Incorporating Preference Assessment into Transition Planning for People with Autism Spectrum Disorder

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Abstract

Learners with Autism Spectrum Disorder (ASD) often struggle with communicating preferences integral to the transition planning process. Systematic preference assessments (SPAs) are objective methods for observing and documenting learner responses to a variety of environmental stimuli. An extensive literature-base exists supporting the inclusion of SPAs when identifying potentially reinforcing stimuli for educational programming. Although these methodologies are effective, in the transition planning process they may be useful beyond identifying potentially reinforcing stimuli. The following commentary provides an overview of the transition planning process, as well as how preference assessment may enhance that process.

Keywords Autism Spectrum disorder · Transition · Preference assessment

Postschool outcomes for individuals with disabilities are especially poor when compared to their typically developing peers, but the statistics for those with autism spectrum disorder (ASD) are exceptionally unfortunate. Results from the National Longitudinal Transition Study-2 (NLTS2) indicate that individuals with ASD are overwhelmingly under and unemployed (i.e., only 37% employed at the time of interview), experience extremely low rates of engagement in their community (i.e., 29% of individuals with ASD have no engagement in their community), and more than half (i.e., 52%) report having not seen friends outside of work or school (Newman, Wagner, Cameto, & Knokey, 2009). Similarly, Farley et al. (2018) found that that 72% of participants with ASD required high levels of caregiver support in their daily lives (i.e., extensive help with social contacts and employment sites, total control of economic affairs, lives with relatives), and 69% required high levels of public support (i.e., resided in supported living, group home or institution, day center, or had a personal assistant).

Fortunately, there are a number of evidence-based transition predictors that may improve these dismal post school

outcomes (Mazzotti et al., 2016). A number of these predictors (e.g., career awareness) can even be incorporated into a student's transition planning and services while they are still in high school, and served under the Individuals With Disabilities Education Act (IDEA). The transition services a student receives in high school can be defined as a coordinated set of activities that include assessment, goal development, and preparation for postsecondary experiences (Kochhar-Bryant & Greene, 2009). As learners with ASD enter secondary education, curricular decisions should become increasingly focused on post-secondary outcomes and transition services.

To ensure that students are receiving effective services, IDEA (, 2004) specifies that transition services must be (a) coordinated; (b) results oriented; (c) based on learner need; (d) take into account learner strengths, preferences and values; and (e) include instruction that may lead to successful post-secondary outcomes. Indeed, Indicator 13 of IDEA measures the “percent of youth aged 16 and above with an IEP that includes coordinated, measurable, annual IEP goals and transition services that will reasonably enable the child to meet the post-secondary goals” (20 U.S.C. 1416(a)(3)(B)). This requires that the student's IEP has appropriate, measurable postsecondary goals based on age-appropriate transition assessment in the areas of training, education, employment, and, where appropriate, independent living (IDEA, 2004; Section 300.302).

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Transition Assessment

The Council for Exceptional Children Division on Career Development and Transition (DCDT; www.dcdt.org) defines age-appropriate transition assessment as an ongoing process that requires the student's full input and involvement. This process consists of collecting information on the student's needs, strengths, preferences, and interests as they relate to measurable postsecondary goals, as well as the student's annual IEP goals (Neubert & Leconte, 2013). Neubert and Leconte go on to state that one of the main purposes of the age-appropriate transition assessment is to identify accommodations, supports, related services, and technology needs for the student's future. Although preference is a key aspect within the process, this information can be difficult to decipher for students with more significant communication needs. One objective method to gauge preference for students who have difficulty communicating with others is with the incorporation of preference assessment.

