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UNIVERSITY OF CALIFORNIA, SAN DIEGO

Community Practitioner Utilization of Evidence-based Practice for Assessment of Autism Spectrum Disorder

A dissertation submitted in partial satisfaction of the requirements for the degree

Doctor of Philosophy

in

Psychology

by

Sarah Anne Dufek

Committee in Charge:

Laura Schreibman, Chair
Natacha Akshoomoff
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Gail Heyman
James Kulik
Aubyn Stahmer

2013

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The Dissertation of Sarah Anne Dufek is approved, and it is acceptable in quality and form for publication on microfilm and electronically:

Chair

University of California, San Diego

2013

DEDICATION

For Bernard

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Many thanks to Natacha Akshoomoff and Christina Corsello who helped shape this project from the beginning and patiently answered every ADOS- and SCQ-related question I had (there were many!). I have greatly enjoyed my time with my fellow graduate students at the University of California, San Diego and I look forward to many more years of joyful collaboration. Over the years I have also had many wonderful energetic undergraduate research assistants and cannot imagine how anything would have been accomplished without them.

Finally, I wish to thank my friends and family for their love and support, it truly takes a village.

CURRICULUM VITAE

Education

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2006-2011 On-site ADOS trainer. Served as ADOS trainer for on-site graduate students and staff. Presented on-site workshops and conducted ongoing 1:1 ADOS training during various research projects.
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Schreibman, L., Stahmer, A. C., Cestone-Barlett, V., & Dufek, S. (2009). Brief report: Toward refinement of a predictive behavioral profile for treatment outcome in children with autism. *Research in Autism Spectrum Disorders,* 3, 163-172.

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Dufek, S. & Schreibman, L. (in press). Natural environment training. In P. Sturmey, J. Tarbox, D. R. Dixon, & J. L. Matson (Eds.), Handbook of Early Intervention for Autism Spectrum Disorders: Research, Practice, and Policy. New York, NY: Springer.

Schreibman, L., Dufek, S., & Cunningham, A. B. (2011). Identifying moderators of treatment outcome for children with autism. In J. L. Matson & P. Sturmey (Eds.), International Handbook of Autism and Pervasive Developmental Disorders. New York, NY: Springer.

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ABSTRACT OF THE DISSERTATION

Community Practitioner Utilization of Evidence-based Practice for Assessment of Autism Spectrum Disorder

by

Sarah Anne Dufek

Doctor of Philosophy in Psychology

University of California, San Diego, 2013

Professor Laura Schreibman, Chair

Although there are many similarities between individuals with autism spectrum disorder (ASD), the population is extremely heterogeneous. Each individual with ASD has a unique mix of behavioral, communicative, social and/or cognitive differences that require therapeutic intervention. This makes assessment of ASD difficult as practitioners must evaluate a wide range of behaviors across social contexts, to decide if an individual falls on the autism spectrum. The recent reported increase in ASD has created a growing demand for research examining how evidence-based practices

(EBPs) developed for children with ASD can be effectively disseminated into community programs.

Although consistency and reliability for ASD assessment practice has been established in the research community, it is unclear how ASD is being assessed in community settings such as schools. This study evaluated the benefits of school psychologist use of EBP for ASD evaluations. A multiple baseline design was conducted across six school psychologists who collectively assessed 77 children for ASD over the course of the study. After a baseline phase where usual care for assessment of children with ASD in the school setting was monitored, school psychologists were trained to utilize two standardized ASD assessments that are considered EBP for ASD evaluation in research settings: the Autism Diagnostic Observation Schedule (ADOS) and the Social Communication Questionnaire (SCQ).

The findings of this study add support for the value of school psychologist training in EBP for ASD evaluation. The school psychologists were easily able to adopt most of the EBP assessment techniques introduced to them over the course of the study with relatively little training. The EBP training they received changed their ASD evaluation process such that after training they were more likely to adhere to EBP guidelines for ASD evaluation. In turn, this adherence to EBP guidelines resulted in identification of more ASD-specific behaviors in the children they assessed. This study is the first of its kind to systematically examine school psychologist adoption of EBP for ASD evaluation, specifically the ADOS and SCQ, in the school setting.

INTRODUCTION

The recent reported increase in autism spectrum disorder (ASD; Centers for Disease Control and Prevention, 2012; Fombonne, 2003; Yeargin-Allsopp et al., 2003) has created a growing demand for research examining how evidence-based practices (EBPs) developed for children with ASD can be effectively disseminated into community programs (Centers for Disease Control and Prevention, 2012; National Research Council, 2001). However, very little research has been conducted specifically examining community practitioner utilization of EBP for *assessment* of ASD symptoms. Assessing children for ASD can be particularly complicated for a variety of reasons (Conti-Ramsden, Simkin, & Botting, 2006; McConachie, Le Couteur, & Honey, 2005; Szatmari, 1992; Szatmari, Archer, Fisma, Streiner, & Wilson, 1995). Accurate identification in the community has important implications for intervention and therefore should be carefully examined.

Autism Spectrum Disorder

The term ASD refers to a subgroup of Pervasive Developmental Disorders (PDDs). According to the current Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR, American Psychiatric Association, 2000), PDDs are a diverse group of disorders consisting of Autistic Disorder, Rett's Disorder, Childhood Disintegrative Disorder, Asperger's Disorder, and Pervasive Developmental Disorder-Not Otherwise Specified (PDD-NOS). PDDs typically manifest in the early years of life and are characterized by severe and pervasive impairment in three areas of development: reciprocal social interaction skills, communication skills, and the presence of stereotyped behavior, interests and activities (American Psychiatric Association, 2000). Although some consider ASD to be comprised of all the PDDs

(National Institute of Mental Health, 2011), typically most researchers and community practitioners consider ASD to be comprised of Autistic Disorder, Asperger's Disorder, and PDD-NOS (Centers for Disease Control and Prevention, 2012; Tanguay, Roberston, & Derrick, 1998).

Autistic Disorder (sometimes referred to as early infantile autism, childhood autism, or Kanner's autism) is the most severe of the ASDs and is characterized by global impairments in communication and social interaction, and the presence of stereotyped patterns of behavior, interests, and activities. In addition, delays or abnormal functioning must be present prior to 3 years of age (see Appendix A for Diagnostic Criteria for Autistic Disorder for a detailed description; American Psychiatric Association, 2000). Individuals with Asperger's Disorder also possess an impairment in social interaction and development of stereotyped patterns of behavior, interests, and activities seen in individuals with Autistic Disorder, however, individuals with Asperger's Disorder are not delayed in language acquisition or cognitive skills (see Appendix B for Diagnostic Criteria for Asperger's Disorder for a detailed description; American Psychiatric Association, 2000). Individuals with PDD-NOS present with impairment in social interaction and either impairment in communication skills *or* the presence of stereotyped behaviors, interests, and activities. The diagnostic classification of PDD-NOS also includes "atypical autism," meaning the individual does not meet full criteria for Autistic Disorder because of later age of onset, atypical symptomotology, subthreshold symtomotology, or all of these (see Table 1 for a Summary of ASD Types). Due to ongoing difficulties with diagnostic specificity, these separate diagnostic labels will be grouped into the

category of Autism Spectrum Disorder in the upcoming DSM-5 (ASD; Mandy, Skuse, & Charman 2012).

Although there are many similarities between individuals with ASD, the population is extremely heterogeneous. Each individual with ASD has a unique mix of behavioral, communicative, social and/or cognitive differences that require therapeutic intervention. This makes assessment of ASD difficult as practitioners must evaluate a wide range of behaviors across social contexts, to decide if an individual falls on the autism spectrum (Conti-Ramsden et al., 2005; McConachie et al., 2005; Szatmari, 1992; Szatmari et al., 1995). In addition, many individuals with Autistic Disorder and PDD-NOS have a comorbid diagnosis of intellectual disability (ID) ranging from mild to profound. The diagnostician must then evaluate social and behavioral characteristics within the context of an individual's developmental level to determine whether or not ASD is a concern.

The presence of "splinter skills" (American Psychiatric Association, 2000; National Institute of Mental Health, 2011) can complicate the diagnostic process further. Splinter skills refer to a phenomenon in which an individual exhibits an uneven cognitive profile, appearing capable in certain tasks but delayed in other seemingly developmentally equivalent tasks (e.g., a child who can complete math computations but cannot write his name) and can be present in individuals with ASD (Prior & Ozonoff, 2007). This may lead an inexperienced diagnostician to overlook cognitive deficits or to assume an individual's diagnosis is ASD because of the presence of splinter skills. Despite the complicated nature of evaluating individuals for

ASD, accurate ASD assessment is essential for appropriate intervention and service provision.

Importance of Accurate ASD Assessment

One factor that highlights the importance of accurate ASD assessment is the reported increase in ASD prevalence. According to recent estimates by the Centers for Disease Control and Prevention (CDC) ASD now affects approximately 1 in 88 children in the United States (Centers for Disease Control and Prevention, 2012), approximately a 78% increase since the 2000-2002 CDC surveillance findings of 1 in 150 children (Centers for Disease Control and Prevention, 2012; Charman, 2011; Fombonne, 2003; Yeargin-Allsopp et al., 2003). This reported increase in ASD has undergone scrutiny from experts questioning its validity. Many researchers have attempted to provide explanations such as toxic vaccines, increased autism awareness, and changes in ASD diagnostic criteria (Schreibman, 2005). Ultimately, data from various epidemiological studies suggest that while a true increase in ASD prevalence has most likely occurred, the increase in ASDs may indeed be partially attributed to changes made in diagnostic criteria that occurred in the early 1990s (Fombonne, 2003; Yeargin-Allsopp et al., 2003). At this time it is unknown how changes in diagnostic criteria have influenced estimates of ASD prevalence. In addition, because of increased awareness of the disorder and concern among parents, it is possible that inexperienced practitioners are diagnosing ASD in children who do not have the disorder. Understanding the accuracy of ASD diagnosis in the community could help researchers better understand the true prevalence of ASDs.

Accurate diagnostic classification is also essential for accessing appropriate early intervention both for children with ASD as well as those with other developmental disabilities. Experts agree that delivering intervention during early development is crucial for maximizing outcomes (National Research Council, 2001; Schreibman, 2005). The first requirement for a child to receive effective early intervention is for a child to be appropriately identified with an accurate developmental concern, including ASD. Linking children with the most effective intervention depends upon accurate understanding of their individual needs. That is, children with a hearing impairment or who have suffered a trauma and are misdiagnosed with ASD due to lack of response to sounds or behaving socially withdrawn will not receive appropriate interventions. Likewise, a child with ASD misdiagnosed as having attention or conduct problems will not obtain the specialized care required to effectively treat the disorder. In addition, there are some data to suggest ASD classification may be informative of long-term prognosis of children with developmental difficulties (Szatmari et al., 1995; Szatmari et al., 2000). Practitioners who improve their accuracy for ASD diagnosis may eventually be able to provide more information to parents about what to expect for their child in terms of long-term outcome (Mahoney et al., 1998).

Precise ASD diagnoses are important for intervention program funding as well. Intervention programs for children with ASD are costly. Highly structured interventions, often recommended for children diagnosed with ASD, cost approximately $40,000 per year with a range from $20,000 to $60,000 (Chasson, Harris, & Neely, 2007; Ganz, 2007). Intervention program funding is often granted (or

not granted) based on the diagnosis given (or not given) to a child by a community practitioner. If community practitioners are over-identifying ASD they may not only be providing inappropriate intervention to children without ASD, but also increasing the cost of serving these children. Missing an ASD diagnosis early in life can also be costly. Current estimates of the annual cost of caring for individuals with ASD is $3.2 million per capita (Wallace & Rogers, 2010). The savings achieved through early intervention is approximately $280,000 by age 22 (Ganz, 2007). Therefore, accurate early identification of ASD is essential both therapeutically and economically.

Determining a precise ASD diagnosis for an individual is critical but also very difficult (Conti-Ramsden et al., 2006; McConachie et al., 2005; Szatmari, 1992). However, when done properly using EBPs, ASD diagnosis has been shown to be relatively stable in research settings (Chawarska, Klin, Paul, & Volkmar & Lord, 2007; Lord et al., 2006; Turner, Stone, Pozdol, & Conrod, 2006).

Evidence-based Practice for ASD Assessment

Researchers have determined fairly well-established EBP guidelines for an accurate ASD diagnosis. These consist of three components 1) a behavioral observation of the individual, 2) a caregiver (typically a parent) interview to gather information about the individual's developmental history and current functioning, and 3) clinical judgment about diagnosis by a provider who has experience evaluating individuals with ASD. In addition, cognitive assessment is also recommended so that aberrant behaviors can be examined in a developmental context (California Department of Developmental Services, 2002; Klinger & Renner, 2000; Mazefsky & Oswald, 2006; Ozonoff, Goodlin-Jones, & Solomon, 2005; Tanguay, 2000).

Two standardized assessments, the Autism Diagnostic Observation Schedule (ADOS) and the Autism Diagnostic Interview-Revised (ADI-R), have been developed to assist researchers when gathering information related to ASD-specific behaviors. Use of the ADOS and ADI-R is considered "gold standard" EBP in research settings. Specifically, the ADOS is recommended for use as the behavioral observation component and the ADI-R is recommended for use as the parent interview component (Klein-Tasman, Risi, & Lord, 2007; Mazefsky & Oswald, 2006; Tanguay, 2000; Wilczynski et al., 2011).

Autism Diagnostic Observation Schedule

The ADOS is a standardized, semi-structured play-based assessment in which tasks are presented in a standardized manner to elicit and/or highlight the presence or absence specific behaviors relevant to making an ASD diagnosis. Five different 30-minute modules are used depending upon the age and expressive language abilities of the individual being assessed. Tasks are presented in a set of naturalistic, semi-structured interactions that provide opportunities for spontaneous social, communicative, and play behaviors. After all tasks are administered the examiner codes the test items based on behaviors observed during the assessment such as the frequency of vocalizations directed towards others or whether or not the individual responded to a joint attention initiation performed by the examiner (see Tables 2-4 for Tasks Administered and Items Coded During Modules 1-3 of the ADOS; the Toddler Module and Module 4 were excluded from this study as these Modules are not appropriate for school-age children). Certain test items are then included in a diagnostic algorithm, which provides a classification of diagnosis according to the

ADOS. Lord and colleagues (2000) found the ADOS to have excellent interrater and test-retest reliability for individual items, interrater reliability within domains, and internal consistency. The ADOS shows consistent differentiation between Autistic Disorder and PDD-NOS from nonspectrum individuals, but less accuracy with differentiation between Autistic Disorder and PDD-NOS. Despite this limitation, the ADOS is the best standardized diagnostic observational assessment of ASD-specific behavior available (De Bildt et al., 2004; Filipek et al., 1999; Ozonoff et al., 2005; Ventola et al., 2006).

Autism Diagnostic Interview- Revised

The ADI-R is a reliable and valid standardized diagnostic interview developed to aid practitioners in gathering a complete developmental history and current functioning level for an individual being evaluated for ASD (Cicchetti, Lord, Koenig, Klin, & Volmar, 2008; Hill, Bolte, Beltcheva, Tacheva, & Poustka, 2001; Lord, Rutter, & Le Couteur, 1994). It is a semi-structured caregiver interview consisting of 93 items addressing general information about family history, intervention history, previous diagnoses, communication ability, social development and play, repetitive and restricted behaviors, and general behavior problems. The interviewer gathers information about current behavior as well as past behavior, specifically focusing on the period between 4-5 years of age, when behaviors are expected to be the most evident for individuals over 5 years of age. The examiner may ask follow-up questions to help clarify responses for accurate coded. After administration, the trained practitioner codes all items based on the caregiver's answers and then inserts a subset

of those items into a diagnostic algorithm to determine classification of diagnosis according to the ADI-R.

ADI-R classification of ASD at a pre-school age remains fairly stable throughout the elementary school years (Moss, Magiati, Charman, & Howlin, 2008). The revised version of the ADI-R was reorganized, shortened, and modified from the original version with the hope that it would be more easily utilized in applied settings by community practitioners (Lord et al., 1994). Despite these modifications, the ADI-R can take up to 3 hours to administer by a trained practitioner. Given the time constraints of ASD evaluations in applied settings, community practitioners generally cannot make use of the ADI-R (Charman & Baird, 2002; Filipek et al., 1999; Ozonoff et al., 2005). In order to address this limitation, researchers have created the Social Communication Questionnaire (SCQ; Berument, Rutter, Lord, Pickles, & Bailey, 1999).

Social Communication Questionnaire

The SCQ is typically completed as a questionnaire by an individual's primary caregiver and has been shown to have good discriminative ability for presence of ASD in individuals of all IQ levels. It is based on items from the ADI-R and consists of 40 questions answered in a yes/no format that assess three areas of functioning: social interaction, language and communication, and repetitive and stereotyped patterns of behavior (see Table 5 for a Sample List of SCQ Items; Berument et al., 1999). Chandler and colleagues (2007) found the SCQ was effective at discriminating between ASD and nonspectrum children aged 9-10 years. The SCQ has also been shown to be sensitive to ASD in children aged 2-6 years suggesting use of the SCQ

may be beneficial with even young children (Allen, Silove, Williams, & Hutchins, 2007). Not surprisingly, as it was developed from the ADI-R, the SCQ shows good agreement with the ADI-R (Bishop & Norbury, 2002; Howlin & Karpf, 2004). Given that the SCQ requires a shorter administration time than the ADI-R (3 hours vs. 30 minutes) and the questionnaire can be completed before the ASD evaluation appointment, the SCQ may be a better option for use by community practitioners in applied settings.

