including parents.

Emphasis on Teaching and Measuring Process Versus Product

Similarly, the types of goals that are included in Individual Transition Plans (ITP) for adolescents with ASD require review from team members as well. Including goals and objectives that address the underlying deficits in cognition and executive functions as discussed earlier, such as organization, planning, sequencing, and problem solving (Ozonoff & Schetter, 2007), is critical in increasing independence. This may include writing goals about process rather than product, such as writing a goal related to teaching a student how to use a task analysis (process) to break down an assignment and identify the correct answer, rather than simply identifying the correct answer (product). Including goals related to self-advocacy, an extension of independence, so that students can ask for needed accommodations and assistance is also key in supporting student autonomy (Ozonoff & Schetter, 2007).

Use of Student Strengths to Promote Independence

A number of challenges adolescents with ASD face in secondary settings have been highlighted. When addressing these challenges, practitioners and caregivers should use the known strengths of the student to support independent functioning. For example, research indicates that many individuals with ASD have enhanced perceptual functioning when engaged in visual processing (Samson, Mottron, Soulières, & Zeffiro, 2012). Through brain imaging studies and superior performance on visual tasks, individuals with ASD show enhanced visual mental imagery or "visual thinking" as compared to typically developing individuals. Instead of words, individuals with ASD have described their reasoning processes to be comprised of a series of images or rather that they "think in pictures" when engaged in problem-solving behaviors (Grandin, 1995; Kunda & Goel, 2011). The use of visual supports, work systems, and other visual strategies described above can facilitate independence while capitalizing on student strengths.

Consider How, When, and Who Will Implement Independence Instruction and Supports

The strict schedule of secondary settings, with the primary emphasis on obtaining credits to move toward graduation, makes programming for independence more difficult. Teaching for independence should be embedded across academic and vocational courses, implemented by team members across general and special education, and practiced across multiple settings (e.g., classroom, lunch, club meetings). Using class periods such as "Academic Strategies," study hall, or vocational preparation courses to directly teach skills related to independence (e.g., goal setting, self-management, flexibility) as well as tutoring on academic or career-related content may be beneficial. In addition, teams may consider establishing school-based clubs or extra-curricular activities that support this skill development and are moderated by staff focused on supporting independence (e.g., a club that plans and executes service projects).

Examine Parent Involvement to Support Independence

Adolescence is a natural period in development in which adolescents seek, and to some degree parents expect, more independence in day-to-day decision making (Zimmer-Gembeck & Collins, 2003). In ASD, characteristics associated with the disorder, such as difficulties with organization, can impact the adolescent's ability or motivation to establish their autonomy. This can make it difficult for the parent and student with ASD to know when too much parental support is affecting the student's ability to transition into the role of an independent, self-reliant adolescent. We do know that family involvement can play an important role in promoting self-determination for adolescents with ASD, because the home environment sets the stage for individuals with disabilities to engage in choice-making, risk-taking, exploration, and exert control (Field & Hoffman, 1999). If the adolescent with ASD is unable to engage in and practice such behaviors, then it limits his or her ability to acquire self-determination skills. Parental concerns and worries over the transition process (i.e., transitioning out of high school) may lead to parents inadvertently limiting their child's involvement in decision making. Blacher, Kraemer, and Howell (2010) found that parents of young adults with ASD were more worried about the transition process than parents of children with other developmental disabilities (e.g., cerebral palsy, Down syndrome), and expressed concern about the impact of transitioning on both the mother's and the family's well-being. The research suggests that

parents do play an important role in helping adolescents with ASD to become more independent, but parental education and supports are needed during this period to alleviate parent concerns.