Integrating Preference

Systematic preference assessments (SPAs) involve direct observation of learner behavior to determine preferred items or activities, and are valuable tools to determine preferred stimuli for learners with ASD across a variety of environments (e.g., school, clinic, community). Community-based settings (e.g., work sites, independent or supported living environments) present unique characteristics that necessitate modifications to ensure portability and ease of assessment. Traditional SPAs involve either the presentation of pairs (Fisher et al., 1992), or groups of stimuli (DeLeon & Iwata, 1996). For example, in a multiple stimulus without replacement preference assessment (DeLeon & Iwata, 1996), stimuli are presented in an array in front of the learner with a prompt to choose a stimulus. Once the stimulus is chosen, the learner is allowed to access that item for a specified period of time. The array is then rearranged by placing one item from either side of the array on the opposite side of the represented array. These procedures continue until all stimuli are chosen, or until the learner stops choosing. A total assessment consists of five total presentations of the stimulus array. For the MSWO in particular, the previously outlined procedures may be modified to include only one total presentation of the stimulus array without impacting the predictive nature of the assessment (e.g., Richman, Barnard-Brak, Abby, & Grubb, 2016; Tullis, Cannella-Malone, & Fleming, 2012).

Decision-making frameworks have been proposed to modify SPAs based on interfering or challenging behavior (e.g., disruption), or other practical considerations (e.g., Virués-Ortega et al., 2014). For example, Karsten, Carr, and Lepper (2011) outlined a progressive model for conducting SPAs that

involved considering practical observations, as well as the current skill level of the person being assessed. Although these data were promising, a standard SPA may continue to be cumbersome in the context of a transition assessment because of the need for the opportunity to present multiple stimuli at once, abstract nature of some stimuli, and decreased skill repertoires of some learners. Additionally, the more typical application of SPA methodologies in research and practice contexts focuses on identifying stimuli that can be used as reinforcers for skill acquisition, and not on identifying preferred stimuli as way of guiding experiences independent of an instructional context.

Application to ASD Although there are clearly defined guidelines, implementing procedures for the entirety of the population of people with ASD seems lacking in many respects (Wehman et al., 2014). Unfortunately, defining characteristics of ASD (i.e., communication delays, social deficits, and restricted or repetitive behavior or interests) may hinder participation in transition planning. This can result in individuals with ASD having less control over the opportunities they access in community and vocational settings (Wehman et al., 2013). Approximately 20–26% of people with ASD continue into adulthood without acquiring vocal speech (Rose, Trembath, Keen, & Paynter, 2016), which may impact participation in transition planning (Chiang, Cheung, Hickson, Xiang, & Tsai, 2012). This communication difficulty may require the utilization of direct observation tools in transition process to insure that the particular population of people with ASD that do not acquire vocal speech are meaningful stakeholders in the transition planning process.

Transition planning is a complex process that involves much more than assessing preference, but for people with ASD that have limited communication, assessing preference is an integral piece to informing the process. SPAs can be incorporated into age-appropriate transition assessment in a number of ways that align with the IDEA mandated domains of employment, training, education, independent living, and community participation; as well as in other crucial areas such as interpersonal relationships, health, and leisure activities, and communication (Carter, Brock, & Trainor, 2014). For learners with ASD that have communication difficulties, SPAs may be the most efficient and effective method of involving the learner in making meaningful choices, and to incorporate their wants and needs into the transition process. It is recognized that many additional aspects should be taken into account during transition planning, and that merely considering preference is not sufficient for a comprehensive transition plan (Agran & Krupp, 2011).

Although previous commentaries have outlined how preference may be integrated into the overall transition planning process (e.g., Lohrmann-O'Rourke & Gomez, 2001) and the effects of SPAs on work outcomes (e.g., Ninci, Gerow,

Rispoli, & Boles, 2017), these resources provide global recommendations for practice or future directions for researchers, and not specific guidance for practitioners that may enhance the implementation of SPAs during the transition process (e.g., where to assess for preference). The purpose of the current paper is to provide practical guidance to behavior analysts on areas of the transition assessment process that may benefit from the addition of established SPA methodologies, or objective forms of assessment that may be related to preference. For specific methodological adaptations, practitioners are encouraged to leverage the existing SPA research to choose assessment modifications that may be appropriate for the skills of specific learners (e.g., iconic or physical representation of stimuli; Groskreutz & Graff, 2009).