The aforementioned assessments were developed to provide researchers with standardized methods to obtain information relevant to ASD diagnosis and operationalize DSM-IV-TR criteria in order to improve the ASD evaluation process. In fact, Kim and Lord (2012) found that the ADOS and ADI-R contribute to more accurate ASD evaluations in research settings for children under 4 years. Risi and colleagues (2006) also found that utilization of the ADOS and ADI-R aids experienced clinicians in determining more accurate ASD diagnoses in individuals from toddler-age to adolescence in a research setting. In a study of the ADOS, ADI-R, and SCQ, Corsello and colleagues (2007) found improved diagnostic validity when experienced clinicians used those measures when evaluating children and adolescents between 2 and 16 years of age in a clinic specializing in the assessment of ASD. Overall, these studies suggest that the ADOS, ADI-R, and SCQ make independent, additive contributions to the ASD diagnostic evaluation process as implemented by expert practitioners, contributing to the best ASD evaluation possible in research settings (De Bildt et al., 2004; Kim & Lord, 2012).

The final, and perhaps most important factor in obtaining an accurate ASD diagnosis is interpretation of test results by a specially trained and experienced practitioner. Blindly accepting the outcomes of standardized assessments without interpretation is not advisable as all measures often have sensitivity and specificity issues (Filipek et al., 1999). Even the most robust standardized assessments developed for ASD evaluation such as the ADOS, ADI-R, and SCQ are not immune to sensitivity and specificity difficulties. The ADOS, ADI-R, and SCQ often show good sensitivity when identifying presence of an ASD in an individual (Autism or PDD-NOS vs. Nonspectrum). However, the specificity (type of ASD) of these measures is often more of a challenge (Corsello et al., 2007; Kim & Lord, 2012; Risi et al., 2006).

Sensitivity or specificity errors inherent in standardized ASD measures highlight the importance of clinical judgment in the ASD evaluation process. Clinical judgment is a critical component of any diagnostic evaluation and is especially important when classifying an individual with an ASD because of the complicated nature of the presentation of the disorder, the influence of social context on ASD-specific behavior, and other factors such as possible intellectual disability or splinter skills (Akshoomoff, Corsello, & Schmidt, 2006; Charman & Baird, 2002; Ozonoff et al., 2005). In addition to knowledgeable interpretation of standardized ASD assessment results, just the act of implementing the standardized tools discussed above requires some specialized training and expertise in ASD according to the developers. There are very limited data available about how clinical judgment and practitioner training affect diagnostic accuracy or use of the standardized tools developed for ASD evaluation (Lord & Jones, 2012). However, practitioners with different levels of

expertise and varying disciplinary training perform ASD evaluations in community settings and utilize a variety of ASD assessment techniques that may or may not be EBP for assessment of ASD (Wiggins, Baio, & Rice, 2006).

Community Practice for ASD Assessment

Given the performance of the ADOS, ADI-R, and SCQ in research settings, ideally community practitioners would utilize this level of assessment during an ASD evaluation in applied settings in combination with clinical judgment by an experienced clinician (Filipek et al., 1999; Ozonoff et al., 2005). Studies examining the diagnostic validity of these measures when used in applied settings have yielded mixed results.

ADOS use by community practitioners in a study by Mazefsky & Oswald (2006) yielded 77% agreement between ADOS classification and overall team diagnosis in their sample. The community practitioners in their study also utilized a modified version of the ADI-R (56 items), which demonstrated 73% sensitivity when discriminating ASD from Nonspectrum cases. The majority of the diagnostic discrimination errors for both the ADOS and ADI-R in their study were false positives, in that the measures indicated a diagnosis of ASD but the team did not agree. No information was provided about sensitivity of the measures when the ADOS and ADI-R were combined for diagnosis determination in their sample. While promising, the above diagnostic discrimination results are somewhat less accurate than those found by the instrument developers in a research setting. Typically, a sensitivity level above 80% is preferable (Lord et al., 2000). While the diagnostic discrimination ability of the ADOS and ADI-R in the Mazefsky and Oswald (2006) study is encouraging, a major limitation of their study is many of the community practitioners

had knowledge of the results of the standardized ASD assessments for the child participants when determining overall team diagnosis, which may have artificially increased sensitivity of the measures.

In a study of community practitioner use of EBP for ASD evaluation with 2-year-olds, the ADOS demonstrated good sensitivity and specificity (above 80%) when compared with expert case review diagnosis utilizing ASD surveillance coding techniques developed by the CDC (Corsello, Akshoomoff, & Stahmer, 2012). Researchers also examined the utility of the SCQ in their sample, with the SCQ demonstrating mixed sensitivity (82% when discriminating Autism from Nonspectrum and 69% when discriminating ASD from Nonspectrum) and inadequate specificity (as low as 56%). In addition, use of the SCQ had no additive effect with the results of the ADOS in this sample suggesting the ADOS was sufficient when combined with clinical judgment (Corsello, Akshoomoff, & Stahmer, 2012). This study did not provide information regarding the fidelity of implementation of the administration of the ADOS by community providers.

Molloy, Murray, Akers, Mitchell, and Manning-Courtney (2011) found the ADOS had inconsistent sensitivity (sometimes as low as 67%) and specificity (sometimes as low as 55%) for their community sample. The authors suggest the reduced diagnostic discrimination in this sample may be attributed to community practitioner misuse of the measure and/or the complex behavior profiles typically seen in a community sample such as theirs, which can make diagnostic determinations difficult. This diversity in community samples is often a concern raised by community

providers when moving EBP to new settings, as research samples often exclude children with co-morbid disorders.

These studies combined suggest that while the ADOS and SCQ may be useful in community settings, there may be variables present that may reduce their robustness in those environments. These variables need to be examined in order to ensure what role, if any, standardized assessments developed for ASD evaluation in research settings should have in applied settings.

One challenge to our understanding of community practice for ASD assessment is that outside of the few studies discussed above, the techniques typically used by community practitioners during ASD evaluations are largely unknown. Community practitioner self-report data suggest that use of standardized assessments for diagnosis of ASD by community practitioners may be limited. For example, Wiggins and colleagues (2006) found 70% of practitioners did not use standardized diagnostic assessments when assigning the first diagnosis to children with ASD. Most practitioners relied on clinical judgment alone, and when they did use ASD-specific assessments, the assessments used were varied [e.g., ASD-specific behavior rating scales such as the Childhood Autism Rating Scale (CARS; Schopler, Reichler, DeVellis, & Daly, 1980) and the Gilliam Autism Rating Scale (GARS; Gilliam, 1995; Montgomery, Newton, & Smith, 2008)]. These findings are problematic as these measures tend to have low diagnostic discrimination (Mayes et al., 2009; Rellini, Tortolani, Trillo, Carbone, & Montecchi, 2004; South et al., 2002) and sometimes even consistently miss cases of ASD (Mazefsky & Oswald, 2006; South et al., 2002).

Not only are the ASD evaluation techniques used by practitioners likely to be highly variable, the practitioners themselves often possess widely varying levels of knowledge about and skill assessing for ASD. Wiggins and colleagues (2006) found the children with ASD in their study received their diagnoses from: psychologists with a doctor of philosophy or psychology degree, neurologists, developmental pediatricians, psychiatrists, psychologists with educational specialties, etc.

Recently, a growing number of school psychologists have been asked to identify ASD in their students. Although the role of the school psychologist is not to diagnose mental health disorders (Schwarz, 2012), this group of practitioners is often required to identify children with ASD in school settings to help these children access appropriate educational services under the autism categorization. Several studies examining community practitioner utilization of EBP during ASD evaluations have focused on school psychologists specifically (Mandlawitz, 2002; Reilly, Campbell, & Keran, 2009; Safran, 2008; Volker & Lopata, 2008).

ASD Assessment in the School Setting

Prevalence rates of children with ASD served by special education programs in the United States has increased steadily over time since the early 1990s when the Department of Education began tracking ASD in schools (United States Department of Education, 2010; Volker & Lopata, 2008). Determining a traditional DSM-IV-TR "diagnosis" of ASD is considered beyond the scope of school psychologist practice (Fogt, Miller, & Zirkel, 2003; Noland & Gabriels, 2004). Instead, school psychologists are required to evaluate whether or not children are eligible for special education services under "autism" eligibility criteria set by federal and state law.

Under federal legislation, defined by the Individuals with Disabilities Education Act (IDEA), children and youth identified with disabilities such as ASD in schools are entitled to Free and Appropriate Public Education (FAPE). The IDEA defines "autism" as:

> …a developmental disability significantly affecting verbal and nonverbal communication and social interaction, generally evident before age three, that adversely affects a child's educational performance. Other characteristics often associated with autism are engagement in repetitive activities and stereotyped movements, resistance to environmental change or change in daily routines, and unusual responses to sensory experiences (United States Department of Education, 1990, Sec. 300.8).

Children with ASD in school settings are only eligible for autism-specific FAPE if they are identified with the above autism classification. Although the increase in ASD prevalence in schools is analogous to prevalence increases in the general population, research has shown that school rates of autism eligibility have not kept up with general population ASD prevalence rate increases (Pinborough-Zimmerman et al., 2012; Stahmer & Mandell, 2007). Researchers have suggested that this finding indicates that many children with ASD are not identified with, or perhaps are not qualifying for, the "autism" eligibility classification (Safran, 2008; Yeargin-Allsop et al., 2003).

Reduced ASD prevalence rates in schools may be influenced by a number of factors such as individual child factors. Mandy and colleagues (2012) suggest that girls are less likely to be identified with ASD in schools than boys as girls tend to possess fewer severe behavior difficulties in the classroom. In addition, although the

IDEA autism definition was intentionally written as broad eligibility criteria meant to capture all children with ASD who need special education services (Shriver, Allen, & Mathews, 1999; Wilkinson 2009, 2010), the IDEA guidelines may be excluding many children who are in need. Researchers comparing the IDEA guidelines and the DSM-IV-TR criteria for ASD have suggested that children who are identified with autistic disorder by the DSM-IV-TR criteria will most likely qualify for service under the IDEA, whereas it is unclear whether children with Apserger's Disorder and PDD-NOS would qualify as these children typically have a less severe behavior profile which may make them less likely to meet educational eligibility criteria. In addition, these experts suggest that for children with Asperger's Disorder and PDD-NOS it may be less clear how their types of ASD adversely affect their educational performance (Fogt et al., 2003; Reilly et al., 2009; Safran, 2008; Volker & Lopata, 2008).

The discrepancy in ASD prevalence between children in the general population and children in school settings is also likely to be driven by individual differences in identification practices across school districts (Maenner & Durkin, 2010; Palmer, Walker, Mandell, Bayles, & Miller, 2010). Some school districts seem to be faring better than others when identifying children with ASD in classrooms. Schools with more realistic prevalence rates of ASD are more likely to have higher district revenue, higher per-student spending, and students from families with higher SES (Mandell & Palmer, 2005; Palmer, Blanchard, Jean, & Mandell, 2005). In contrast, districts with fewer financial resources and increased numbers of students from traditionally underrepresented ethnic groups are less likely to have ASD prevalence rates similar to the general population (Palmer et al., 2010). The variables moderating the discrepancy

of ASD prevalence between school districts is unknown. However, some reasons suggested in the literature for increased ASD identification in particular school districts are greater parent advocacy and more resources for practitioner access to time and training for better assessment of ASD (Mandell & Palmer, 2005; Palmer et al., 2005; Palmer et al., 2010).

Wilkinson (2009, 2010) suggests another factor, eligibility substitution, may be affecting ASD prevalence rates in schools as some children with ASD may be assigned IDEA eligibility criteria other than autism such as "significant developmental delay," "intellectual disability," or "speech and language impairment." Eligibility substitution may be an indication of a more complicated clinical population in schools or school psychologists may be only highlighting symptoms they perceive as the children's most obvious sources of need (Brock, 2006; Montes & Halterman, 2006). However, it is unknown whether eligibility substitution is a factor affecting ASD prevalence in schools as there is no systematic research examining possible eligibility substitution for ASD in the school setting. Either way, identifying a child with ASD as possessing only intellectual disability or a speech and language impairment may keep the child from receiving necessary educational services from the school and can be confusing for the children's parents, the children themselves, and other practitioners (Harris & Glasberg, 1996; Rosenberg, Daniels, Law, & Kaufman, 2009).

Another factor that may affect ASD identification in schools are the ASD assessment practices utilized by school psychologists (Bitsika, 2008; Mandlawitz, 2002; Schwartz & Davis, 2008; Williams, Atkins, & Soles, 2009). Few studies have examined school psychologist ASD assessment practices and most of the available

data are self-report survey data (Akshoomoff et al., 2006; Allen, Robins, & Decker, 2008; Waite & Woods, 1999; Williams et al., 2009). Data from these studies indicate the assessment practices used by school psychologists to identify children with ASD are highly variable. School psychologists report using cognitive assessments, academic achievement exams, developmental questionnaires, and/or adaptive behavior measures during ASD evaluations (Akshoomoff et al., 2006; Allen et al., 2008; Waite & Woods, 1999). They may gather information from multiple sources such as parent interviews, teacher interviews, student interviews, school observations, and/or home observations (Bitsika, 2008; Shriver et al., 1999; Williams et al., 2009).

If school psychologists utilize an ASD-specific standardized assessment, they report using ASD-specific behavior rating scales such as the CARS, GARS, and the Asperger Syndrome Diagnostic Scale (ASDS; Myles, Jones-Bock, & Simpson, 2000) most often during their ASD evaluations (Allen et al., 2008; Wiggins et al., 2006; Wilkinson, 2009, 2010). These measures may be very useful for gathering information about ASD-specific behavior, but they also have documented sensitivity and specificity concerns (Mayes et al., 2009; South et al., 2002; Montgomery et al., 2008; Williams et al., 2009). Although standardized ASD diagnostic assessments such as the ADOS, ADI-R, and SCQ are considered EBP for evaluation of ASD in research settings, these assessments are not regularly used in schools (Allen et al., 2008; Wiggins et al., 2006; Wilczynski et al., 2011).

School psychologist use of EBP for ASD assessment may be especially important because as many as 40% of children with ASD are *only* identified in school settings (Centers for Disease Control and Prevention, 2012; Palmer et al., 2005;

Yeargin-Allsop et al., 2003). School source identification is especially significant for African American children, children of younger mothers, and children of mothers who have fewer than 12 years of education as these children are less likely to be identified with ASD outside of a school setting (Yeargin-Allsopp et al., 2003). One recent study found an unusually high rate of unidentified ASD in South Korean schools after researchers utilizing EBP standardized assessments found that many children with ASD were likely to remain undetected (Kim et al., 2011; Lord, 2011).

In order to address many of the above factors related to under-identification of ASD in schools, researchers have suggested standardizing school psychologist-implemented ASD evaluations (Schwartz & Davis, 2008; Shriver et al., 1999; Stahmer & Mandell, 2007). In fact, many experts recommend school psychologist use of the ADOS specifically in order to ensure they are following EBP for identification of ASD in their students. However researchers emphasize that the measure requires time, training, and resources that may not be feasible in the school setting (Ikeda, 2002; Noland & Gabriels, 2004; Volker & Lopata, 2008; Wilkinson, 2010; Williams et al., 2009).

Barriers to Practitioner Use of Evidence-based Practice

Given that school psychologists are assessing more children for ASD in schools, and standardized ASD assessments provide added value to comprehensive ASD evaluations, dissemination of EBP for ASD evaluation into school settings is likely to be important. However, just disseminating best practice guidelines alone is not enough (Ager & O'May, 2001; Azocar, Cuffel, Goldman, & McCarter, 2003; Barlow, 1996; Barlow, Levitt, & Bufka, 1999; Chambless & Ollendick, 2001; Davis

& Taylor-Vaisey, 1997); often there are other factors that influence the adoption of best practice guidelines by practitioners. Practitioners will often disregard research findings when choosing a practice to use with their clients (Ager & O'May, 2001; Antony, 2005; Malouf & Schiller, 1995). This finding is troubling because the ASD community, more than any other child mental health area, has struggled through controversy relating to which practices should be used with these children (Schreibman, 2005). Very little research has been conducted to determine the factors that influence school psychologist use of EBP for ASD evaluation. Examining current literature from other fields (i.e., medicine, education, substance abuse, general child and adult mental health) regarding barriers to EBP dissemination may shed light on the most likely barriers to school psychologist use of EBP for ASD evaluation specifically.

One barrier that has the most widely underestimated influence on the adoption of best practice guidelines is negative practitioner attitudes toward those guidelines (Azocar et al., 2003; Barwick et al., 2005; Stahmer & Aarons, 2009). Negative practitioner attitudes are often created by practitioners' perception that adoption of EBP is a possible threat to their "clinical judgment" (Aarons, 2004; Addis, 2002; Barlow et al., 1999; Herbert, 2003; Levant, 2004; Schmidt & Taylor, 2002). Many practitioners feel researchers are too far removed from the daily reality of clinical practice and have unrealistic expectations about the needs of clients. Despite the importance placed on clinical judgment by researchers when developing EBP guidelines for ASD evaluation, the heavy emphasis placed on standardized ASD assessments for accurate ASD diagnosis may have influenced practitioner attitudes

toward adoption of EBP for assessment of ASD. Examining practitioner attitudes is the first step in determining if negative practitioner attitudes may be a barrier to adoption of EBP for ASD evaluation (Aarons, 2004, 2006; Aarons & Sawitzky, 2006; Antony, 2005; Barwick et al. 2005). Further research is needed to examine how the unique experience of community practitioners who specialize in ASD evaluation contributes to attitudes about EBP.