Future Directions

Next steps in research and practice should reflect the implications above and extend the evidence on listed EBPs for adolescents with ASD in several ways: (a) include adolescents in studies of EBPs that currently only include students in elementary and middle school settings; (b) expand contexts for interventions to include community and employment settings where adolescents with ASD access services, as well as in homes through parent education and training around independence; and (c) extend the study of factors that impact implementation of EBPs and school-wide efforts to promote independence, such as building school-wide teams to support the development and demonstration of student independence. In addition, two other areas of study are needed to move the field forward in programming for independence. First, there is a dearth of informal assessment materials to accurately describe and provide guidance for programming around the independent functioning of adolescents with ASD. Several standardized measures, including the Vineland Adaptive Behavior Scales (Sparrow, Balla, & Cicchetti, 1984) and Scales of Independent Behavior–Revised (Bruininks, Woodcock, Weatherman, & Hill, 1996), provide normed data on independent functioning across domains such as daily living, community living, and social communication skills. Though helpful for descriptive purposes, these measures do not capture many of the needed areas for students with ASD (related to executive functioning and cognitive profile), and are less informative for practitioners as they select goals to target for intervention.

Other assessments used during the transition process such as the TEACCH-Transition Assessment Profile (T-TAP, Mesibov, Thomas, Chapman, & Scholper, 2007) may provide information for teams around the strengths and needs of adolescents with ASD, and more recently the Center on Secondary Education for Students with ASD (CSESA) developed an informal assessment of skills related to responsibility, and self-management called the Secondary School Success Checklist (SSSC; CSESA, 2013). Team members, including caregivers, practitioners, and students when appropriate, complete an online measure describing the student's strengths and needs across a number of subdomains (e.g., organization, problem solving, cooperation, self-regulation, and flexibility) and rank skills by priority. A report is then generated identifying the highest priority skills related to independence across team members and then provides support for developing goals to target priority skills and linking each goal to related EBPs. Though the SSSC and the related processes do not yet have psychometric or outcome data (part of a current study), early pilot work and focus groups indicate high levels of acceptability and feasibility across stakeholder groups (Kucharczyk & Odom, 2013).

Next, the use of innovative technologies (e.g., iPod Touch devices) is one treatment approach to support the independent functioning of adolescents with ASD that requires more study. Technological advances can potentially lead to innovative and more effective treatment strategies as well as enhance the quality of life for adolescents with ASD (Bolte, Golan, Goodwin, & Zwaigenbaum, 2010). For example, technology has the potential for allowing practitioners to create personalized systems (for students with ASD) that employ such EBPs as visual supports (e.g., prompts for a behavior or steps in a transition), independent work systems, and video self-modeling to promote independent functioning. Although use of such technology for adolescents with ASD is proliferating in practice, there is limited empirical information about the effects of these technological devices for individuals with ASD. Small N and single case design (SCD) studies have shown the potential efficacy of portable "smart" technology (e.g., iPods and apps) in increasing independence during daily activities (e.g., Mechling, Gast, & Seid, 2009), and for self-management purposes (Mechling, 2007). In addition, the ubiquity of technological devices among typically developing adolescents may lessen the social stigmatization and increase the social acceptability of technology-based interventions for adolescents with ASD.

The challenges and difficulties of many adolescents with autism in becoming independent is nearly as much a marker of autism as is the more traditional diagnostic markers of social competence, communication, and repetitive behavior. With an understanding of the complexities of the development of independence in adolescence (across students with and without ASD) and the influence of independence on post-secondary outcomes for students with ASD, practitioners and caregivers are more apt to plan and program for independence across the school day and beyond. With the support of a number of EBPs that have potential or are proven to increase student independence and with additional consideration around school structures, student goals, and assessment practices related to independence, adolescents with ASD are likely to experience positive transformations in their current and post-secondary outcomes as they are significantly better able to demonstrate the levels and types of independence required of employees, students, and friends.

Authors' Note

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References

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: Author.

Baker, J. A., Derrer, R. D., Davis, S. M., Dinklage-Travis, H. E., Linder, D. S., & Nicholson, M. D. (2001). The flip side of the coin: Understanding the school's contribution to dropout and completion. *School Psychology Quarterly*, *16*, 406–426.

Bellini, S., & McConnell, L. (2010). Strength-based educational programming for students with autism spectrum disorders: A case for video self-modeling. *Preventing School Failure: Alternative Education for Children and Youth*, *54*, 220–227. doi:10.1080/10459881003742275

Blacher, J., Kraemer, B., & Howell, E. (2010). Family expectations and transition experiences for young adults with severe disabilities: Does syndrome matter? *Advances in Mental Health and Learning Disabilities*, *4*, 3–16.