Assessing Preference within Transition Domains

Employment

An established body of literature has been formed around incorporating SPA methodologies into employment related activities (Ninci et al., 2017). When considering this aspect of the transition planning process, assessing preference may be required beyond the relatively simple process of identifying whether or not consequences function as reinforcers. More specifically, measures of preference may be required that outline whether or not the job, working arrangement or supports (e.g., inclusive setting vs. supported setting), and repetitiveness are preferred or non-preferred. These seem to be similar considerations for people without disabilities when evaluating the parameters of chosen vocations (Lent, Brown, & Hackett, 2000).

Reid et al. (2007) demonstrated the utility of a SPA protocol in identifying work preferences in supported working arrangements. The protocol used consisted of three components that included two multi-task assessments that were similar to the multiple stimulus without replacement preference assessment (DeLeon & Iwata, 1996), and one paired-stimulus assessment (Fisher et al., 1992) if preferred tasks were not identified in the multi-task assessment. Across all participants, work output was elevated when engaged with preferred work tasks. Additionally, if the participant engaged in challenging behavior, these occurrences decreased during trials where a preferred work activity was chosen.

Although these results, as well as others (e.g., Lattimore, Parsons, & Reid, 2003; Parsons, Reid, & Green, 2001) provide examples of methods of assessing specific work tasks, one major limitation of this body of work is the focus on relatively short tasks, most of which contain a small number of set discrete skills (Ninci et al., 2017). In one exception, Hall, Morgan, and Salzberg (2014) used a video based

preference assessment and job matching application (O*NET) to determine combinations of preferred job tasks, and the level of skill the participant had in relation to those jobs. In comparison to previous investigations (e.g., Lattimore et al., 2003), the jobs selected for assessment were those that were more aligned with supported or inclusive employment (e.g., line cook in a restaurant), and participants already had complex behavioral repertoires (e.g., following complex directions involving multiple steps, planning). After job matching, work sites were developed, and then high-preference, high matched jobs were compared to low-preference, low match jobs. Across all participants high-preference, high-match jobs resulted in higher productivity and job satisfaction.

When assessing a student's preference for employment characteristics in a transition assessment, one viable method may be to analyze aspects of the work environment that may be highly correlated with preference. For example, assessing whether or not a learner remains in a specific setting for a prolonged period of time, or engages in sustained work behavior. Similarly, these same responses may be tested in differing work settings (e.g., sheltered workshop vs. support workplace). In line with previous work (e.g., Hall et al., 2014), increases in these related responses may be indicative of a more preferable work context.

Social and Leisure

Similar to assessments of preference in employment settings, many demonstrations of SPA methodology related to social or leisure stimuli involve identifying stimuli that may function as reinforcers for future use in intervention programming. For example, Neuremberger, Smith, Czapar, and Klatt (2012) assessed social interaction using a multiple-stimulus without replacement preference assessment (MSWO; DeLeon & Iwata, 1996) with three participants diagnosed with ASD. Preference hierarchies were compiled for all participants, and reinforcer assessments verified that highly preferred social stimuli functioned as reinforcers. These results as well as the results from additional studies demonstrate methods for assessing for preference to identify stimuli that may function as reinforcers, but assessing social and leisure preferences as part of a transition assessment may require more emphasis on preferences as they relate to social engagement instead (e.g., preference for friendships).

Social interaction impacts overall community experiences, and the degree to which people with ASD engage with others in their environments may vary widely (Calder et al. 2013). The variability preference for social interaction may require practitioners to consider ethical implications associated with intervention, and determine the best ways to objectively quantify preference for social interaction. Call, Shillingsburg, Bowen, Reavis, and Findley (2013)

demonstrated a method for assessing the functional properties of social interaction with six children diagnosed with ASD. A concurrent operants arrangement was used to determine if social interaction was preferred, non-preferred, or neutral. Results of this investigation were somewhat mixed with one participant demonstrating strong preference for social interaction, and the remaining five demonstrating responding that indicated social interaction was neutral.