One technique researchers can use to reduce negative practitioner attitudes is to solicit practitioners' opinions about specific practices and utilize those opinions to modify EBPs to be more "practitioner-friendly" (Carnine, 1997). In doing so, practitioners may feel a sense of ownership and will be empowered to contribute to new practices that will encourage them to implement those practices (Barwick et al., 2005; Nutting et al., 2007; Ruef, Turnbull, Turnbull, & Poston, 1999). Obtaining practitioner opinions can be done through methods such as surveys, focus groups, and structured interviews (Miller & Crabtree, 1992). Increasing practitioner input about EBP increases practitioners' faith in those practices (Carnine, 1997). In addition, researchers benefit from practitioner opinions as well. Practitioner contributions contribute to a richer understanding of how EBP works in the real world, which helps ensure that research-developed practices may be more acceptable to the practitioners who will ultimately use them. To date, there are very limited data available about school psychologist opinions regarding EBP for ASD evaluation. The school psychologists in the survey study implemented by Akshoomoff, Corsello, and Schmidt (2006), tended to endorse EBP for ASD evaluation such as standardized ASD assessments quite often. However, more research is needed to directly assess the

attitudes of school psychologists toward EBP and to evaluate the influence of those attitudes toward adoption of EBP for ASD evaluation.

In addition to the barrier created by practitioner attitudes toward EBP, practitioners may not be able to utilize standardized ASD assessments because of implementation barriers created by the system in which they operate or by the EBP itself (Walrath, Sheehan, Holden, Hernandez, & Blau, 2006; Weisz, Weiss, & Donenberg, 1992; Weisz, Donenberg, Han, & Weiss, 1995). Two common themes in the literature relating to implementation of EBP are *usability* of the practice and *limited practitioner resources*. Southam-Gerow (2004) addresses the issue of EBP usability when urging researchers to reconsider the significance of external variables that influence usability of EBP in applied settings. They remind researchers that practices developed in a laboratory are usually developed to assess client *symptom* patterns. However, in applied settings, often *non-symptom* client variables and/or provider and agency variables are the most responsible for failure of an EBP (e.g., health insurance only pays for half the time needed for an EBP, training in an EBP is not available to community practitioners). Researchers need to spend more time examining the clinical environment to determine what EBPs are necessary, feasible, or even desired. It is no longer sufficient for researchers to simply determine that a practice is effective in a research setting.

Once clinically relevant research questions are hypothesized, tested, and answered in the laboratory, the experiments should then be conducted in community settings to demonstrate that the findings generalize to the real world (Bauman, Stein, & Ireys, 1991; Weisz & Jensen, 2001). Standardized ASD assessments such as the

ADOS, ADI-R, and SCQ that are appropriate for use in research settings may not be feasible in applied settings such as schools. For example, the ADI-R takes approximately 3 hours to administer and most community providers are often allotted only approximately 2-3 hours to complete an entire ASD assessment. To date, there is very limited research about how standardized ASD assessments actually perform in the school setting.

Practitioners frequently cite limited resources, more specifically lack of time and training, as the most difficult barrier to overcome for successful implementation of EBP (Abbott, Walton, Tapia, & Greenwood, 1999; Barlow et al., 1999; Barwick et al., 2005; Sheldon & Chilvers, 2002). Resource limits may be a difficult barrier for school psychologists to overcome in order to use EBP for ASD evaluation. For example, adopting the ADOS can be expensive for a school district, as the cost of the 2-day ADOS Clinical Training Workshop is at minimum $475 per person and materials such as the ADOS kit and ADOS protocols are approximately $2,200. In addition, ongoing training is often recommended (although not required in applied settings) by the developers of the ADOS in order to ensure good fidelity of implementation and accurate coding reliability of the measure as seen in research settings. This ongoing training is expensive (at minimum $2,750 per person for an advanced research training) and time consuming (2.5 day course with ongoing coding reliability requirements) for a community practitioner. Akshoomoff, Corsello, and Schmidt (2006) did find that the school psychologists in their study were concerned about the resource burden of adopting the ADOS for ASD evaluation in schools. The school

psychologists in their study reported that one disadvantage of the ADOS is expense of materials and time required for administration.

In order to address the administration time barrier, school psychologists may replace other assessments they are already using during their ASD evaluations with the ADOS in order to maximize the information they gather during those evaluations. In fact, the ADOS-using school psychologists in the Akshoomoff et al. (2006) study reported they felt the ADOS helped them capture and elicit more ASD-specific behaviors that might not otherwise be observed. They were also more likely to consider themselves "autism experts." It is likely that most school psychologists will only replace techniques they are already using during ASD evaluations with the ADOS if they are true believers that implementation of the ADOS is feasible and use of the ADOS will improve their ability to evaluate for ASD.

More research on the feasibility of ASD standardized assessments such as the ADOS and SCQ in school settings can help address the time and training barrier to dissemination of EBP for ASD evaluations. Better dissemination of EBP for ASD evaluations will require an increased collaborative effort by ASD researchers and community practitioners such as school psychologists. Although successful dissemination of EBP is a difficult task, it is an important undertaking because it will yield many benefits to the ASD research and practice community. Improved dissemination of EBP may help school psychologists to implement better ASD evaluations that in turn may enhance educational outcomes for students with ASD. For example, if researchers can show school psychologists can implement the ADOS and SCQ in schools *and* use of these measures improves school psychologist ASD

identification accuracy, there may be more funding available from school districts to provide time and training in EBP for ASD evaluation for school psychologists.

Current Investigation

Given the limited research available examining school psychologist practice during ASD evaluations, the present investigation sought to first characterize current usual care for assessment of children with ASD in the school setting and then examined how introduction of EBP for ASD assessment, specifically the ADOS and SCQ, influenced school psychologists' ASD evaluation process. School psychologist attitudes toward and the implementation feasibility of the ADOS and SCQ in the school setting was also assessed.

The ADOS is an excellent candidate for bridging the gap between EBP for ASD evaluation and usual care ASD assessment practice in schools mainly because 1) ADOS administration and coding is fairly practitioner-friendly and 2) in research settings the ADOS has good sensitivity to and specificity for ASD (Akshoomoff et al., 2006). The Social Communication Questionnaire (SCQ) was chosen as a good alternative to the ADI-R given the good level of agreement between the two measures (Bishop & Norbury, 2002; Howlin & Karpf, 2004) and because the ADI-R is not a good candidate for translation because of the amount of time it takes to administer (De Bildt et al., 2004). In addition, there is some evidence to suggest that the SCQ plus the ADOS specificity may be comparable to the ADOS plus the ADI-R specificity (Bishop & Norbury, 2002; Corsello, Lord, Hus, & Qui, 2005).

The specific aims are of this study are to:

1. Characterize current usual care for school psychologist evaluation of children with ASD in the school setting.
2. Assess school psychologist attitudes toward EBP for ASD evaluation and determine the feasibility of school psychologist use of the ADOS and SCQ in the school setting.
3. Determine if school psychologist utilization of the ADOS and SCQ influences the school psychologists' ASD evaluation processes.

METHODS

In order to address study aims, local school psychologists were recruited for participation. These school psychologists allowed evaluation of their ASD assessment practices in a variety of ways and participated in evidence-based practice (EBP) training. To address Aim 1, the school psychologists completed questionnaires regarding their current ASD assessment practices and experience, allowed video recording of their ASD evaluations, and provided copies of the written ASD evaluation reports for video recorded assessments. To address Aim 2, the school psychologists were trained to conduct the ADOS, were provided with the SCQ, and completed a survey regarding their attitudes towards EBPs and satisfaction with the use of the tools. To address Aim 3, video recorded ASD evaluations conducted after ADOS training and written ASD evaluation reports were examined in order to evaluate changes in school psychologist ASD assessment practices after training in EBP. Changes in the school psychologists' ASD assessment practice over time were examined using a multiple baseline across participants design.

Participants

School Psychologist Participants

Six school psychologists from San Diego County participated in this investigation. School psychologists met the following inclusion criteria: (a) a primary job description requiring the school psychologist to assess at least five children for ASD in the year prior to this investigation, (b) anticipation of assessing at least five children for ASD over the next year, (c) no prior ADOS, ADI-R, or SCQ training, and (d) at least 2 years of experience assessing children for ASD.

All participating school psychologists were female and will be referred to as Sally, Laura, Wendy, Connie, Cathy, and Amy. Sally, Laura, Connie, and Cathy identified as Caucasian, Amy identified as Asian, and Wendy identified as Hispanic/Latino. Amy had a Doctor of Education degree, Sally and Wendy had Education Specialist degrees, and Laura, Connie, and Cathy had Master's degrees. All identified themselves as school psychologists and had completed 3- or 4- year graduate programs. All reported receiving special training on the assessment and diagnosis of ASD through their graduate coursework in the form of seminars, practicum, fieldwork, and coursework. They also reported they had subsequently participated in ASD-related trainings through their school district and at conferences.

Participants had an average of 4 years (range: 2-6 years) of experience assessing children with ASD. They reported assessing an average of 25 children (range: 10-50) for ASD in their career thus far. They also reported assessing an average of 8 children (range: 3-20) per year for an initial ASD evaluation and an average of 9 children (range: 2-15) per year for a recurring ASD evaluation, totaling approximately 17 children (range: 5-35) assessed for ASD per year on average by each school psychologist (see Table 6 for School Psychologist Demographics). None of the school psychologists identified themselves as an "autism specialist" and only half reported they had access to an "autism specialist" in their district.

Child Participants

Seventy-seven child participants from San Diego County were included in this investigation. Child participants met the following inclusion criteria, they must have: (a) been assessed for ASD by a participating school psychologist (a resultant ASD

diagnosis was not required), (b) a chronological age between three and twelve years, and (c) parental consent for participation. Child participants were an average of eight years old (Range: 3-13 years). 56% of the children's primary language was English, 18% of the children's primary language was Spanish, and 26% of the children were considered bilingual with a wide variety of language combinations represented, although English/Spanish was the most common combination (70% of bilingual children).

Design

A single-subject, multiple-baseline design across participants was implemented. Each school psychologist participated in a baseline condition for 4-8 ASD evaluations, according to the multiple baseline design. Baseline durations were 4, 6, and 8 ASD evaluations (2 school psychologists per baseline length). For each school psychologist, data were obtained during baseline, post-ADOS Clinical Training, and at a three-month follow-up visit (see Figure 1 for a Project Timeline). All school psychologists' ASD evaluations were video recorded and all resulting ASD evaluation reports were collected throughout the study.

Settings and Materials

UCSD Autism Intervention Research Program Laboratory

All ADOS Clinical Training was conducted at the UCSD Autism Intervention Research Program laboratory. A large living room style room was used for didactic instruction and question and answer sessions during the ADOS Clinical Training. A 6 x 8-ft. carpeted room furnished with a small table, two small chairs, various

assessment materials, and a one-way mirror for observation was used for in-vivo modeling during the training sessions.

School Settings

School psychologist ASD evaluations were conducted in participating school psychologists' school settings in San Diego County, California. The school settings varied slightly but all evaluation rooms included the following: assessment materials, a carpeted free-play area, child-sized tables and chairs, toys, and adult-sized chairs. Once the school psychologists were trained to utilize the ADOS and SCQ, all ADOS- and SCQ-related materials were provided to each school psychologist by the experimenter including an ADOS manual, an ADOS assessment kit, ADOS protocol booklets for Modules 1-3, an SCQ manual, and SCQ forms.

Procedure

School psychologists were recruited through a local San Diego County school district. School psychologists were invited by email and phone to participate. After a school psychologist agreed to participate she was mailed consent forms, an Autism Diagnostic and Assessment Services Project (ADAPT) survey (Akshoomoff, Corsello, & Schmidt, 2006) and the Evidence-Based Practice Attitude Scale (EBPAS; Aarons, 2004). The ADAPT survey was used to collect data regarding current school psychologist practice and the EBPAS survey was used to evaluate school psychologists' attitudes toward adopting EBP (a detailed description of both surveys is available in the *Measures* section). All surveys were completed before baseline began.

Participating school psychologists were asked to recruit child participants through their district-assigned schools and obtain parental consent for their children to

participate. School psychologists were provided a script to utilize when contacting parents to recruit children, which briefly described the study (see Appendix C for the Student Recruitment Script).

Baseline ASD Evaluations

School psychologists participated in baseline for 4, 6, or 8 ASD evaluations (2 school psychologists per baseline length). All baseline ASD evaluations were video recorded. School psychologists were video recorded in their school settings performing their usual ASD assessment battery and were not provided any feedback about their performance by the research team. School psychologists' ASD evaluation reports resulting from the baseline ASD evaluations were collected for all evaluations performed throughout baseline.

ADOS Clinical Training. After baseline ASD evaluations were completed and two weeks before the ADOS Clinical Training began, the school psychologists were given an ADOS manual for review. All school psychologists then participated in an ADOS Clinical Training established by the ADOS developers and taught to the experimenter by Dr. Natacha Akshoomoff, a certified ADOS trainer, (see Table 7 for Components of the ADOS Clinical Training protocol). The only modification from the typical ADOS Clinical Training format was that each school psychologist was trained independently rather than in a group, as each school psychologist participated in the ADOS Clinical Training at the conclusion of their individual baseline. Each school psychologist participated in a total of 16 hours of ADOS Clinical Training during a 2-day ADOS Clinical Training Workshop conducted by the experimenter.

ADOS Clinical Training occurred in two 8-hour sessions, consisting of lecture reviewing the characteristics of ASD, description of ADOS administration and coding for all Modules, and the psychometric properties of the ADOS. The school psychologists were also shown how to administer and code the ADOS during live demonstrations of Modules 1 or 2 on Day 1 and Module 3 on Day 2. After each live demonstration of the ADOS Modules a coding discussion followed. When ADOS Clinical Training was concluded, ADOS administration "cards" developed by the experimenter consisting of abbreviated instructions for each ADOS task for Modules 1-3 were provided to the school psychologists for studying purposes (see Appendices D-F for ADOS Administration Cards for each ADOS module). School psychologists were also given ADOS administration DVDS created by the ADOS developers so they could practice their child behavior coding if they wished. The school psychologists were not required to use the ADOS administration cards or use the practice DVDs. The specific components of ADOS Clinical Training were held constant across all school psychologists.

SCQ Training. School psychologists were trained to use the SCQ at staggered intervals (after 2, 4, and 6 post-ADOS Clinical Training ASD evaluations), randomized across participants after the ADOS Clinical Training (see Figure 2 for SCQ Training Implementation Time Points). SCQ Trainings were staggered in this manner in order to allow examination of the effect of the ADOS utilized in isolation on school psychologist ASD assessment practice before the SCQ was introduced. SCQ Training duration was less than an hour, during which school psychologists were presented with an SCQ manual and SCQ questionnaire forms and given a brief

explanation of how to administer and interpret the SCQ. They were told they may use the SCQ if they would like but were not required to do so.

Post-ADOS Clinical Training ASD Evaluations

After participation in the ADOS Clinical Training, ASD evaluations implemented by the school psychologists were video recorded and the resulting ADOS protocols and ASD evaluation reports were collected. This was done in order to examine school psychologist mastery of ADOS implementation, and how their level of mastery affected their behaviors during ASD evaluations and the quality of their subsequent ASD evaluation reports. They were told they may use the ADOS if they would like but they were not required to do so.

Three-month Follow-up ASD Evaluations

Three months after each school psychologist concluded her final post-ADOS Clinical Training ASD evaluation, the experimenter contacted them by phone and asked the school psychologist to complete the EBPAS and ADAPT surveys again. In addition, one ASD evaluation was video recorded and the resulting ADOS protocol and ASD evaluation report was collected for each school psychologist.

Measures

Questionnaires

School psychologists were asked to complete the Autism Diagnostic and Assessment Services Project (ADAPT) survey (Akshoomoff et al., 2006) and the Evidence-Based Practice Attitude Scale (EBPAS; Aarons, 2004) at intake and at exit.

ADAPT Survey. The ADAPT survey (see Appendices G & H for intake- and exit- ADAPT surveys) is a comprehensive survey evaluating practitioners' assessment

practices. It consists of 53 questions, some with restricted responses and some that are open-ended. ADAPT questions address practitioner background, training, past and current assessment practices with some specific sections focusing on feasibility and implementation of the ADOS, ADI-R, and the SCQ. School psychologists were asked to estimate how often they use many individual assessment practices during an ASD evaluation using a scale ranging from "never," "sometimes," "most of the time," to "always." ADAPT survey authors estimate it takes approximately 30-45 minutes to complete.

EPBAS. The EPBAS (see Appendix I for the EPBAS Questionnaire) examines the attitudes of practitioners about EBP. In the EBPAS, EBPs are defined for practitioners as practices with research support that generally follow a manual or structured approach. The EBPAS consists of four theoretically derived dimensions of attitudes toward adoption of EBP including *Appeal*, *Requirements*, *Openness*, and *Divergence*. The Appeal dimension represents the extent to which the practitioner would adopt an EBP if it were intuitively appealing or was being used by colleagues who were happy with it. The Requirements dimension assesses the extent to which the practitioner would adopt an EBP if it were required by an agency, supervisor, or state. The Openness dimension assesses the extent to which the practitioner is generally open to trying new interventions and would be willing to try or use EBPs. The Divergence dimension assesses the extent to which the practitioner perceives EBPs as not clinically useful and less important than clinical experience. The questionnaire takes about 15 min to complete where practitioners are asked to indicate how much they agree with items endorsing the adoption of EBP on a 0-4 scale, "0"

being “Not at All” to “4” being “To a Very Great Extent.” All four dimensions (Requirements, Appeal, Openness, and Divergence) were calculated in order to assess school psychologists’ attitudes toward EBP.

Examination of ASD Evaluations

Direct observation of school psychologist ASD assessment techniques was achieved via video recording. All school psychologists’ ASD evaluations for children whose parents consented to have their children included in the study were video recorded during baseline, post-ADOS Clinical Training, and follow-up. All video recordings were then coded by the experimenter or trained undergraduate research assistants to examine use of the ADOS or ADOS Components (see definitions below).

All ASD evaluations were coded for the presence of ADOS Components to determine if the school psychologists were implementing tasks similar to the ADOS during their baseline ASD evaluations or during post-ADOS Clinical Training evaluations in time outside the actual ADOS administration.