Bohanon, H., Fenning, P., Carney, K. L., Minnis-Kim, M., Anderson-Harris, S., Moroz, K., . . .Pigott, T. D. (2006). Schoolwide application of positive behavior support in an urban high school: A case study. *Journal of Positive Behavior Interventions*, *8*, 137–145. doi:10.1177/10983007060080030201

Bolte, S., Golan, O., Goodwin, M., & Zwaigenbaum, L. (2010). What can innovative technologies do for autism spectrum disorders? *Autism*, *14*, 155–159.

Boutot, A., & Hume, K. (2012). Beyond time out and table time: Today's applied behavior analysis for students with autism. *Education and Training in Autism and Developmental Disabilities*, *47*, 23–38.

Bradshaw, C. P., Koth, C. W., Thornton, L. A., & Leaf, P. J. (2009). Altering school climate through school-wide positive behavioral interventions: Findings from a group-randomized effectiveness trial. *Prevention Science*, *10*, 100–115. doi:10.1007/s11121-008-0114-9

Bradshaw, C. P., Mitchell, M. M., & Leaf, P. J. (2010). Examining the effects of schoolwide positive behavioral interventions and supports on student outcomes: Results from a randomized effectiveness trial in elementary schools. *Journal of Positive Behavior Interventions*, *12*, 133–148. doi:10.1177/1098300709334798

Brinckerhoff, L. C., Shaw, S. F., & McGuire, J. M. (1992). Promoting access, accommodations, and independence for college students with learning disabilities. *Journal of Learning Disabilities*, *25*, 417–429. doi:10.1177/002221949202500702

Bruininks, R. H., Woodcock, R. W., Weatherman, R. F., & Hill, B. K. (1996). *Scales of Independent Behavior–Revised (SIB-R) Manual*. Boston, MA: Riverside.

Cappadocia, M. C., Weiss, J. A., & Pepler, D. (2012). Bullying experiences among children and youth with autism spectrum disorders. *Journal of Autism and Developmental Disorders*, *42*, 266–277. doi:10.1007/s10803-011-1241-x

Center on Secondary Education for Students with Autism Spectrum Disorders. (2013). *Secondary School Success Checklist (SSSC)*. Unpublished checklist.

Chiang, H. M., Cheung, Y. K., Hickson, L., Xiang, R., & Tsai, L. Y. (2012). Predictive factors of participation in postsecondary education for high school leavers with autism. *Journal of Autism and Developmental Disorders*, *42*, 685–696. doi:10.1007/s10803-011-1297-7

Common Core State Standards Initiative. (2010). Common core state standards: Preparing America's students for college and career. Retrieved from http://www.corestandards.org

Cunningham, A. B., & Schreibman, L. (2008). Stereotypy in autism: The importance of function. *Research in Autism Spectrum Disorders*, *2*, 469–479. doi:10.1016/j.rasd.2007.09.006

Cushman, K. (2006). Help us make the 9th grade transition. *Educational Leadership*, *63*, 47–52.

de Bildt, A., Systema, S., Kraijer, D., & Minderaa, R. (2005). Prevalence of pervasive developmental disorders in children and adolescents with mental retardation. *Journal of Child Psychology and Psychiatry*, *46*, 275–286.