In some respects these results may signal the need for further intervention to increase social interaction, but when transition planning they may further provide information on the level of social interaction an individual prefers. This information may further assist transition planning teams (of which people with ASD should be a part) in identifying experiences that may lead to more meaningful social outcomes. When considering the goals of transition assessment, intervention that is determined by teachers, parents, and support staff may not be what is preferred by the learner, and in some cases may not result in greater learner autonomy (Calder et al. 2013). Further, elevated reliance on the input of significant others without consultation with measures that are directly related to learner behavior may result in transition plans that are not tailored to individual needs (Carter et al., 2014).

In practice, assessing for preference in a social or leisure context may be similar to methods that are used to identify potential reinforcing consequences. Assessment may first begin with sampling of potential preferred social arrangements (e.g., group contexts), and then the provision of choice between two or more arrangements. Further assessment may occur by measuring salient responses that occur within these settings that could be correlated with a higher preference. For example, if a learner chooses to engage in group social outings, one meaningful measure of preference for the overall social arrangement and for the people in that arrangement may be the amount of time they spend engaged in activities under naturally occurring contingencies.

Living

In comparison to the social, leisure, and employment domains, it seems that the behavior analytic preference literature is not as well developed related to determining preference for living arrangements. Although the empirical base may be limited in demonstrations, the right to choose living arrangements including roommates (or lack thereof), and setting has been widely endorsed. The UN Convention on the Rights of Persons with Disabilities (United Nations, 2006) as well as the President's Committee for People with Intellectual Disabilities (, 1994) support this assertion as a basic right. Despite the lack of evidence within behavior analysis to support this assertion, related fields (e.g., educational policy) may provide some indication of avenues where objective behavior

analytic methodologies may be beneficial during transition planning.

A paucity of research exists that examines the relationship between choice of living arrangement and what can be loosely described as “quality of life” (Stancliffe et al., 2011). Typically, quality of life is a term that describes subjective measures of wellbeing, and is measured using a range of survey instruments (Felce & Perry, 1995). Previous work has demonstrated that choice in living arrangements may be highly correlated with greater reports of happiness, decreased loneliness, and a greater probability of enjoying the presence of support staff (Francis, Blue-Banning, & Turnbull, 2014; Stancliffe, Lakin, Taub, Chiri, & Byun, 2009).

Although the overall construct of quality of life as a whole is not greatly agreed upon or understood related to people with ASD, indices of happiness, one possible element of quality of life has been investigated in the behavior analytic literature (Dillon & Carr, 2007). Indices of happiness are measures of overt behavior that is individually related to what is commonly determined to be a happy emotion (Reid & Green, 2006). Parsons, Reid, Bentley, Inman, and Lattimore (2012) outlined a process for identifying indices of happiness and unhappiness for adults with ASD. This process involved identifying persons (at least 3) that worked with participants for an extended period of time, and then asking the relevant staff what behavioral topographies were associated with each emotion. Subsequent validation using a paired-stimulus preference assessment (Fisher et al., 1992) supported the accuracy of indices for all participants.

These results are meaningful for selecting living situations, as well as other aspects of the transition planning process in that they may be a viable way of determining preference for stimuli that may not be readily deliverable. For living situations in particular, it may be more effective to gauge happiness within the environment than to implement a more traditional SPA using representative means as the first assessment measure (e.g., icons, video). It should be noted that using indices of happiness in isolation does not allow for the determination of relative preference between or among living arrangements that is typically yielded using SPA methodologies (e.g., paired stimulus; Fisher et al., 1992), and to increase the validity of an overall assessment using such measures, an adapted validation phase may be necessary where relative preference is assessed (e.g., Parsons et al., 2012).