After ADOS Clinical Training, ADOS administrations performed by school psychologists were coded for detailed ADOS fidelity of implementation (ADOS FI) and ADOS Coding Reliability (ADOS CR) of child behavior to determine how well the school psychologists were implementing and interpreting the ADOS.

Fidelity of Implementation of ADOS Administration and Coding Reliability.

Once ADOS Clinical Trainings were completed for each school psychologist, all ADOS administrations were coded for ADOS FI. Trained undergraduate research assistants coded ADOS FI according to adapted versions of ADOS FI Checklists provided by the ADOS developers and accompanying ADOS FI Behavioral

Definitions created by the experimenter from the ADOS manual to facilitate coding by undergraduate coders blind to the time point (see Appendices J-O for adapted ADOS FI Checklists and ADOS FI Behavioral Definitions). ADOS FI Behavioral Definitions and Checklists were tailored for coding of Modules 1-3 of the ADOS as only Modules 1-3 were utilized by the school psychologists over the course of this study. Every element of ADOS FI for all Modules was coded on a 1-5 rating scale, with a coded of "1" being "Examiner *does not* implement throughout the assessment." and a code of "5" being "Examiner implements throughout the assessment." (see Appendix P for the ADOS Fidelity of Implementation Checklist Rating Scale).

In addition to FI of ADOS administration, school psychologist ADOS CR of child behavior was calculated according to standards provided by the ADOS developers. Examination of ADOS CR of child behavior was performed in order to determine if the school psychologists were accurate in their coding of the behavior of the children they assessed. In order to determine school psychologist ADOS CR accuracy, the experimenter coded child behavior for all ADOS administration video recordings submitted by the school psychologists and a portion of those video recordings were also coded by a Ph.D.-level ADOS coder from the research team. Both of the ADOS child behavior coders from the research team had completed advanced ADOS training and had achieved ADOS FI and ADOS CR at the high level (above 80%) required in research settings for all Modules of the measure. Research team ADOS child behavior coders were blind to the child behavior codes provided by the school psychologists for each child.

Once the research team coded child behavior from all school psychologist submitted video recorded ADOS administrations, ADOS CR of child behavior between the research team and the school psychologists' codes from the collected ADOS protocols was calculated. Codes provided were identified as an agreement between coders if the child behavior ratings matched perfectly, except for items rated as "2" by one coder and "3" by the other coder. These were also counted as an agreement per the guidelines provided by the ADOS developers. Percent agreement for ADOS CR of child behavior was calculated for Communication Items, Social Items, Play Items, Restricted and Repetitive Behavior Items, Diagnostic Algorithm Items, as well as Total Items. Overall ADOS classification agreement between the school psychologists and the research team (i.e., "Autism," "ASD" or "Nonspectrum") was also evaluated.

ADOS Components During ASD Evaluations. All video recorded ASD evaluations during baseline and after ADOS Clinical Training were coded for school psychologist use of ADOS Components using broader versions of the ADOS FI Behavioral Definitions and Checklists (see Appendices Q-V for ADOS Components Coding Definitions and ADOS Components Checklists). For example, video recorded ASD evaluations were coded for presence of the "Response to Child's Name" task where the "Examiner steps away from the child and calls the child's name to get his attention" or the "Telling a Story from a Book" task where the "Examiner presents a book to the child and asks him to tell the story." ADOS Components Coding Definitions and ADOS Components Checklists were created by the experimenter for

ADOS Modules 1-3 as tasks from those ADOS Modules were most appropriate for children in this study.

Before ADOS Components Coding could begin, each child was assigned an appropriate ADOS Module classification based on his or her language level as described by the ADOS manual. Children who were nonverbal or utilized a few words were assigned Module 1, children who used simple phrases were assigned Module 2, and children with flexible speech were assigned Module 3. The experimenter and trained undergraduate research assistants then coded each child's ASD assessment sessions with the ADOS Components Coding Definitions and ADOS Components Checklists appropriate for that child.

Examination of School Psychologist ASD Evaluation Reports

ASD evaluation reports written by participating school psychologists were collected and examined throughout the study for children whose ASD evaluations were video recorded. ASD evaluation reports were collected to characterize child participant demographics, to characterize school psychologists' ASD assessment practices, and to determine the number of ASD-specific child behaviors identified by the school psychologists over the course of the study.

Percent agreement was calculated between the ASD assessment practices reported by the school psychologists on the ADAPT survey and the ASD assessment practices observed during baseline and after EBP training to examine school psychologist accuracy of self-report of ASD assessment practice. For ease of analysis, some individual assessments from the ADAPT survey were collapsed into categories

(e.g., “Developmental History of the Child” was collapsed into the category “Review of Records”).

In order to calculate percent agreement easily, school psychologist responses of “always” and “most of the time” on the ADAPT survey were collapsed into one category (Category 1) and school psychologist responses of “sometimes” and “never” were collapsed into another category (Category 2). Observed ASD assessment practices from the ASD evaluation reports were then assigned to one of the two categories where appropriate with Category 1 assigned to ASD assessment practices that were implemented greater than or equal to 50% of the time and Category 2 assigned to ASD assessment practices that were implemented less than 50% of the time during ASD evaluations (see Table 8). When the categories assigned to the reported ASD assessment practices and the categories assigned to the observed ASD assessment practices matched this was considered an “agreement” between the frequency of the school psychologist reported ASD assessment practices from the ADAPT survey and the frequency of the observed ASD assessment practices from the ASD evaluation reports.

ASD-specific child behaviors identified in the ASD evaluation reports were coded by the experimenter and trained undergraduate research assistants using an adapted version of the Metropolitan Atlanta Developmental Disabilities Surveillance Program (MADDSP) coding scheme and the ASD-specific Behavior Checklist provided by the Centers for Disease Control and Prevention (CDC; 2007). These guidelines consist of operationalized definitions for the DSM-IV-TR criteria for ASD (American Psychiatric Association, 2000) and have been utilized in many ASD

surveillance studies showing good validity and coding reliability for detecting ASD-specific behaviors using a records-based methodology (CDC, 2007; Corsello et al., 2012, Wiggins et al., 2006). The information gathered from individual child records regarding the presence of ASD-specific child behavior was then used to determine if the individual child met DSM-IV-TR criteria for an ASD.

In order to detect information about ASD-specific child behavior, each ASD diagnostic area is specifically defined, and clinician statements are coded for examples of ASD diagnostic criteria represented by five categories: 1) Qualitative Impairments in Reciprocal Social Interaction (RSI), 2) Qualitative Impairments in Communication (COM), 3) Restricted, Repetitive, and Stereotyped Patterns of Behavior, Interests and Activities (RRB), 4) Associated Features (AF), and 5) Other Autism Discriminators (AD). Each of the five categories consists of various subcategories of ASD-specific child behaviors that are included when coding ASD evaluation reports (see Appendix W for the ASD-specific Behavior Checklist).

For example, the statement "Frankie regularly repeats words and phrases he has heard his teacher use in class" would be coded under the subcategory of "Stereotyped and Repetitive Use of Language or Idiosyncratic Language" pertaining to the category of COM. The statement, "Sean has difficulty making friends his own age," would be coded under the subcategory of "Failure to develop peer relationships appropriate to developmental level" pertaining to the category of RSI.

The MADDSP coding scheme developed by the CDC typically requires the reviewing clinician to identify only the *presence* of ASD-specific behaviors (CDC, 2007). The ASD evaluation reports in this study were coded for the *presence* and

absence of ASD-specific child behaviors identified by the school psychologists. Presence and absence of ASD-specific behavior was assessed as it was anticipated the sample of children assessed in this study were less likely to have ASD symptomotology than children in traditional surveillance studies for which the guidelines were developed and identifying behaviors not indicative of an ASD would indicate the school psychologist were using these to make a differential diagnosis.

For example, in the original MADDSP coding scheme the statement "Joe made nice eye contact," would not be coded. In the current study the statement "Joe made nice eye contact" would be coded as the *absence* of the ASD-specific behavior of *poor eye contact.* Therefore, in this study, it was deemed important to capture ALL descriptions of ASD-specific behavior, whether it was described as present or absent. Descriptions of the presence of ASD-specific behavior were labeled "ASD Behavior" and descriptions of the absence of ASD-specific behavior were labeled "Non-ASD Behavior."

Another deviation from the MADDSP coding scheme was that ASD evaluation reports in this study were also coded for the *source* of the information provided. ASD-specific child behaviors observed by the school psychologists were denoted as "PSYCH" observed. They were also coded in the same manner for ASD-specific behavior descriptions obtained by record review (RR), parent report (PARENT), teacher report (TEACH), and the child's self-report (CHILD). For example, a school psychologist reporting an ASD-specific child behavior such as "Jonathan is sensitive to the bell at school, he will cover his ears and scream and cry when it rings" would be coded as "Odd responses to sensory stimuli pertaining to AF" that was "PSYCH"

observed. An ASD-specific child behavior such as “Suzy’s mother reports that Suzy is not able to understand simple directions at home” would be coded as “Delayed Language Comprehension pertaining to COM” that was “PARENT” observed. If the source of the information reported by the school psychologist was unclear, the behavior in question was noted as “PSYCH” observed.

Interobserver agreement

The experimenter and trained undergraduate research assistants (blind to the purpose of the study) completed the ADOS FI Coding, the ADOS Components Coding, and the ASD Evaluation Report Coding. For ADOS FI Coding, interobserver agreement was calculated for 30% of all school psychologist submitted ADOS administrations. Interobserver agreement calculations were equally distributed across all ADOS Modules, school psychologist participants, and time points after the ADOS Clinical Training. The average interobserver agreement for ADOS FI Coding Overall was 98% (Range: 67%-100%) for Module 1, 97% (Range: 60%-100%) for Module 2, and 97% (Range: 67%-100%) for Module 3 (see Table 9 for Interobserver Agreement Percentages of ADOS FI Coding for Individual Tasks of Each ADOS Module).

For ADOS Components Coding, interobserver agreement was calculated for 31% of all ASD video recorded evaluations and calculations were equally distributed across school psychologists, assigned ADOS Module definitions, and time points. The average interobserver agreement for ADOS Components Coding was 85% (Range: 75%-94%) for Module 1, 100% (all 100%) for Module 2, and 92% (Range: 88%-97%) for Module 3 (see Table 10 for Interobserver Agreement Percentages for ADOS Components Coding for Individual School Psychologists).

Interobserver agreement between the experimenter and the research team ADOS coder for the ADOS CR of child behavior was calculated for 31% of all school psychologist submitted ADOS administrations. As with the school psychologists' ADOS CR calculations, codes provided were identified as an agreement between coders if the child behavior ratings matched perfectly, except items rated as "2" by one coder and "3" by the other coder which were considered agreements. Interobserver agreement calculations were equally distributed across all ADOS Modules, school psychologist participants, and time points after the ADOS Clinical Training. Interobserver agreement for ADOS CR of child behavior was 84% (Range: 75%-100%) for Communication Items, 80% (Range: 67%-91%) for Social Items, 83% (Range: 50%-100%) for Play Items, 78% (Range: 75%-83%) for Stereotyped Behavior Items, 80% (78%-83%) for Other Items, 77% (64%-85%) for Diagnostic Algorithm Items, 81% (Range: 68%-87%) for All Items combined, and 92% (75%-100%) for Overall ADOS Classification.

For ASD Evaluation Report Coding, interobserver agreement was calculated for 31% of all ASD Evaluation Reports submitted by the school psychologists and calculations were equally distributed across school psychologists and time points. Interobserver agreement was an average of 81% (Range: 0%-100%) for PSYCH, 78% (Range: 0%-100%) for RR, 78% (Range: 0%-100%) for PARENT, 75% (Range: 0%-100%) for TEACH, and 87% (Range: 0%-100%) for CHILD regarding source of ASD-specific behavior. Interobserver agreement was an average of 78% (Range: 43%-100%) for RSI, 77% (Range: 0%-100%) for COM, 81% (Range: 0%-100%) for RRB,

82% (Range: 40%-100%) for AF, and 93% (Range: 30%-100%) for AD regarding type of ASD-specific behavior.

Data Analysis

Analysis of the data gathered during video recorded ASD Evaluations and from ASD Evaluation Reports was conducted using visual analysis as is customary in studies employing a multiple-baseline design (Morgan, Gliner, & Harmon, 2006). Level, trend, variability, overlap, and consistency of data patterns across participants were all used to determine whether results demonstrated a causal relationship, as is recommended by national standards for single subject research designs (Kratochwill et al., 2010). Percentage of non-overlapping data points was calculated for observed patterns to confirm visual analysis (Parker, Hagan-Burke, & Vannest, 2007). A paired samples t-test was utilized to evaluate changes in EBPAS scores from intake to exit. In addition, the number of children evaluated who received a diagnosis of ASD from the school psychologist before and after EBP training was compared using a chi-square test of independence.

RESULTS

Overall, the school psychologists determined that of the 77 children assessed for this study, 28 of the children met educational eligibility criteria for Autism/Autistic-like Behaviors (AUT) with nine of those children also meeting eligibility for an additional comorbid condition (see Table 11). Of the remaining 49 children, 11 met educational eligibility criteria for Specific Learning Disability (SLD), eight met educational eligibility criteria for Attention Deficit Hyperactivity Disorder (ADHD), five met educational eligibility criteria for Speech and Language Impairment (SLI), three met educational eligibility criteria for Intellectual Disability (ID), and three met educational eligibility criteria for Other Health Impairment-Attention Difficulties (OHIad). Eight children without ASD also met educational eligibility criteria for comorbid conditions and ten children did not meet educational eligibility criteria for any reason. There was no educational eligibility information available for one child, as Laura was not able to submit the ASD evaluation report from the child she assessed during follow-up.

Aim 1: Characterization of usual care for ASD evaluation in the school setting

In order to address Aim 1, information regarding ASD assessment practices reported by the school psychologists in the ADAPT surveys at intake and exit and the observed ASD assessment practices from the children's ASD evaluation reports submitted during baseline and after EBP training were analyzed.

ASD Assessment Practices Reported by School Psychologists on the ADAPT Survey

Figure 3 presents the assessment practices reported by school psychologists on the ADAPT survey. At intake and exit, the school psychologists reported they utilized

many assessment practices. At both time points, most of the school psychologists consistently indicated that they utilized a Review of Records, a Parent Interview, a Teacher Interview, Teacher Questionnaires, and School/Home Observations "always" or "most of the time." The school psychologists were less likely to indicate they utilized an Adaptive Behavior Assessment and a Play-based Assessment "always" or "most of time." None of the school psychologists ever indicated they utilized the Communication and Symbolic Behavior Scales, the Scales of Independent Behavior, the Child Development Inventory, or any of the cognitive assessments specified in the survey.

ASD Assessment Practices Observed During Baseline and After EBP Training

ASD evaluation reports were examined for all ASD assessment practices utilized by the school psychologists during baseline and after EBP training. School psychologists used many assessment practices when assessing children with ASD for this study (see Figure 4). All assessment practices were measured by the percent of ASD evaluations in which each individual assessment practice was utilized throughout baseline and after EBP training. Individual ASD assessment practice use was highly variable across school psychologists.

During Baseline, school psychologists used a Review of Records (M = 90%, Range: 50%-100%) and a Cognitive assessment (M = 90%, Range: 67%-100%) most often during ASD evaluations. Parent Interview (M = 67%, Range: 17%-100%), Teacher Interview (M = 77%, Range: 38%-100%), Student Interview (M = 46%, Range: 0%-100%), Questionnaires (M = 79%, Range: 50%-100%), and School/Home Observations (M = 74%, Range: 17%-100%) were used less often. Direct Interaction

(defined as the school psychologist directly interacting with the child outside of cognitive assessment to elicit behaviors such as during an unstructured play interaction) was used rarely during baseline, an average of 28% (Range: 0%-83%) of ASD evaluations.

After EBP Training, school psychologists utilized a Review of Records (M = 84%, Range: 43%-100%), a Cognitive assessment (M = 91%, Range: 75%-100%), and Questionnaires (M = 94%, Range: 78%-100%) most often. Parent Interview (M = 65%, Range: 25%-100%), Teacher Interview (M = 50%, Range: 0%-100%), Student Interview (M = 46%, Range: 0%-100%), and School/Home Observations (M = 74%, Range: 44%-100%) were used less often. Direct Interaction was used during 100% (all 100%) of the ASD Evaluations performed after EBP training.

Figure 5 presents the percentages of ASD-specific standardized measures used by the school psychologists during baseline and after EBP training. School psychologists used ASD-specific questionnaires such as the CARS and GARS during an average of 36% (Range: 0%-100%) of the ASD evaluations during baseline and an average of 54% (Range: 20%-100%) of the ASD evaluations after EBP training. The school psychologists did not utilize the ADOS or SCQ during baseline (as specified by the study inclusion criteria) but did use the ADOS during 100% (all 100%) and the SCQ an average of 44% (Range: 0%-100%) of the ASD evaluations after EBP training.

Agreement Between ADAPT Survey and Observed ASD Assessment Practices

School psychologist responses on the ADAPT survey at intake and exit were evaluated for agreement with their observed ASD assessment practices measured from

the ASD evaluation reports collected during baseline and after EBP training respectively. The school psychologists in this study were fairly good at estimating how often they use particular types of ASD assessment practices on the ADAPT survey, with occasional overestimation or underestimation of their frequency of use of certain ASD assessment techniques (see Table 12 for detailed Reported vs. Observed School Psychologist Practice for Individual School Psychologists).

Overall, in a comparison of the ADAPT survey at intake and the baseline ASD evaluation reports (see Table 13), percent agreement was above 80% for Review of Records, Parent Interview, Teacher Interview, Play-Based Assessment, and School/Home Observation. School psychologist estimation of frequency was more challenging for Adaptive Behavior Assessment and Teacher Questionnaires as the overall percent agreement was below 80% for those measures. In a comparison of the ADAPT survey at exit and the ASD evaluation reports submitted after EBP training, overall percent agreement was again above 80% for Review of Records, Parent Interview, School/Home Observation, with the addition of Adaptive Behavior Assessment. However, at exit, overall percent agreement of school psychologist estimation of frequency of Teacher Interview, Teacher Questionnaires, and Play-Based Assessment and frequencies of those measures observed in the ASD evaluation reports was below 80%.