Eaves, L. C., & Ho, H. H. (2008). Young adult outcome of autism spectrum disorders. *Journal of Autism and Developmental Disorders*, *38*, 739–747. doi:10.1007/s10803-007-0441-x

Ellerbrock, C. R., & Kiefer, S. M. (2013). The interplay between adolescent needs and secondary school structures: Fostering developmentally responsive middle and high school environments across the transition. *High School Journal*, *96*, 170–194. doi:10.1353/hsj.2013.0007

Esbensen, A., Bishop, S., Seltzer, M., Greenberg, J., & Taylor, J. (2010). Comparisons between individuals with autism spectrum disorders and individuals with down syndrome in adulthood. *American Journal of Intellectual and Developmental Disabilities*, *115*, 277–290. doi:10.1352/1944-7558-115.4.277

Field, S., & Hoffman, A. (1999). The importance of family involvement for promoting self-determination in adolescents with autism and other developmental disabilities. *Focus on Autism and Other Developmental Disabilities*, *14*, 36–41. doi:10.1177/108835769901400105

Fisher, W., Piazza, C., Cataldo, M., Harrell, R., Jefferson, G., & Conner, R. (1993). Functional communication training with and without extinction and punishment. *Journal of Applied Behavior Analysis*, *26*, 23–36. doi:10.1901/jaba.1993.26-23

Fleury, V. P., Hedges, S., Hume, K., Browder, D. M., Thompson, J. L., Fallin, K.,...Vaughn, S. (2014). Addressing the academic needs of adolescents with autism spectrum disorder in secondary education. *Remedial and Special Education, 35,* 68–79. doi:10.1177/0741932513518823

Fong, L., Wilgosh, L., & Sobsey, D. (1993). The experience of parenting an adolescent with autism. *International Journal of Disability, Development and Education*, *40*, 105–113. doi:10.1080/0156655930400204

Freeman, B. J., Del'Homme, M., Guthrie, D., & Zhang, F. (1999). Vineland adaptive behavior scale scores as a function of age and initial IQ in 210 autistic children. *Journal of Autism and Developmental Disorders*, *29*, 379–384. doi:10.1023/A:1023078827457

Gillberg, C., & Billstedt, E. (2000). Autism and Asperger syndrome: Coexistence with other clinical disorders. *Acta Psychiatrica Scandinavica*, *102*, 321–330. doi:10.1034/j.1600-0447.2000.102005321.x

Goodson, J., Sigafoos, J., O'Reilly, M., Cannella, H., & Lancioni, G. E. (2007). Evaluation of a video-based error correction procedure for teaching a domestic skill to individuals with developmental disabilities. *Research in Developmental Disabilities*, *28*, 458–467. doi:10.1016/j.ridd.2006.06.002

Grandin, T. (1995). *Thinking in pictures: And other reports from my life with autism*. New York, NY: Doubleday.

Harter, S. (1999). *The construction of the self: A developmental perspective*. New York, NY: Guilford.

Horner, R. H., Sugai, G., Smolkowski, K., Eber, L., Nakasato, J., Todd, A. W., & Esperanza, J. (2009). A randomized, wait-list controlled effectiveness trial assessing school-wide positive behavior support in elementary schools. *Journal of Positive Behavior Interventions*, *11*, 133–144. doi:10.1177/1098300709332067

Howlin, P., Goode, S., Hutton, J., & Rutter, M. (2004). Adult outcome for children with autism. *Journal of Child Psychology and Psychiatry*, *45*, 212–229.

Howlin, P., Mawhood, L., & Rutter, N. (2000). Autism and developmental receptive language disorder: A follow-up comparison in early adult life. II: Social, behavioural, and psychiatric outcomes. *Journal of Child Psychology and Psychiatry*, *41*, 561–578.

Hume, K., Loftin, R., & Lantz, J. (2009). Increasing independence in autism spectrum disorders: A review of three focused interventions. *Journal of Autism and Developmental Disorders*, *39*, 1329–1338. doi:10.1007/s10803-009-0751-2

Hume, K., & Odom, S. (2007). Effects of an individual work system on the independent functioning of students with autism. *Journal of Autism and Developmental Disorders*, *37*, 1166–1180. doi:10.1007/s10803-006-0260-5

Hume, K., Plavnick, J., & Odom, S. (2012). Promoting task accuracy and independence in students with autism across educational setting through the use of individual work systems. *Journal of Autism and Developmental Disorders*, *42*, 2084–2099. doi:10.1007/s10803-012-1457-4

Hurlbutt, K., & Chalmers, L. (2004). Employment and adults with asperger syndrome. *Focus on Autism and Other Developmental Disabilities*, *19*, 215–222. doi:10.1177/10883576040190040301

Kucharczyk, S., & Odom, S. (2013, July). *Education and outcomes for high school students with autism spectrum disorder: Perspectives from multiple stakeholders*. Presentation at Autism Society of America, Pittsburgh, PA.