Preference for living arrangements may be the most difficult aspect of transition to assess because of the myriad of variables within independent, semi-independent, and supported living that may be more or less preferred. Additionally, many decisions made about the physical space a person lives in is dictated by their current skill level (Anderson, Shattuck, Cooper, Roux, & Wagner, 2014), and the occurrence of challenging behavior (Gerhardt & Lainer, 2011). Practitioners may be best served by applying a model similar to that

proposed by Hall et al. (2014), where preference and additional variables (e.g., adaptive behavior repertoire) are considered during transition planning. In doing this, a practitioner may assess indices of happiness in a specific living setting, and also determine the extent to which the learner may fully access that context.

Considerations for Practice

In traditional behavior analytic applications, SPAs are utilized to identify stimuli that may function as reinforcers. In a transition-planning context, the goal of a preference assessment may be required to shift from reinforcer identification to a method that allows people with ASD greater agency. Given this potential shift in priorities related to preference, a number of recommendations are warranted. First, when incorporated into transition planning, measures of preference are essential components to the success of learners with ASD, because of the close association between preference and quality of life (Stancliffe et al., 2011). Additionally, determining preference is one meaningful way of incorporating the input of people with ASD into transition plans, and into everyday activities within transition settings (Agran & Krupp, 2011).

The incorporation of preference or learner/client “voice” also corresponds with the behavior analysts ethical obligation to involve clients in intervention planning of behavior change procedures (Behavior Analyst Certification Board Ethics Code, 2014), as well as supporting the learner’s right to habilitation (Bannerman, Sheldon, Sherman, & Harchik, 1990). It should be noted that simply offering choices and taking preference into account is ineffective if learners are not explicitly taught that their choices are valuable and taken seriously by significant others (Agran, Storey, & Krupp, 2010). This would require staff to be responsive to behavior that indicates a decrease in preference (e.g., work productivity slowing), and then allow the person with ASD an opportunity to indicate a change in preference, along with an opportunity to act upon that preference change (i.e., switch tasks without penalty). Additionally, staff may benefit from continuing to analyze the rates of reinforcement that people with ASD encounter to determine if a change in preference is the result of an increase or decrease in available reinforcement (Mithaug & Hanawalt, 1978).

Second, the majority of SPA demonstrations focus on identifying reinforcers for skill acquisition programming (Ninci et al., 2017; Tullis et al., 2011). Practitioners are encouraged to select evidence-based practices, which may result in locating resources that describe only a limited demonstration of the utility of SPAs, and related assessment processes (e.g., Parsons et al., 2012). In practice, many preference methodologies may be amenable to settings that are not typically found in the current literature. For example, indices of happiness

(Lancioni, Singh, O’reilly, Oliva, & Basili, 2005) may be appropriate for use when determining preferred living arrangements, community experiences, or potential support staff. In an applied setting, practitioners can benefit from a stronger focus on the methodologies than on the assessment stimuli when determining if a specific method, or adaptation, is appropriate for a current environment.

Last, when considering adaptations to existing SPA methodologies, a number of factors that are included in the overall context may heavily influence SPA implementation. These may include the availability of staff, feasibility of stimulus delivery, and skill repertoire. Behavior analysts and the tactics derived from behavior analysis may play an integral role in the transition process for learners with ASD in a number of capacities (Wehman et al., 2014; Wehman et al., 2013). Although current transition practices may be somewhat difficult to navigate for practitioners (e.g., funding), the role that behavior analysts may take should not be overlooked. Procedures that are typically implemented in educational, clinic, and home settings using the principles of behavior analysis continue to remain relevant, but may require modification based on the context in which the behavior analyst participates.

Measures of preference, and opportunities to express those preferences (i.e., choice) are one central component to including people with ASD in the transition process (Agran & Krupp, 2011). For learners with ASD, expressing preferences may be difficult in a transition-planning context, and often expressing preference is limited to food choices or other easily delivered events (Agran et al., 2010). SPAs conducted with consideration for both the context and the skill level of the learner allows for a more meaningful, and accurate contribution to be made that is more in line with current transition planning practices (Hume, Boyd, Hamm, & Kucharczyk, 2014).

Compliance with Ethical Standards

Conflict of Interest The authors have no declared financial conflicts of interest.

Ethical Approval and Informed Consent Human participants were not included in this manuscript.

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