Aim 2: School psychologist attitudes and feasibility of use of the ADOS and SCQ

In order to address Aim 2, school psychologists' attitudes toward and expectations about EBP for ASD evaluation were assessed using the EBPAS and the ADAPT surveys. Feasibility of the ADOS and SCQ in the school setting was

examined through school psychologist ADOS utilization, ADOS FI and SCQ utilization.

School Psychologist Attitudes Toward EBP

Figure 6 presents EBPAS scores at Intake and Exit. At intake, the school psychologists demonstrated high willingness to adopt EBP across all four dimensions of the EBPAS. The mean scores were 3.9 (Range: 3.8-4.0) for Requirements, 4.0 (Range: 3.6-4.4) for Appeal, 4.3 (Range: 4.0-4.4) for Openness, and 3.7 (Range: 2.4-4.8) for Divergence, indicating the school psychologists would be very willing to adopt EBPs such as the ADOS and SCQ for the assessment of children for ASD in their practice.

At exit, only the Requirements dimension demonstrated significant change over time, decreasing 1.2 points ($t(2) = 6.00$, $p < 0.05$). This decreased Requirements score indicates that after participation in this study the school psychologists may be less likely to adopt an EBP if the practice was required by their supervisor, agency, or state.

Anticipated Advantages/Disadvantages of Adopting EBP

At intake, school psychologists reported some expected advantages and disadvantages of adoption of the ADOS and SCQ into their ASD assessment practice. The expected advantages of the ADOS were that the ADOS may provide more objective and reliable behavioral data (n = 4) and that the ADOS is considered best practice for the assessment of ASD (n = 1). Expected disadvantages of the ADOS reported by the school psychologists were that implementation of the ADOS may require many materials (n = 2), may be time consuming (n = 3), and that the ADOS

has some specificity difficulties in regards to overall ASD classification (n = 1). One school psychologist reported that gathering more objective and reliable behavioral data was also an expected advantage of the SCQ (n = 1) but one expected disadvantage was that it is often difficult for parents to complete and return questionnaires in a school setting (n = 1). The rest of the school psychologists stated they were too unfamiliar with the SCQ to comment (n = 5) on expected advantages and disadvantages of the measure.

At exit, the school psychologists again reported advantages and disadvantages of adopting the ADOS and SCQ into their ASD assessment practice. The most common advantage of the ADOS reported by the school psychologists was that the ADOS provides a structure for observing ASD behaviors in children (n = 3). The most common disadvantage of the ADOS reported by the school psychologists was that they might not obtain the results they expect when using the ADOS and that may be confusing (n = 2). One school psychologist reported that gathering a good behavior history was an advantage of the SCQ (n = 1) but all of the school psychologists continued to report difficulty having parents complete and return questionnaires in a school setting (n = 5).

Frequency of School Psychologist Use of the ADOS After ADOS Clinical Training

After ADOS Clinical Training, Laura and Connie each completed five ASD evaluations. Sally, Cathy, and Amy each completed six ASD evaluations and Wendy completed eight ASD evaluations. In addition, all of the school psychologists except Cathy completed an ASD evaluation after the follow-up period. All of the school

psychologists utilized the ADOS during all of their post-ADOS Clinical Training and follow-up ASD evaluations, despite not being explicitly asked to do so. In fact, school psychologists reported utilizing the ADOS with children not involved in this study after their ADOS Clinical Training. During the ADOS, the school psychologists utilized Module 3 most often; 51% of the children assessed received a Module 3, 29% of the children assessed received a Module 2, and 20% of the children assessed received a Module 1.

Frequency of School Psychologist Use of the SCQ After SCQ Training

The school psychologists utilized the SCQ somewhat inconsistently. The SCQ was only used with 44% (7 out of 16) possible children after introduction. Only three of the school psychologists used the SCQ at all after it was introduced. Laura utilized the SCQ with three of her child participants. Wendy and Cathy each utilized the SCQ with two of their child participants. Sally, Connie, and Amy never used the SCQ during any of their ASD evaluations. The SCQ showed good agreement (100%) with the school psychologist determined educational eligibility in this study when it was used. Specifically, three of the children assessed with the SCQ met cutoff for ASD and subsequently received an autism eligibility classification. The other four children did not meet cutoff for ASD on the SCQ and subsequently did not qualify for an autism educational eligibility classification. The SCQ showed mixed agreement with the results of ADOS in this study as three of the children who met at least the ASD cutoff on the ADOS did not meet the ASD cutoff for the SCQ. The above findings should be interpreted with caution as very few child participants received the SCQ and the

school psychologists may have used the SCQ results to inform their educational eligibility determination.

ADOS Fidelity of Implementation- ADOS Administration

After participating in the ADOS Clinical Training, the school psychologists demonstrated proficiency in administering the ADOS. Overall average percent correct ADOS FI for all the school psychologists was 79% (Range: 64%-96%) for Module 1, 83% (Range: 63%-100%) for Module 2, and 88% (Range: 77%-98%) for Module 3 (see Figure 7 for Overall ADOS Fidelity of Implementation by Module).

Lower overall percent correct ADOS FI scores was most often a result of omitting tasks for each Module. The school psychologists often omitted tasks from Modules 1 and 2, but rarely from Module 3. The most common tasks omitted from Module 1 were Responsive Social Smile (43% of ADOS administrations), the Birthday Party (29% of ADOS administrations), and Response to Joint Attention (29% of ADOS administrations). The most common tasks omitted from Module 2 were Response to Joint Attention (36% of ADOS administrations), Snack (18% of ADOS administrations), and Response to Name (18% of ADOS administrations; see Figure 8 for Percent of ADOS Administrations where ADOS Tasks were Omitted by Module).

When ADOS tasks were administered by the school psychologists, the overall average percent correct of ADOS FI for most of the individual ADOS tasks across all Modules was high (over 80% for most individual ADOS tasks). However, two tasks in Module 1 were the most challenging for the school psychologists to implement: Response to Joint Attention with an overall average percent correct of 68% (Range: 33%-93%) and Responsive Social Smile with an overall average percent correct of

74% (Range: 68%-88%, see Figures 9-11 for overall average percent correct ADOS FI for Individual Tasks for Each Module). School psychologist implementation of other ADOS administration behaviors such as Set-up and Organization, Flexible and Comfortable Administration, Examiner Provides Adequate Opportunities, and Examiner is Appropriately Responsive was fairly good with an overall average percent correct of 86% (Range: 55%-100%), 85% (Range: 56%-100%), 89% (Range: 60%-100%), and 83% (Range: 40%-100%) respectively (see Figure 12 for overall average percent correct ADOS FI for Overall ADOS Administration).

ADOS Fidelity of Implementation- ADOS Coding Reliability

ADOS CR was quite challenging for the school psychologists across all Modules and types of ADOS items. None of the overall average percent agreement calculations for ADOS CR between the school psychologists and the research team reached 80%. Percent agreement for ADOS CR of child behavior was calculated for Communication Items 66% (Range: 43%-79%), Social Items 67% (Range: 56%-77%), Play Items 64% (Range: 25%-83%), Stereotyped Behavior Items 70% (Range: 66%-73%), Other Items 78% (Range: 67%-84%), Diagnostic Algorithm Items 65% (Range: 56%-74%), as well as All Items combined 69% (Range: 60%-76%).

Overall average percent agreement for ADOS classification (i.e., “Autism,” “ASD” or “Nonspectrum”) was 74% (Range: 33%-100%). However, overall average percent agreement for ADOS classification was excellent when an ADOS classification of ASD and AUT was collapsed, with overall average percent agreement of 97% (Range: 83%-100%; see Figure 13 for Overall ADOS Coding Reliability).

There was good agreement between the children's ADOS classification and whether or not the school psychologists determined if the children met Autism/Autistic-like Behaviors educational eligibility classification. For 21 children, the ADOS and the school psychologist agreed the child's behavior did meet criteria for an ASD classification. For 13 children, the ADOS and the school psychologist agreed the child's behavior did not meet criteria for an ASD classification. Five children met at least ASD cutoffs on the ADOS but were not assigned an Autism/Autistic-like Behaviors educational eligibility classification. One child did not meet ASD cutoffs on the ADOS but was assigned an Autism/Autistic-like Behaviors educational eligibility classification (see Table 14 for Overall Classification Agreement between the ADOS and school psychologists). These findings should be interpreted with caution as the school psychologists may have used the ADOS classification results to inform their educational eligibility determination.

Aim 3. Influence of school psychologist utilization of the ADOS and SCQ on school psychologists' ASD evaluation process

In order to address Aim 3, video recorded ASD evaluations were examined for ADOS components utilized by the school psychologists over time and overall total assessment time during ASD evaluations. In addition, ASD evaluation reports were examined for changes in ASD assessment practices over time, changes in number of ASD-specific child behaviors identified over time, and changes in overall child educational eligibility classifications determined by the school psychologists.

ASD Assessment Practices Utilized

ASD evaluation reports collected during baseline and after EBP training were compared in order to determine if the EBP training influenced school psychologist ASD assessment practice over time. After EBP training, only implementation of Direct Interaction measures changed over time. The percent of ASD evaluations in which the school psychologists used Direct Interaction measures increased from an average of 25% (Range: 0%-83%) to an average of 100% (all 100%). This change was driven by the addition of the ADOS as it is considered a Direct Interaction measure (see Figure 4 for ASD Assessment Practices of the School Psychologists Observed During Baseline and After EBP Training). In addition, there was a modest increase (M = 18%, Range: 0%-62%) in the frequency of ASD-Specific Questionnaires utilized by the school psychologists over time. Use of the SCQ increased from 0% to an average of 44% (Range: 0%-100%) and use of the ADOS increased from 0% to 100% (see Figure 5 for ASD-Specific Assessment Practices Used by School Psychologists During Baseline and After EBP Training).

ADOS Components Utilized During ASD Evaluations

The school psychologists were implementing very few ADOS components during baseline, an average of 18% (Range: 11%-33%) across all baseline ASD evaluations (see Table 15 for Types of ADOS Components Implemented by School Psychologists During Baseline by Module). Most of the ADOS Components were implemented by the school psychologists during ASD Evaluations conducted after ADOS Clinical Training (M = 96%, Range: 88%-100%) and after the follow-up period (M = 93%, Range: 79%-100%). For all of the school psychologists, a dramatic increase in the

percent of ADOS Components implemented during ASD evaluations was seen immediately after the ADOS Clinical Training (see Figure 14). No overlapping data points were seen for any of the school psychologists between baseline and after EBP training. This effect maintained through follow-up for all five of the school psychologists who submitted a follow-up video recorded ASD evaluation.

EBP Training Influence on Total Assessment Time

Amount of time required for ASD evaluation during baseline and after EBP training was measured in order to evaluate the influence of EBP training on the school psychologists' total assessment time. Total assessment time was variable across school psychologists and children being assessed, but typically ASD evaluations were conducted in fewer than 3 hours. Only Amy averaged more than 3 hours during baseline. Adoption of EBP for ASD evaluation did not affect any of the school psychologists' overall total assessment time except for Amy. Amy increased her overall total assessment time from an average of 3.64 hours to an average of 5.5 hours (see Figure 15 Total Assessment Time at Baseline and After EBP Training in Hours).

ASD-Specific Behaviors Identified in ASD Evaluation Reports Over Time

The ASD evaluation reports submitted by the school psychologists were examined for the number of ASD-specific child behaviors identified over time. In terms of *source* of the ASD-specific behaviors identified, the number of ASD-specific behaviors identified by all other sources except for those observed by the school psychologist did not change over time (see Figure 16). During baseline, the school psychologists identified an average of 5 (Range: 3-9) ASD-specific behaviors. After EBP training the school psychologists identified an average of 24 (Range: 9-33) ASD-

specific behaviors and an average of 17 (Range: 10-27) ASD-specific behaviors at follow-up. However, the number of ASD-specific behaviors identified over time by the school psychologists was highly variable.

Figure 17 presents the number of ASD-specific behaviors identified by each school psychologist for each child over time. Laura, Wendy, Cathy, and Amy had the most immediate and sizable increases in the number of ASD-specific behaviors identified in the ASD evaluation reports after the ADOS Clinical Training, with no overlapping data points over time. Sally and Connie showed more modest increases over time with some overlapping data points between baseline and after the ADOS Clinical Training. Overall percentage of non-overlapping data points was 64% for Sally and 75% for Connie. Four of the six school psychologists (Sally, Wendy, Connie, and Amy) submitted ASD evaluation reports for their follow-up ASD evaluations. The effect of the ADOS Clinical Training on the number of ASD-specific behaviors identified in the ASD evaluation reports maintained well for Wendy and somewhat for Connie and Amy. The effect did not maintain for Sally at all through follow-up. Addition of the SCQ Training did not have an observable effect on the number of ASD-specific behaviors identified in the ASD evaluation reports submitted by the school psychologists.

In terms of the *type* of ASD-specific behaviors identified by the school psychologists, the average number of RSI, COM, and RRB ASD-specific behaviors identified increased by 8 (Range: 4-12), 7 (Range: 5-12), and 3 (Range: 1-5) ASD-specific behaviors between baseline and after EBP training respectively (see Figure 18). At follow-up, all three types of ASD-specific behaviors had decreased but still

remained at rates above baseline. The number of AF and AD behaviors detected throughout the study remained relatively unchanged.

EBP Training Influence on Overall Child Eligibility Determination

The number of children determined by the school psychologists to meet educational eligibility for Autism/Autistic-like Behaviors increased significantly after EBP training, X^2 (1, N = 76) = 11.97, $p < 0.01$. Specifically, of the 36 children assessed for ASD during baseline, only six of those children (17%) qualified for services under the educational eligibility classification of Autism/Autistic-like Behaviors according to the school psychologists. After EBP training, 22 of 40 children (55%) assessed for ASD qualified for services under the educational eligibility classification of Autism/Autistic-like Behaviors (see Figure 19 for Overall Child Autism Educational Eligibility Determined by School Psychologists Over Time).

Interestingly, the number of children identified with an ASD classification determined by the MADDSP coding scheme from examination of the ASD evaluation reports yielded no significant difference in numbers of children with ASD classification after EBP training when compared to baseline, X^2 (1, N = 76) = 2.55, p = 0.09. Specifically, according to the MADDSP coding scheme, 15 of the 36 children (42%) assessed by the school psychologists at baseline met criteria for an ASD classification. After EBP training, 24 of 40 children (60%) assessed for ASD met ASD classification according to the MADDSP coding scheme (see Figure 20 for Overall Child Autism Classification Determined by MADDSP Over Time). The nine additional children who were identified with ASD at baseline by the MADDSP coding scheme, who were not identified with ASD by the school psychologists, all met

educational eligibility for other conditions according to the school psychologists consisting of: ADHD (n = 2), ADHD-SLD (n = 2), SLI (n = 2), SLD (n = 1), ADHD-ID (n = 1), and ADHD-SLD-Emotional Disturbance (n = 1). The two additional children who were identified with ASD after EBP training by the MADDSP coding scheme, but were not identified with ASD by the school psychologists, met educational eligibility for SLD (n = 1) and OHIad (n = 1).

DISCUSSION

School psychologists are required to determine autism educational eligibility for a growing number of children in the school setting, with little specialized training in how to do so (Schwartz & Davis, 2008; Shriver et al., 1999). As the prevalence of ASD rises, it is increasingly important to generate ways to help school psychologists improve their ASD assessment practice to ensure that all children access essential services (Stahmer & Mandell, 2007; Yeargin-Allsopp et al., 2003). The findings of this study add support for the value of school psychologist training in EBP for ASD evaluation. The school psychologists were easily able to adopt most of the EBP assessment techniques introduced to them over the course of the study after relatively brief training. The EBP training they received changed their ASD evaluation process such that after training they were more likely to adhere to EBP guidelines for ASD evaluation. In turn, this adherence to EBP guidelines resulted in identification of more ASD-specific behaviors in the children they assessed. This study is the first of its kind to systematically examine school psychologist adoption of EBP for ASD evaluation, specifically the ADOS and SCQ, in the school setting.

School Psychologist Usual Care for ASD Evaluation

Current knowledge of ASD evaluations in the school setting has relied heavily upon the self-report of school psychologists (Akshoomoff et al., 2006; Wiggins et al., 2006). In order to gain a more complete understanding of school psychologist practice for ASD evaluation, it is essential to confirm actual assessment practices through detailed observation. The results of the current study show that school psychologists' self-report on the ADAPT survey of the frequencies of ASD assessment practices were fairly reflective of their actual practices. However, these self-reports sometimes

overestimated school psychologist use of particular ASD assessment practices. School psychologists often reported on the ADAPT survey that they "always" utilized particular assessments when evaluating a child for ASD while their actual practice showed inconsistencies in their use. While these findings support the validity of results of previous research using self-report measures, they also highlight the importance of confirming actual practice. If school psychologists are consistently overestimating their use of particular ASD assessment practices, they may be providing substandard assessments for individual children that may lead to under-identification of ASD.

EBP for ASD evaluation emphasizes practitioner use of particular ASD assessment techniques applied in a consistent, standardized manner (California Department of Developmental Services, 2002; Klinger & Renner, 2000; Mazefsky & Oswald, 2006; Ozonoff et al., 2005; Tanguay, 2000). Observed school psychologist usual care for ASD evaluation was highly variable over the course of the study, both within the same school district as well as within individual school psychologists. This finding indicates that school psychologists are often determining their individual ASD assessment practice on a case-by-case basis, and are often not consistent in their use of EBP guidelines for ASD evaluation. Conducting ASD evaluations in this manner can open the door to many factors that may influence whether a child receives an appropriate educational eligibility classification. Previous literature has indicated that there may be many reasons for ASD under-identification in schools such as reduced parent advocacy, limited school resources, and child ethnicity (Mandell & Palmer, 2005; Palmer et al., 2005; Palmer et al., 2010). Standardizing the ASD evaluation

process in schools can reduce the impact of outside influences such as these because if all children are receiving the same ASD evaluation process, factors like child ethnicity or socioeconomic status should not affect a child's educational eligibility classification assignment.