Kunda, M., & Goel, A. K. (2011). Thinking in pictures as a cognitive account of autism. *Journal of Autism and Developmental Disorders*, *41*, 1157–1177. doi:10.1007/s10803-010-1137-1

Loveland, K. A., & Kelly, M. L. (1988). Development of adaptive behavior in adolescents and young adults with autism and Down syndrome. *American Journal on Mental Retardation*, *93*, 84–92.

MacDuff, G., Krantz, P., & McClannahan, L. (2001). Prompts and prompt-fading strategies for people with autism. In C. Maurice, G. Green, & R. Foxx (Eds.), *Making a difference: Behavioral intervention for autism* (pp. 37–50). Austin, TX: Pro-Ed.

Mechling, L. C. (2007). Assistive technology as a self-management tool for prompting students with intellectual disabilities to initiate and complete daily tasks: A literature review. *Education and Training in Developmental Disabilities*, *42*, 252.

Mechling, L. C., Gast, D. L., & Seid, N. H. (2009). Using a personal digital assistant to increase independent task completion by students with autism spectrum disorder. *Journal of Autism and Developmental Disorders*, *39*, 1420–1434. doi:10.1007/s10803-009-0761-0

Mesibov, G., Thomas, J., Chapman, M., & Scholper, E. (2007). *TEACCH Transition Assessment Profile (TTAP)*. Austin, TX: Pro Ed.

Minshew, N. J., Meyer, J., & Goldstein, G. (2002). Abstract reasoning in autism: A disassociation between concept formation and concept identification. *Neuropsychology*, *16*, 327–334. doi:10.1037//0894-4105.16.3.327

National Professional Development Center on ASD. (2013). *Evidence-based practice briefs*. Retrieved from http://autismpdc.fpg.unc.edu/

Newman, L. (2007). *Secondary school experiences of students with Autism*. Menlo Park, CA: SRI International. Retrieved from http://ies.ed.gov/ncser/pdf/20073005.pdf

Odom, S. L., Collet-Klingenberg, L., Rogers, S., & Hatton, D. (2010). Evidence-based practices in interventions for children and youth with autism spectrum disorders. *Preventing School Failure*, *54*, 275–282. doi:10.1080/10459881003785506

Office of Special Education Programs. (2010). *29th annual report to Congress on the implementation of the Individuals with Disabilities Education Act, 2007*. Washington, DC: U.S. Department of Education.

Ozonoff, S., & Schetter, P. L. (2007). Executive dysfunction in autism spectrum disorders: From research to practice. In L. Meltzer (Ed.), *Understanding executive function: Implications and opportunities for the classroom* (pp. 133–160). New York, NY: Guilford.

Ozonoff, S., Strayer, D. L., McMahon, W. M., & Filloux, F. (1994). Executive function abilities in autism and Tourette Syndrome: An information processing approach. *Journal of Child Psychology and Psychiatry*, *35*, 1015–1032.

Plavnick, J., & Hume, K. (2013). Observational learning by individuals with autism: A review of teaching strategies. *Autism: International Journal of Research and Practice*. Advance online publication. doi:10.1177/1362361312474373

Samson, F., Mottron, L., Soulières, I., & Zeffiro, T. A. (2012). Enhanced visual functioning in autism: An ALE meta-analysis. *Human Brain Mapping*, *33*, 1553–1581.

Saulnier, C. A., & Klin, A. (2007). Brief report: Social and communication abilities and disabilities in higher functioning individuals with autism and asperger syndrome. *Journal of Autism and Developmental Disorders*, *37*, 788–793. doi:10.1007/s10803-006-0288-6

Schifter, L. (2011). High school graduation of students with disabilities: How long does it take? *Exceptional Children*, *77*, 409–422.

