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Evaluation of the concurrent validity of a skills assessment for autism treatment



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ABSTRACT

Accurate assessment is a critical prerequisite to meaningful curriculum programming for skill acquisition with children with autism spectrum disorder. The purpose of this study was to determine the validity of an indirect skills assessment. Concurrent validity of the assessment was evaluated by contrasting parent responses to participants' abilities, as indicated by direct observation of those skills. The degree to which parent report and direct observation were in agreement was measured by Pearson correlation coefficient for each curriculum area. Results indicated moderate to very high levels of agreement between parent report and direct observation of the behaviors. Results are discussed in terms of implications for efficiency of assessment and treatment.

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The use of applied behavior analysis (ABA) for the treatment of autism spectrum disorder (ASD) has been well-documented as effective in the research literature (Matson & Smith, 2008). Several key variables to effective intervention programs have been identified, one of which includes pairing behavior analytic procedures with an individualized comprehensive curriculum tailored to the unique needs of each child (American Academy of Child and Adolescent Psychiatry, 1999; Hancock, Cautilli, Rosenwasser, & Clark, 2000; Lovaas, 2003). In order to develop curriculum programs for children with ASD that are specific to their individual needs, comprehensive assessment is required, and results of such assessment must guide curriculum design and selection of treatment targets (Love, Carr, Almason, & Petursdottir, 2009). Failing to conduct a comprehensive assessment may lead to deleterious effects, as discussed below.

Within the context of ASD treatment, the goal of conducting an assessment is to gain an accurate and thorough understanding of how a child functions across all relevant domains. This enables the clinician to determine which skills are deficit and address these accordingly. Assessment also helps the clinician to identify a child's strengths, which allows the clinician to build off of these skills (e.g., if the child is a good reader, textual prompts might be helpful for teaching other skills) and also avoid wasting valuable time teaching skills in areas where the child has no need for intervention.

When a comprehensive assessment is not conducted, clinicians are more likely to develop treatment programs for children using a "cookbook" approach, that is to say, teaching step-by-step from a curriculum, instead of based on

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the child's needs. This can lead to moving too far ahead with a skill by teaching beyond age-appropriateness and/or teaching skills that are too advanced for the child or even nonfunctional and irrelevant to his/her daily life (Gould, Dixon, Najdowski, Smith, & Tarbox, 2011). Absence of assessment can also lead to the development of a lopsided or unbalanced curriculum, wherein programs focus too heavily in one or two areas while ignoring other important areas (e.g., focusing solely on language and ignoring social, motor, and adaptive skills; Gould et al., 2011). Given the potential adverse side effects of poor assessment, the importance of proper assessment cannot be ignored. Ultimately, curriculum programming without guidance leads to wasting valuable teaching time and hindering the child's ability to reach his/her maximum potential.

Assessment can be performed using various methods including direct observation, indirect assessment (verbal report), or a combination of the two. From a behavior analytic perspective, direct observation is considered the gold standard (Cooper, Heron, & Heward, 2007); however, it not only requires trained observers but also must be implemented systematically across multiple observations for a duration of time that is sufficient to capture a valid sample of behavior (Sigafos, Schlosser, Green, O'Reilly, & Lancioni, 2008). Using solely direct observation to assess all areas of human functioning can be quite time-consuming and resource-intensive (Gould et al., 2011), especially for older children who require assessment of skills starting from early childhood to current chronological age. Further, in an effort to obtain reliable information, only a limited number of behaviors can be observed during any one observation (Matson, 2007). Given these requirements, the use of direct observation alone may be unrealistic in some cases and indirect assessments such as rating scales, checklists, and questionnaires may be a more practical option (Sigafos et al., 2008). Indirect assessment can be combined with direct observation when the rater is uncertain whether the child is able to exhibit the skill, thereby yielding a reasonable compromise between the ability to conduct a comprehensive assessment efficiently and doing so with the highest degree of accuracy possible (Gould et al., 2011).

There has been ample psychometric research demonstrating that indirect assessments can be valid methods to measure a number of domains such as adaptive skills (e.g., Vineland Adaptive Behavior Scales-Second Edition [VABS-II]; Sparrow, Cicchetti, & Balla, 2005) and behavior function (e.g., Questions About Behavioral Function [QABF]; Matson & Vollmer, 1995). However, there is little to no published research that has evaluated the validity of skills assessments for the treatment of ASD. Unfortunately, the most commonly used assessments for ABA treatment planning have not undergone even the most basic psychometric evaluations (Gould et al., 2011).

The purpose of the current study was to evaluate the validity of the Skills[®] Assessment. The Skills Assessment is part of a larger web-based system designed for the management of autism treatment, which includes a curriculum, an assessment linked directly to it, an indirect functional assessment for challenging behavior, a behavior intervention plan builder, as well as progress tracking capabilities for challenging behavior reduction and skill acquisition (<http://www.skillsforautism.com/>). The concurrent validity of the Skills Assessment was evaluated by comparing the results of parent report to data collected from direct observation of skills.

1. Method

1.1. Participants and setting

Participants were recruited from Southern and Central California and Central Arizona via email and postings in various social media outlets and community. Participation was limited to individuals with a current DSM-IV diagnosis of autism or a related developmental disorder. Additionally, participation was limited to individuals between the ages of three and ten years old at the onset of the study. A total of 42 participants were identified and included in the study. Of the participants selected, three were not included in final data analyses. Two of these participants were terminated due to substantial child noncompliance across three consecutive direct observation sessions; thus collected data were deemed inaccurate. The third participant withdrew due to scheduling conflicts.

For the remaining 39 participants, age in months ranged from 37 to 131 with a mean age of 81.23 months. Thirty-three of the 39 participants included in the study were male (male to female ratio was 5.5:1). Thirty-three children had a diagnosis of Autistic Disorder, 2 children were diagnosed with Asperger's Disorder, and 1 child with PDD-NOS according to DSM-IV diagnostic criteria verified through diagnostic reports by independent licensed professionals for each participant. The 3 remaining children were diagnosed with multiple other developmental disorders including cerebral palsy, developmental delay, speech/language delay, visual impairment, Developmental Language Disorder, Down's Syndrome, Hypotonia, and global delays.

Sessions for 27 participants were conducted in the home and sessions for the other 12 participants were conducted at a center specializing in early intensive behavioral intervention for children with ASD. Home-based sessions were scheduled at the family's convenience and occurred one to five times per week with no more than one session per day. Home-based sessions were between 30 and 60 min in duration. Center-based sessions were scheduled daily for shorter durations (15–45 min). The maximum total duration of direct observation sessions for any individual participant was 30 h and ranged from 6 to 30 h across participants, with a mean of 17.3 h. The study was conducted over a period of 13 months. Participation in the study ranged from 10 to 233 calendar days (including weekends). The number of days that any participant remained in the study was dependent on frequency and duration of sessions during each week.

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