When the school psychologists in this study did implement EBP guidelines for ASD evaluation, such as a behavioral observation, the manner in which they implemented these guidelines before training was never standardized. Over the course of the study, any use of standardized ASD-specific assessments outside of the ADOS and SCQ was limited to ASD-specific questionnaires, such as the CARS and GARS, which have problematic sensitivity issues (Mazefsky & Oswald, 2006; South et al., 2002) and do not adequately fulfill the EBP guidelines for ASD evaluation (Schwarz, 2012). Utilization of measures that have not been standardized or measures that have documented sensitivity issues are likely to contribute to educational eligibility classification errors which can also limit a child's access to services.

Optimizing the sensitivity of the ASD evaluation process may be particularly important in the school setting. Characterization of the service needs of children assessed by the school psychologists in this study revealed a variety of complicated behavior presentations as reflected by their varied educational eligibility classifications. This broad variability is somewhat surprising as the school psychologists participating in this study were asked to recruit children who were suspected of qualifying for an autism educational eligibility classification. Despite this narrow recruitment strategy, the children assessed in this study ultimately qualified for a wide range of educational eligibility classifications. This heterogeneity in

classification is in line with previous research that suggests children assessed in applied settings are more likely to present with coexisting disorders that may make them more difficult to evaluate for ASD than children who are assessed in specialty clinics (Brock, 2006; Montes & Halterman, 2006).

Due to the complicated behavioral profiles exhibited by children in a school setting and the inconsistent adherence to basic EBP for ASD evaluation during baseline in this study, adopting EBPs such as the ADOS and SCQ for ASD evaluation may be especially important for school psychologists. School psychologist use of EBP for ASD evaluation can standardize the ASD evaluation process in order to offset the influences of factors such as child characteristics and idiosyncratic school psychologist ASD assessment practice that may impact the accuracy of educational eligibility classification. Precise educational eligibility classification can provide a child with a better opportunity to receive services that are tailored to the child, maximizing intervention outcome.

Feasibility of Adoption of EBP for ASD Evaluation in the School Setting

Many barriers to community practitioner adoption of EBP have been suggested in the literature such as practitioner time constraints, limited access to training, and inadequate resources (Ikeda, 2002; Noland & Gabriels, 2004; Volker & Lopata, 2008; Wilkinson, 2010; Williams et al., 2009). However, the influence of these barriers on school psychologists specifically is largely unknown (Schwartz & Davis, 2008; Shriver et al., 1999; Stahmer & Mandell, 2007). Potential challenges to EBP adoption such as school psychologist attitudes toward EBP and the time and training required for EBP adoption did not serve as barriers in this study. The school psychologists who

participated in this project consistently exhibited positive attitudes toward EBP. While adoption of the ADOS and SCQ did increase demands on time for all of the school psychologists, the time demands mostly occurred during the ADOS Clinical Training and SCQ Training. However, training time was relatively short (16 hours over two days for the ADOS and no more than one hour for the SCQ). Only one of the school psychologists experienced an increase in total assessment time during ASD evaluations once the trainings had concluded. Therefore, demand on school psychologists' time did not appear to be a barrier to adoption of EBP for ASD evaluation in this study. Most of the school psychologists were able to utilize EBP for ASD evaluation in the context of their usual ASD assessment practice time constraints.

In terms of implementation feasibility of the ADOS specifically, school psychologists can and *will* use the ADOS after ADOS Clinical Training. School psychologist ADOS FI for administration met the ADOS developers' requirements for most of the ADOS tasks for all Modules. ADOS tasks that were less likely to be implemented correctly were also the ADOS tasks the school psychologists tended to eliminate completely when administering the ADOS. It is possible that if an ADOS task is more difficult for a school psychologist to implement she may be more likely to omit the ADOS task altogether. These data provide important information for researchers hoping to translate the ADOS to clinical settings. Perhaps more instruction during the initial ADOS Clinical Training focusing on the poorly-implemented ADOS tasks in this study (e.g., Response to Joint Attention) would improve school psychologist FI of the ADOS as a whole. Alternatively, the necessity of specific tasks

for this population could be studied. If these items could be removed or altered without changing the accuracy of the ADOS coding, it may be possible to increase accurate implementation in schools.

Despite some difficulty with a few individual ADOS tasks, the overall high level of ADOS FI for administration of all Modules is particularly impressive given that the school psychologists attended only one 2-day workshop. Many researchers have suggested that the complexity of ADOS administration may be a potential barrier to its adoption (Akshoomoff et al., 2006; Schwarz, 2012; Wiggins et al., 2006). The ease with which the school psychologists in this study learned to administer the ADOS indicates that accurate ADOS administration is very feasible in the school setting given the standard ADOS Clinical Training regimen.

Although the school psychologists achieved accurate ADOS FI for administration of the ADOS, ADOS CR of child behaviors was more challenging. Percent agreement between the research team coding and school psychologist coding rarely reached the standards set by the ADOS developers for any of the child behavior coding. In fact, even overall ADOS classification agreement was mediocre when the ADOS classification range was the traditional "autism," "ASD," and "Nonspectrum." However, overall percent agreement for ADOS classification was excellent when the ADOS classifications of "ASD" and "autism" were collapsed. This result is encouraging, as school psychologists are not required to determine specificity of diagnosis (i.e., differentiate between ASD and autism) to determine educational eligibility for autism, only presence or absence of an ASD. Therefore, despite school psychologist difficulty with ADOS CR for specificity, the ADOS is still likely to be

valuable in the school setting (Fogt et al., 2003; Noland & Gabriels, 2004). In fact, school psychologists may benefit from a simplified version of the ADOS child behavior coding that provides overall ADOS classification information and summaries of child behaviors that can be easily incorporated into a child's ASD evaluation report.

Implementation of the SCQ was less successful than that of the ADOS. All of the school psychologists reported the same disadvantage of using the SCQ: they often had difficulty requiring parents to complete and return the questionnaire. It is possible that parents exhibited low rates of returning the forms. It is also possible that some school psychologists did not even attempt to utilize the SCQ because of *perceived* difficulty with parents returning the SCQ forms. It is likely that difficulties, perceived or otherwise, with parents returning the SCQ forms contributed to the lack of implementation of the SCQ in this study as this issue has been captured in other studies regarding parent-completed measures for children with ASD (Baron-Cohen, 2009; Lord, 2011).

Impact of EBP Use on ASD Evaluation in the School Setting

After EBP training, school psychologists consistently utilized the ADOS for the behavioral observation guideline of EBP for ASD evaluation. The school psychologists implemented very few ADOS components during baseline and outside the administration of the ADOS over the course of the study. As a result of adoption of the ADOS, school psychologist identified more ASD-specific behavior in the children they assessed over the course of the study. This effect was present for all school psychologists, albeit stronger for some.

The type of ASD-specific behavior observed was affected as well. School psychologists gathered information specifically related to the Reciprocal Social Interaction, Communication, and Restricted, Repetitive Behavior domains of the DSM-IV-TR diagnostic criteria for ASD. School psychologist implementation of the SCQ did not appear to be related to the amount of ASD-specific behaviors detected over the course of the study. However, school psychologist implementation of the SCQ was so limited after SCQ training that there was no real opportunity to examine its influence on the gathering of ASD-specific behaviors.

In addition to identifying more ASD-specific behavior in the children, after EBP training the school psychologists determined that more children met educational eligibility classification for autism. Furthermore, according to the MADDSP coding examination of the ASD evaluation reports, eight of the children who were assessed by the school psychologists during baseline and two of the children assessed by the school psychologists after EBP training met MADDSP criteria for ASD even though they did not qualify for an autism educational eligibility classification according to the school psychologists. This discrepancy in number of children identified with ASD between the MADDSP coding scheme and the school psychologists' determinations indicates that before EBP training the school psychologists were probably not identifying some children who may have had ASD. However, this finding cannot be confirmed in our sample, as the children in this study did not receive an independent expert practitioner's best estimate of their diagnoses. Interestingly, all of the children identified by the MADDSP coding but not identified by the school psychologists as having ASD met educational eligibility for other disorders. The most common

disorder was ADHD. It is unclear whether these educational eligibility assignments may be the result of school psychologist educational eligibility substitution errors (Brock, 2006; Montes & Halterman, 2006; Wilkinson, 2009, 2010) or errors of identification by the MADDSP coding scheme.

The school psychologists gathered more ASD-specific behaviors and in turn identified more children with ASD after EBP training. In addition, the number of cases of ASD identified by the school psychologists was more in line with the number of cases detected by the MADDSP coding scheme. It is likely that the ADOS assists school psychologists when gathering information relevant to ASD-specific child behaviors deemed critical for accurate ASD identification. Prior to ADOS Clinical Training, the school psychologists often largely relied on parent and teacher report to detect ASD-specific behaviors in children. Reliance on parent and teacher report can be problematic as these sources may contradict each other and the richness of the information conveyed about the child's ASD-specific behavior may become diluted. Use of the ADOS allows school psychologists to directly interact with the child and actually view and characterize the ASD-specific behaviors themselves.

Direct observation of ASD-specific child behavior is likely to be very important to the school psychologists. In fact, when assigning autism educational eligibility classification, the school psychologists in this study tended to ascribe more weight to the ASD-specific behaviors they viewed themselves. When ASD-specific behaviors were contributed only from other sources, such as parent and teacher report, the school psychologist was less likely to find that the child met educational eligibility criteria for autism.

These preliminary findings suggest that school psychologists may improve the accuracy of their ASD evaluations by following EBP for ASD evaluations such as the ADOS. However, these findings should be interpreted with caution, as the MADDSP coding scheme is dependent on the ASD-specific child behaviors described in the ASD evaluation reports. Some children with ASD may have been missed in this study if ASD-specific behaviors were not mentioned in the ASD evaluation report because the school psychologist did not capture them.

Limitations

One limitation of this study is related to the characterization of usual care for ASD evaluation in the school setting. It is possible the school psychologists utilized actual ASD assessment practices that were not reflected in the children's ASD evaluation reports. For example, school psychologists sometimes did not include parent or teacher questionnaires in the evaluation report if the questionnaires were not returned. However, it is likely that in general the ASD evaluation reports did accurately reflect ASD assessment practice since school psychologists are required to submit an assessment plan before an ASD evaluation is conducted. This assessment plan is an agreement between the school and the parent that determines the assessments utilized during a child's evaluation. Any deviation from the assessment plan must be approved by both parties. The assessment plans for the children in this study were not available for experimenter review in order to confirm reliability with the assessments listed in the ASD evaluation reports.

Another limitation may be the child participants who were included in this study. Their characteristics may not be totally representative of all children school

psychologists assess for ASD. Only children chosen by the school psychologists for inclusion and those whose parents then allowed their children's ASD evaluations to be video recorded were included. It is likely that children included in this study were more apt to present with complicated behavior patterns requiring further study and whose parents may have been dissatisfied with previous evaluations. Therefore, results of this study may not generalize to all children who are assessed for ASD in the school setting.

In addition, school psychologists who participated were very motivated to learn the ADOS and SCQ. They self-selected for participation by responding to a recruitment email sent within their district and had very positive attitudes toward EBP for ASD evaluation at intake. Adopting EBPs such as the ADOS and SCQ may be more challenging for school psychologists who are less motivated. This study also assessed the influence of only certain barriers to EBP adoption. Specifically, only the influence of school psychologists' attitudes, demands on time, and training requirements were addressed. Other barriers to EBP adoption should be considered, such as cost of assessment materials. For example, while the school psychologists contributed their time and some school resources, expensive materials (i.e., manuals and protocols) required for the ADOS and SCQ were provided by the researchers free of charge. While school districts do devote a portion of their budget to assessment materials and training, the specific financial impact of adopting EBP for ASD evaluation still needs to be examined.

A final limitation of this study relates to the examination of the sensitivity and specificity of the ADOS and the SCQ in the school setting. Ideally, it would be

possible to determine if the use of the ADOS and SCQ in a school setting results in a more accurate identification of ASD. However, that goal goes beyond the scope of this project. This study did not include enough child participants to conclusively determine ADOS and SCQ sensitivity in the school setting and how ADOS and SCQ sensitivity may contribute to improved school psychologist identification of children with ASD. However, this project does provide some preliminary sensitivity data through comparisons between the MADDSP ASD classification determined from the ASD evaluation reports and: school psychologists using clinical judgment alone (educational eligibility classifications provided at baseline) and school psychologists using clinical judgment plus EBP for ASD evaluation. Larger sample sizes are needed to examine specificity and sensitivity of these measures in the school setting. In addition, a full ASD assessment battery to confirm or rule out presence and type of ASD for the children in this study would have provided an independent expert practitioner's best estimate of the children's diagnoses for comparison purposes.

Future Directions

Future research can address the limitations of this study and explore additional research questions regarding school psychologist use of EBP for educational eligibility evaluation in the school setting. More research is needed to conclusively determine the feasibility of SCQ adoption by school psychologists. It may be that a good alternative needs to be identified and tested for gathering ASD-specific information from parents that is more interview-based than questionnaire-based for the school setting. Perhaps the SCQ can be administered as a short semi-structured caregiver interview over the phone in order to ensure parents will complete the questionnaire.

In addition, ADOS Clinical Training was provided in an individual training format during this study because of the limits of the research design. An ADOS Clinical Training workshop provided to school psychologists in a group format is likely to be comparable to this study in terms of school psychologist training, however, this needs to be tested. The ADOS developers have created a new training medium for ADOS Clinical Training, a DVD training package, which is available for purchase online from an assessments publisher for $999. This DVD training package is even more feasible in terms of school district resources for school psychologist training than the traditional ADOS Clinical Training workshop and may be a good candidate for future studies.

The upcoming release of the DSM-5 will contain a revision of the DSM-IV-TR criteria for Pervasive Developmental Disorders. The DSM-5 will collapse all the Pervasive Developmental Disorders including Autistic Disorder, Asperger's Disorder, and PDD-NOS into ASD as has been described in the literature (Mandy et al., 2012). The committee members responsible for recommending changes to the DSM criteria for autism emphasize the main reason for the change to ASD is ongoing difficulties with diagnostic specificity in research and applied settings (Swedo, 2012). Preliminary field studies are mixed as to whether prevalence of ASD may be affected by introduction of the DSM-5 (Clarke et al., 2012; Huerta, Bishop, Duncan, Hus, & Lord, 2012; Narrow et al., 2012; Regier et al., 2012).

It is yet to be determined how prevalence of ASD will be affected exactly, but experts are optimistic that revision of the criteria will provide better identification and service access for children with ASD (Huerta et al., 2012). Although school

psychologists are not required to use DSM criteria to evaluate children with ASD, educational eligibility criteria may change to be more in line with the new DSM-5 over time (Schwarz, 2012). Documenting the influence (or possible lack of influence) of the introduction of the DSM-5 on school psychologist ASD evaluation practice may be very useful.

Future studies should also examine the ASD evaluation practice of school psychologists within the greater context of school psychologists' responsibilities as a whole. School psychologists are often required to assess children for autism educational eligibility, but they are also required to assess children for many other disabilities. As a result, school psychologists are required to have mastery of a wide variety of evaluation techniques for many educational eligibility classifications. School psychologist adoption of EBP for ASD evaluation may affect their assessment practices during other types of evaluations. In addition to how these educational eligibility determinations are made, more examination of how educational eligibility assignments influence the particular services children may receive in school. Comprehensive understanding of school psychologist practice for ASD evaluation cannot be achieved without further research on these other outside influences and how they relate to services received by children with ASD.

In conclusion, the results of this study indicate that EBP training for ASD evaluation is beneficial in the school setting and is likely to increase school psychologist adherence to EBP guidelines for ASD evaluation. EBP training increases school psychologist detection of ASD-specific child behaviors and in turn may improve school psychologist determination of appropriate educational eligibility

classifications. The first step in providing free and appropriate education for children with ASD in schools is to ensure that every child who may require special education services receives the most accurate educational eligibility evaluation as possible. A school psychologist who utilizes EBP during evaluations increases a child's opportunity to receive a more accurate educational eligibility classification, and in turn obtain access to services that are matched to that child's needs.

There is some evidence that successfully disseminating one EBP into an applied setting can lead to what Schmidt and Taylor (2002) call a "snowball effect" in that setting, which means that "…future additional efforts at [implementing EBPs] can be done more quickly and easily (p 487)." In addition to identifying educational eligibility, psychological evaluations have additional purposes for school psychologists. They are also often required to create and then evaluate intervention programs for the children they assess (Fogt et al., 2003, Noland & Gabriels, 2004). School psychologists who adopt EBP for ASD evaluations may be more likely to adopt EBP in other areas such as educational program planning for their students, further benefiting children with ASD in schools. Careful thought and consideration to dissemination of EBPs is especially important in the field of EBP for individuals with ASD. Without successful dissemination of EBP into applied settings such as schools, where the practices will be the most effective, ASD researchers have not achieved much to help the population they are targeting.

TABLES

Table 1: ASD Types Summary

Autistic Disorder (i.e., early infantile autism, childhood autism, or Kanner's autism)	Impairments in social interaction and communication. Presence of stereotyped patterns of behavior, interests, and activities. In all cases delays or abnormal functioning must be present prior to 3 years of age.
Asperger's Disorder	Impairment in social interaction and the presence of stereotyped patterns of behavior, interests, and activities. No delay in language acquisition or cognitive skills.
Pervasive Developmental Disorder-Not Otherwise Specified (i.e., atypical autism)	Impairment in social interaction. Either impairment in communication *or* the presence of stereotyped behaviors, interests, and activities. May have late age of onset, atypical symptomotology, subthreshold symtomotology, or all of these.