Scott, T. M., Hirn, R. G., & Barber, H. (2012). Affecting disproportional outcomes by ethnicity and grade level: Using discipline data to guide practice in high school. *Preventing School Failure*, *56*, 110–120. doi:10.1080/1045988X.2011.592168

Sessa, F. M., & Steinberg, L. (1991). Family structure and the development of autonomy during adolescence. *Journal of Early Adolescence*, *11*, 38–55. doi:10.1177/0272431691111003

Shattuck, P. (2010, July). *Transition to what? Outcomes and service use among youth with autism after high school*. Invited lecture at the Thompson Center for Autism and Neurodevelopmental Disorders, University of Missouri, Columbia.

Shattuck, P., Seltzer, M. M., Greenberg, J. S., Orsmond, G. I., Bolt, D., Kring, S., . . .Lord, C. (2007). Changes in autism symptoms and maladaptive behaviors in adolescents and adults with an Autism Spectrum Disorder. *Journal of Autism and Developmenal Disorders*, *37*, 1735–1747. doi:10.1007/s10803-006-0307-7

Smith, L. E., Maenner, M. J., & Seltzer, M. M. (2012). Developmental trajectories in adolescents and adults with autism: The case of daily living skills. *Journal of the American Academy of Child and Adolescent Psychiatry*, *51*, 622–631. doi:10.1016/j.jaac.2012.03.001

Sparrow, S. S., Balla, D. A., & Cicchetti, D. V. (1984). *Vineland adaptive behavior scales: Interview edition, survey form manual*. Circle Pines, MN: American Guidance Service.

Sugai, G., & Horner, R. (2009). Responsiveness-to-intervention and school-wide positive behavior supports: Integration of multi-tiered system approaches. *Exceptionality*, *17*, 223–237. doi:10.1080/09362830903235375

Sugai, G., O'Keefe, B. V., & Fallon, L. M. (2012). A contextual consideration of culture and school-wide positive behavior support. *Journal of Positive Behavior Interventions*, *14*, 197–208. doi:10.1177/109830070000200302

Taylor, J. L., & Seltzer, M. M. (2011). Employment and post-secondary educational activities for young adults with autism spectrum disorders during the transition to adulthood. *Journal of Autism and Developmental Disorders*, *41*, 566–574. doi:10.1007/s10803-010-1070-3

Test, D. W., Smith, L. E., & Carter, E. W. (2014). Equipping youth with autism spectrum disorders for adulthood: Promoting rigor, relevance, and relationships. *Remedial and Special Education, 35,* 80–90. doi:10.1177/0741932513514857

Waasdorp, T., Bradshaw, C. P., & Leaf, P. J. (2012). The impact of schoolwide positive behavioral interventions and supports on bullying and peer rejection: A randomized controlled effectiveness trial. *Archives of Pediatric Adolescent Medicine*, *166*, 149–156. doi:10.1001/archpediatrics.2011.755

Wehmeyer, M. L. (2000). Assessment of self-determination: Negotiating the minefield. *Focus on Autism and Other Developmental Disabilities*, *15*, 157–158. doi:10.1177/108835760001500305

Wehmeyer, M. L., & Palmer, S. B. (2003). Adult outcomes for students with cognitive disabilities three years after high school: The impact of self-determination. *Education and Training in Developmental Disabilities*, *38*, 131–144.

Williams, D. L., Goldstein, G., & Minshew, N. J. (2006). The profile of memory function in children with autism. *Neuropsychology*, *20*, 21–29. doi:10.1037/0894-4105.20.1.21

Wray-Lake, L., Crouter, A. C., & McHale, S. M. (2010). Developmental patterns in decision-making autonomy across middle childhood and adolescence: European American parents' perspectives. *Child Development*, *81*, 636–651. doi:10.1111/j.1467-8624.2009.01420.x

Zimmer-Gembeck, M. J., & Collins, W. A. (2003). Autonomy development during adolescence. In G. R. Adams & M. Berzonsky (Eds.), *Blackwell handbook of adolescence* (pp. 175–204). Oxford, UK: Blackwell.