Table 2: ADOS Module 1 Administration Tasks and Coded Items

Administration Tasks
Free Play
Response to Name
Response to Joint Attention
Bubble Play
Anticipation of Routine with Objects
Responsive Social Smile
Anticipation of a Social Routine
Functional and Symbolic Routine
Birthday Party
Snack
Coded Items *(algorithm items)*
Language and Communication Items
Overall Level of Non-Echoed Language
(Frequency of Vocalization Directed to Others)
Intonation of Vocalizations or Verbalizations
Immediate Echolalia
(*Stereotyped/Idiosyncratic Use of Words or Phrases)*
(Use of Other's Body to Communicate)
(Pointing)
(Gestures)
Reciprocal Social Interaction Items
(*Unusual Eye Contact)*
Responsive Social Smile
(Facial Expressions Directed to Others)
Integration of Gaze and Other Behaviors During Social Overtures
(Shared Enjoyment in Interaction)
Response to Name
Requesting
Giving
(Showing)
(Spontaneous Initiation of Joint Attention)
(Response to Joint Attention)
(*Quality of Social Overtures)*
Play Items
(Functional Play with Objects)
(Imagination/Creativity)
Stereotyped Behaviors and Restricted Interests
(Unusual Sensory Interest in Play Material/Person)
(Hand and Finger and Other Complex Mannerisms)
Self-Injurious Behavior
(Unusually Repetitive Interests or Stereotyped Behaviors)
Other Abnormal Behaviors Items
Overactivity
Tantrums, Aggression, Negative or Disruptive Behavior
Anxiety

Table 3: ADOS Module 2 Administration Tasks and Coded Items

Administration Tasks
Construction Task
Response to Name
Make-Believe Play
Joint Interactive Play
Conversation
Response to Joint Attention
Demonstration Task
Description of a Picture
Telling a Story from a Book
Free Play
Birthday Party
Snack
Anticipation of Routine with Objects
Bubble Play
Coded Items *(algorithm items)*
Language and Communication Items
Overall Level of Non-Echoed Language
(Amount of Social Overtures/Maintenance of Attention)
Speech Abnormalities Associated with Autism
Immediate Echolalia
(Stereotyped/Idiosyncratic Use of Words or Phrases)
(Conversation)
(Pointing)
(Descriptive, Conventional, Instrumental, or Informational Gestures)
Reciprocal Social Interaction Items
(Unusual Eye Contact)
(Facial Expressions Directed to Others)
Shared Enjoyment in Interaction
Response to Name
Showing
(Spontaneous Initiation of Joint Attention)
Response to Joint Attention
(Quality of Social Overtures)
(Quality of Social Response)
(Amount of Reciprocal Social Communication)
(Overall Quality of Rapport)
Play Items
Functional Play with Objects
(Imagination/Creativity)
Stereotyped Behaviors and Restricted Interests
(Unusual Sensory Interest in Play Material/Person)
(Hand and Finger and Other Complex Mannerisms)
Self-Injurious Behavior
(Unusually Repetitive Interests or Stereotyped Behaviors)
Other Abnormal Behaviors Items
Overactivity
Tantrums, Aggression, Negative or Disruptive Behavior
Anxiety

Table 4: ADOS Module 3 Administration Tasks and Coded Items

Administration Tasks
Construction Task
Make-Believe Play
Joint Interactive Play
Demonstration Task
Description of Picture
Telling a Story From a Book
Cartoons
Conversational and Reporting
Emotions
Social Difficulties and Annoyance
Break
Friends and Marriage
Loneliness
Creating a Story
Coded Items *(algorithm items)*
Language and Communication Items
Overall Level of Non-Echoed Language
Speech Abnormalities Associated With Autism
Immediate Echolalia
(Stereotyped/Idiosyncratic Use of Words or Phrases)
Offers Information
Asks for Information
(Reporting of Events)
(Conversation)
(Descriptive, Conventional, Instrumental, or Informational Gestures)
Reciprocal Social Interaction Items
(Unusual Eye Contact)
(Facial Expressions Directed to Others)
Language Production and Linked Nonverbal Communication
Shared Enjoyment in Interaction
Empathy/Comments on Others' Emotions
(Insight)
(Quality of Social Overtures)
(Quality of Social Response)
(Amount of Reciprocal Social Communication)
(Overall Quality of Rapport)
Imagination Item
(Imagination/Creativity)
Stereotyped Behaviors and Restricted Interests
(Unusual Sensory Interest in Play Material/Person)
(Hand and Finger and Other Complex Mannerisms)
Self-Injurious Behavior
(Excessive Interest in or References to Unusual or Highly Specific Topics or Repetitive Behaviors)
(Compulsions or Rituals)
Other Abnormal Behaviors Items
Overactivity/Agitation
Tantrums, Aggression, Negative, or Disruptive Behavior
Anxiety

Table 5: Sample of Items from the SCQ

Sample SCQ Items
Is she/he now able to talk using short phrases or sentences?
Do you have a to and fro "conversation" with her/him that involves taking turns or building on what you have said?
Does she/he ever use odd phrases or say the same thing over and over in almost exactly the same way (either phrases that she/he hears other people use or ones that she/he makes up)?
Does she he ever seem to be more interested in parts of a toy or an object (e.g. spinning the wheels of a car), rather than in using the object as it was intended?
Does she/he ever have any special interests that are *unusual* in their intensity but otherwise appropriate for her/his age and peer group (e.g. trains or dinosaurs)?
Does she/he ever have any mannerisms or odd ways of moving her/his hands or fingers, such as flapping or moving her/his fingers in front of her/his eyes?
Does she/he usually look at you directly in the face when doing things with you or talking with you?
Does she/he smile back if someone smiles at her/him?
Does she/he ever show you things that interest her/him to engage your attention?

Table 6: School Psychologist Demographics

School Psychologist Participants	Sally	Laura	Wendy	Connie	Cathy	Amy
Sex	F	F	F	F	F	F
Ethnicity	Caucasian/ Not Latino	Caucasian/ Not Latino	Hispanic/ Latino	Caucasian/ Not Latino	Caucasian/ Not Latino	Asian
Highest Level of Education	Masters, Education Specialist	Masters	Masters, Education Specialist	Masters, Education Specialist	Masters	Masters, Education Specialist
Length of Graduate Program In Years	4	3	4	4	3	4
Approximate Years Experience Assessing Children for ASD	2	5	2	6	4.5	5
Approximate Number of Children Assessed During Their Career for ASD Thus Far	30	25+	10 to 15	50	no response	14
Access to an "Autism Specialist?"	no	yes	no	yes	yes	no

Table 7: Components of the ADOS Clinical Training Protocol

ADOS Clinical Training
*School psychologist given ADOS manual two weeks prior to ADOS Clinical Training
Day 1 (8 hours)
Lecture
Topics Covered: Review of the characteristics of ASD, description of the ADOS Module 1 and 2 administration and coding
Live demonstration of ADOS Module 1 or 2
Discussion of ADOS Module 1 or 2 administration and coding
Day 2 (8 hours)
Lecture
Topics Covered: Description of ADOS Module 3 administration and coding, psychometric properties of the ADOS
Live demonstration of ADOS Module 3
Discussion of ADOS Module 3 administration and coding
*School psychologist given ADOS administration "cards" and practice DVDs at conclusion of training

Table 8: Category Designations for Reported and Observed ASD Assessment Practices

	Reported Frequency of ASD Assessment Practices	Observed Frequency of ASD Assessment Practices
Category 1	"always" "most of the time"	≥50% of ASD Evaluations
Category 2	"sometimes" "never"	<50% of ASD Evaluations

Table 9: Average Interobserver Agreement Percentages for ADOS FI Coding for Individual Tasks of each ADOS Module

ADOS Tasks	Average Percent Agreement	Average Percent Agreement Range
Module 1		
Free Play	95	80-100
Response to Name	100	none
Response to Joint Attention	96	83-100
Bubble Play	100	none
Anticipation of Routine with Objects	100	none
Responsive Social Smile	96	83-100
Anticipation of a Social Routine	100	none
Functional and Symbolic Routine	100	none
Birthday Party	95	80-100
Snack	100	none
Module 2		
Construction Task	92	67-100
Response to Name	100	none
Make-Believe Play	100	none
Joint Interactive Play	95	80-100
Conversation	95	80-100
Response to Joint Attention	100	none
Demonstration Task	100	none
Description of a Picture	100	none
Telling a Story from a Book	88	75-100
Free Play	100	none
Birthday Party	85	60-100
Snack	100	none
Anticipation of Routine with Objects	100	none
Bubble Play	95	80-100
Module 3		
Construction Task	100	none
Make-Believe Play	100	none
Joint Interactive Play	100	none
Demonstration Task	92	67-100
Description of Picture	100	none
Telling a Story From a Book	100	none
Cartoons	92	67-100
Conversational and Reporting	100	none
Emotions	92	67-100
Social Difficulties and Annoyance	92	67-100
Break	100	none
Friends and Marriage	92	67-100
Loneliness	100	none
Creating a Story	92	67-100

Table 10: Average Interobserver Agreement Percentages for ADOS Components Coding for Individual School Psychologists

	Percent Agreement	Percent Agreement Range
Sally	100	none
Laura	90	83-97
Wendy	93	89-98
Connie	100	none
Cathy	94	90-99
Amy	85	80-90

Table 11: School Psychologist Educational Eligibility Classification for all Child Participants

Educational Eligibility Classification	Number of Children (n = 77)
Autism/Autistic-Like Behaviors (AUT)	19
Specific Learning Disability (SLD)	11
Attention Deficit Hyperactivity Disorder (ADHD)	8
Specific Language Impairment (SLI)	5
Intellectual Disability (ID)	3
OHI attention difficulties (OHIad)	3
AUT-SLD	3
AUT-ADHD	2
AUT-ADHD-Aspergers (ASP)	1
AUT-ADHD-ASP-SLD	1
AUT-SLD-ADHD	1
AUT-OHIad	1
ADHD-SLD	4
ADHD-ID	1
ADHD-SLD-Emotional Disturbance	1
SLD-SLI	1
SLD-Cerebral Palsy	1
None	10
ASD evaluation report not submitted	1

Table 12: Reported Frequency vs. Observed Frequency of School Psychologist Practice for Individual School Psychologists

Italicized scores are *agreements* and bolded scores are **disagreements** distributed across categories.
Category 1: (Reported frequency of "always" or "most of the time" and observed frequency ≥50%)
Category 2: (Reported frequency of "sometimes" or "never" and observed frequency <50%)

Sally	**Baseline (n = 4)**		**After EBP Training (n = 7)**	
Instrument	**Reported**	**Observed**	**Reported**	**Observed**
Review of Records	*Always*	*50%*	*Always*	*100%*
Parent Interview	*Always*	*50%*	*Always*	*71%*
Adaptive Behavior Assessment	*Most of time*	*50%*	**Most of time**	**0%**
Teacher Interview	*Most of time*	*50%*	*Always*	*100%*
Teacher Questionnaires	**Most of time**	**0%**	**Most of time**	**0%**
Play-Based Assessment	*Always*	*50%*	**Sometimes**	**100%**
School or Home Observation	*Always*	*50%*	*Always*	*100%*

Laura	**Baseline (n = 4)**		**After EBP Training (n = 5)**	
Instrument	**Reported**	**Observed**	**Reported**	**Observed**
Review of Records	*Always*	*100%*	*Always*	*100%*
Parent Interview	*Always*	*100%*	**Most of time**	**25%**
Adaptive Behavior Assessment	*Sometimes*	*0%*	*Sometimes*	*0%*
Teacher Interview	*Always*	*75%*	**Most of time**	**0%**
Teacher Questionnaires	**Always**	**0%**	**Always**	**0%**
Play-Based Assessment	*Sometimes*	*0%*	**Sometimes**	**100%**
School or Home Observation	*Always*	*100%*	*Always*	*100%*

Wendy	**Baseline (n = 6)**		**After EBP Training (n = 9)**	
Instrument	**Reported**	**Observed**	**Reported**	**Observed**
Review of Records	*Always*	*100%*	*Always*	*100%*
Parent Interview	*Always*	*50%*	*Always*	*100%*
Adaptive Behavior Assessment	**Most of time**	**0%**	*Sometimes*	*22%*
Teacher Interview	*Always*	*100%*	*Always*	*56%*
Teacher Questionnaires	**Always**	**0%**	**Most of time**	**0%**
Play-Based Assessment	*Sometimes*	*0%*	*Most of time*	*100%*
School or Home Observation	**Always**	**17%**	*Always*	*44%*

Table 12: Continued

Connie	Baseline (n = 6)		After EBP Training (n = 6)	
Instrument	**Reported**	**Observed**	**Reported**	**Observed**
Review of Records	*Always*	*100%*	*Always*	*100%*
Parent Interview	*Sometimes*	*0%*	*Most of time*	*75%*
Adaptive Behavior Assessment	**Most of time**	**17%**	*Most of time*	*75%*
Teacher Interview	*Most of time*	*67%*	**Always**	**25%**
Teacher Questionnaires	*Most of time*	*50%*	**Always**	**25%**
Play-Based Assessment	*Sometimes*	*0%*	*Most of time*	*100%*
School or Home Observation	*Always*	*100%*	*Always*	*50%*

Cathy	Baseline (n = 8)		After EBP Training (n = 6)	
Instrument	**Reported**	**Observed**	**Reported**	**Observed**
Review of Records	*Always*	*100%*	not returned	67%
Parent Interview	**Always**	**38%**	not returned	17%
Adaptive Behavior Assessment	**Always**	**38%**	not returned	17%
Teacher Interview	**Always**	**25%**	not returned	17%
Teacher Questionnaires	*Always*	*63%*	not returned	17%
Play-Based Assessment	*Sometimes*	*0%*	not returned	100%
School or Home Observation	*Always*	*88%*	not returned	50%

Amy	Baseline (n = 8)		After EBP Training (n = 7)	
Instrument	**Reported**	**Observed**	**Reported**	**Observed**
Review of Records	*Always*	*88%*	**Always**	**43%**
Parent Interview	*Always*	*75%*	*Always*	*86%*
Adaptive Behavior Assessment	**Most of time**	**0%**	*Sometimes*	*0%*
Teacher Interview	*Always*	*100%*	*Always*	*100%*
Teacher Questionnaires	*Always*	*63%*	*Always*	*71%*
Play-Based Assessment	*Sometimes*	*0%*	No Response	100%
School or Home Observation	*Always*	*100%*	*Always*	*100%*

Table 13: Overall Percent Agreement Between School Psychologist Reported Frequency of ASD Assessment Practices and Observed Frequency of ASD Assessment Practices During Baseline and After EBP Training

Assessment Practice Type	Baseline (n = 6)	After EBP Training (n = 5)
Review of Records	100	80
Parent Interview	83	80
Adaptive Behavior Assessment	33	100
Teacher Interview	83	40
Teacher Questionnaires	50	20
Play-Based Assessment	100	60
School/Home Observation	83	80

Table 14: Overall Classification Agreement Between the ADOS and Autism Educational Eligibility Classification Determined by the School Psychologists

(n = 40)		**School Psychologist Autism Educational Eligibility Classification**	
		Nonspectrum	ASD
ADOS Classification	Nonspectrum	13	1
	ASD	5	21

Table 15: ADOS Components Utilized by School Psychologists During Baseline by Module

		Percent of ASD Evaluations
Module 1		
(n = 1)	Anticipation of a Routine with Objects	100
Module 2		
(n = 3)	Conversation and Reporting	100
	Response to Name	33
	Joint Interactive Play	33
	Free Play	33
	Bubble Play	33
Module 3		
(n = 29)	Conversation and Reporting	93
	Friends and Marriage	72
	Social Difficulties and Annoyance	38
	Break	24
	Emotions	21
	Cartoons	21
	Telling a Story From a Book	7
	Description of a Picture	7
	Demonstration Task	3

FIGURES

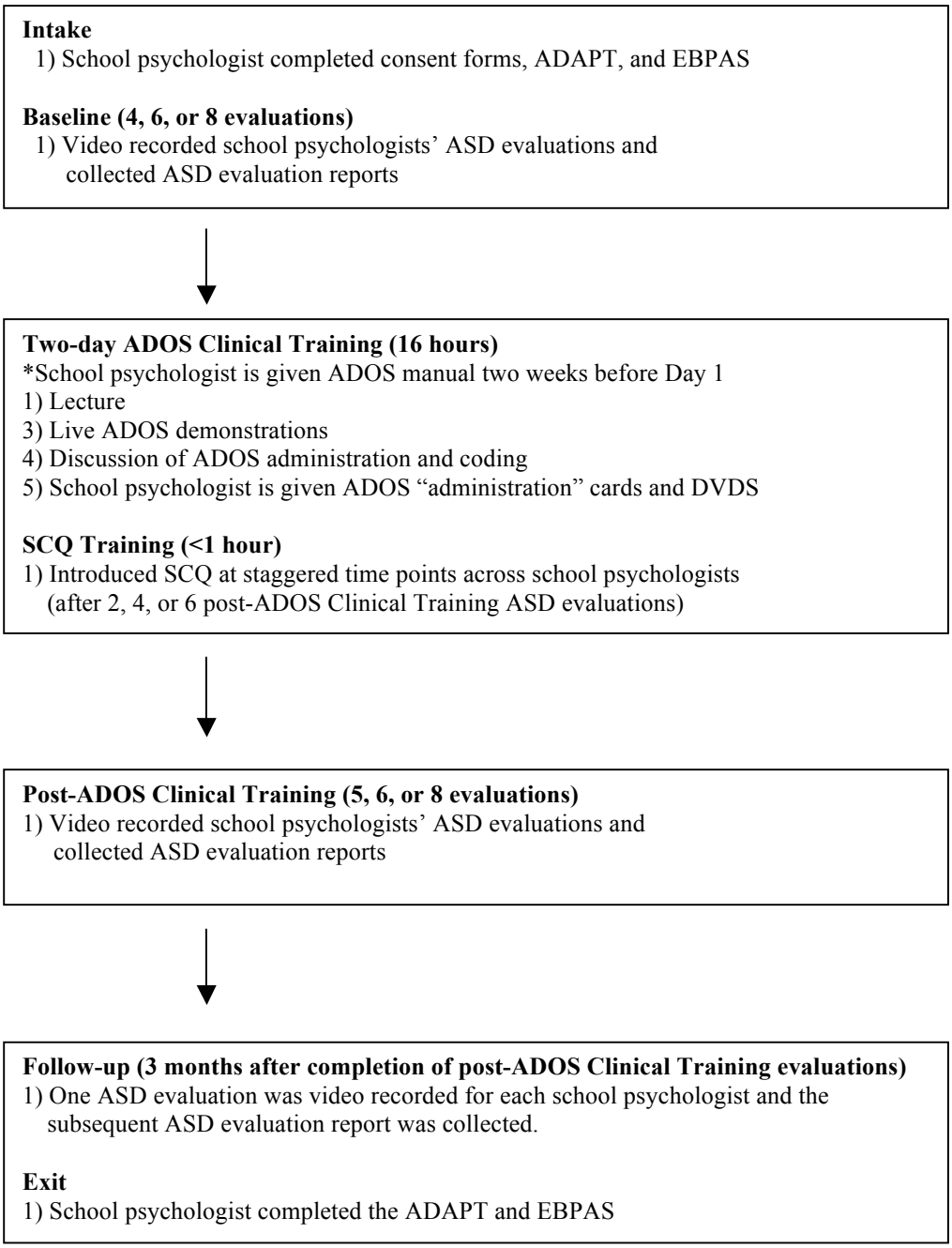


Figure 1: Project Timeline

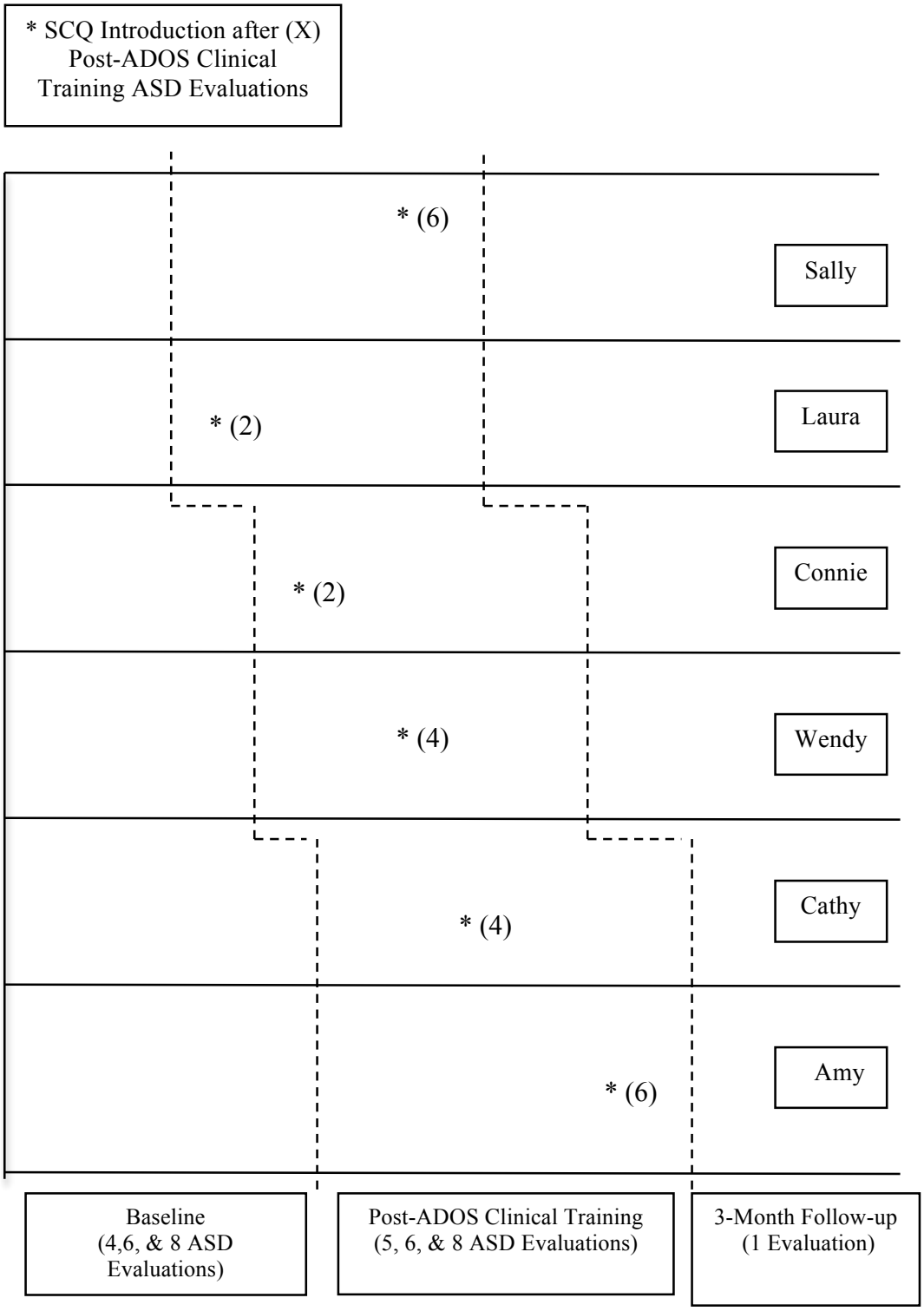


Figure 2: SCQ Training Implementation Time Points

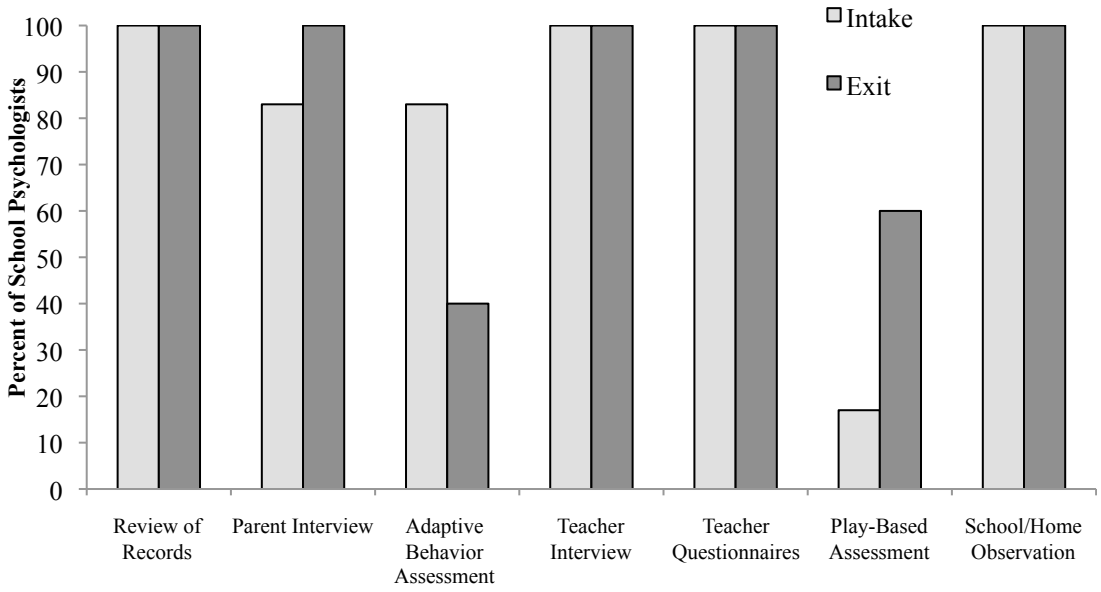


Figure 3: Percent of School Psychologists Responding "always" or "most of the time" to the Use of Specific ASD Assessment Practices at Intake and Exit on the ADAPT survey.

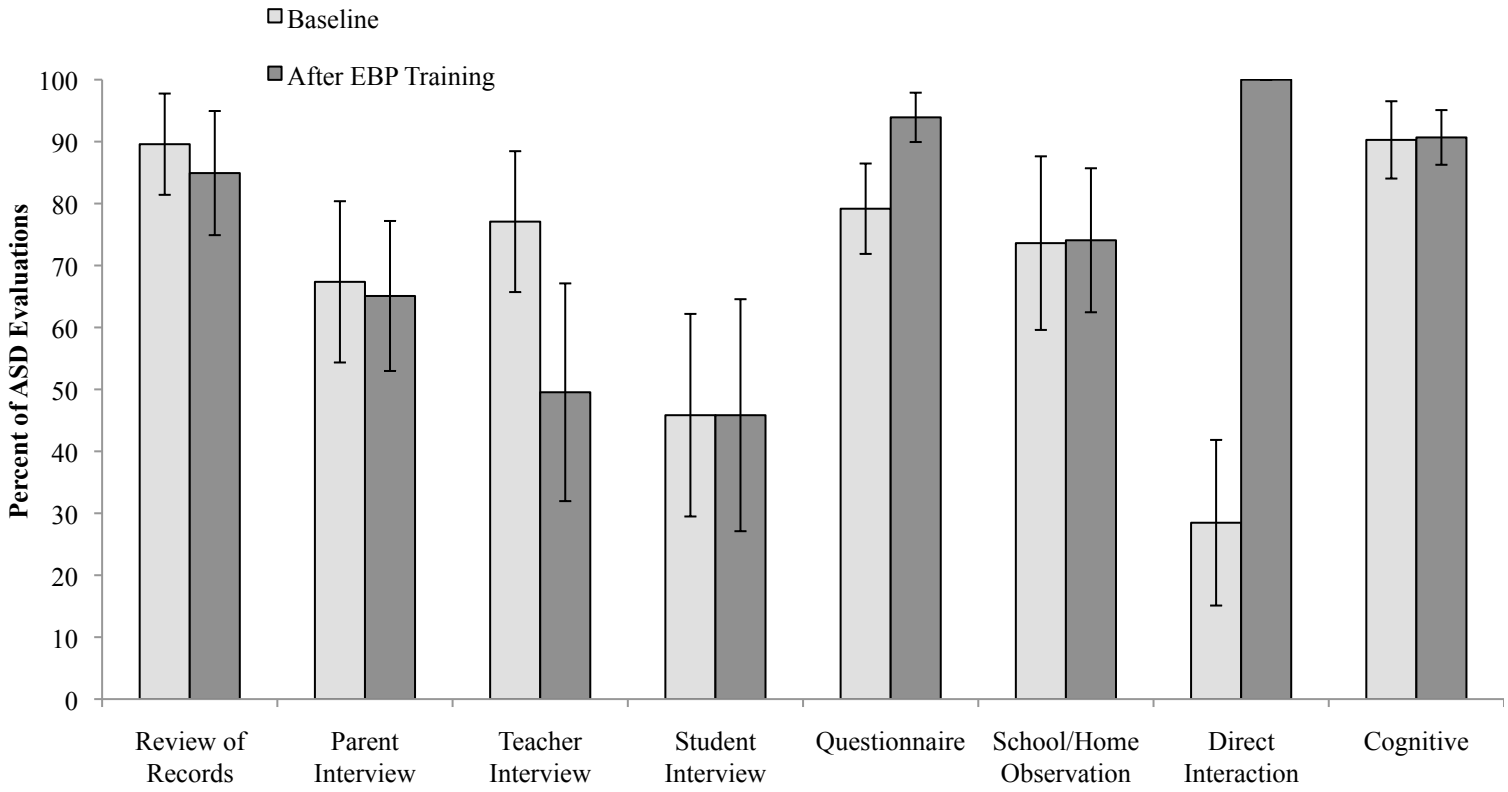


Figure 4: ASD Assessment Practices of the School Psychologists Observed During Baseline and After EBP Training

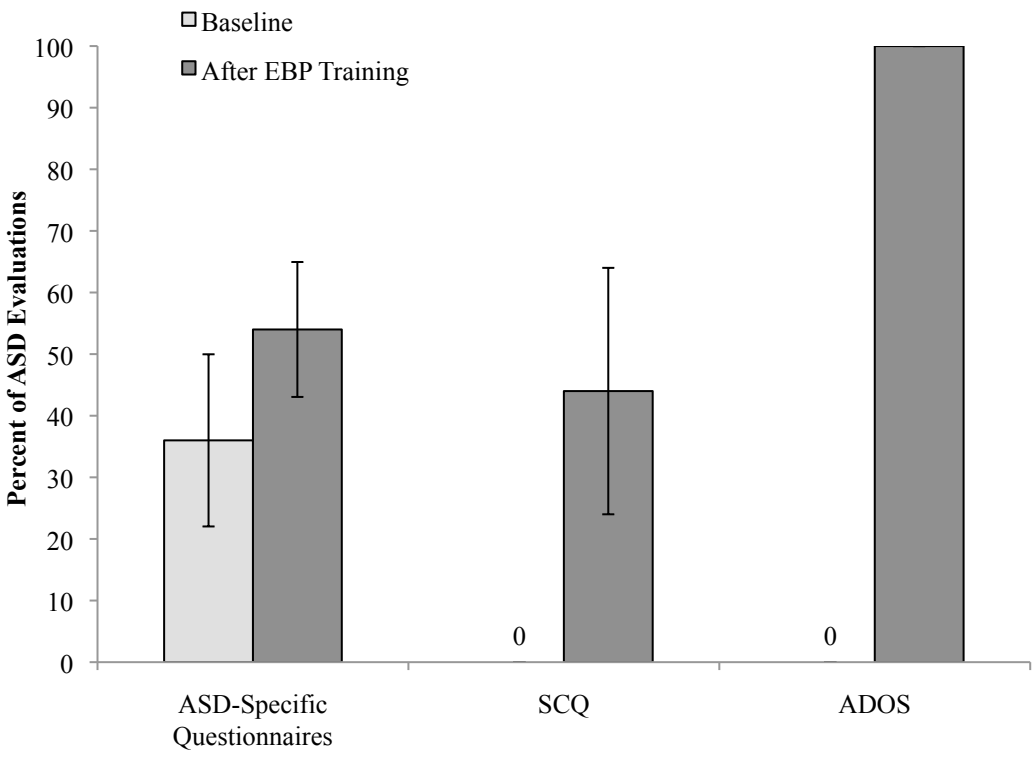


Figure 5: ASD-Specific Assessment Practices Used by School Psychologists During Baseline and After EBP Training

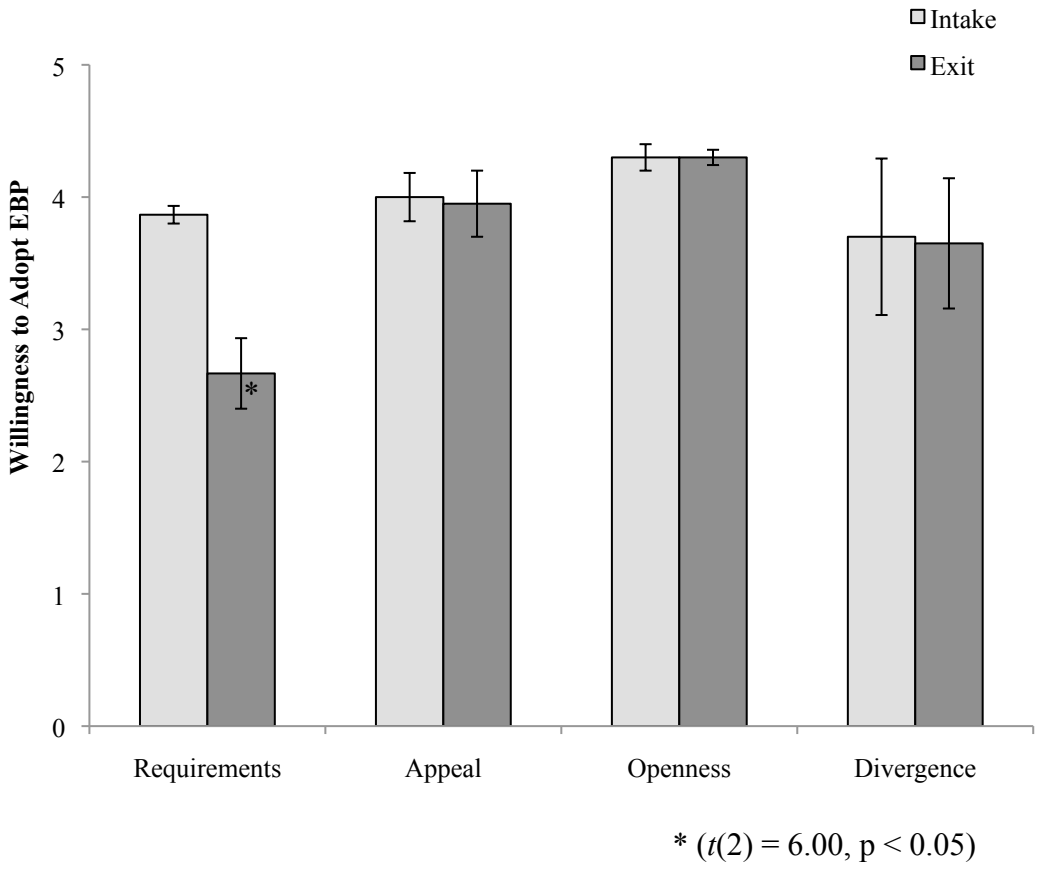


Figure 6: Evidence-Based Practices Attitudes Scale Scores at Intake and Exit

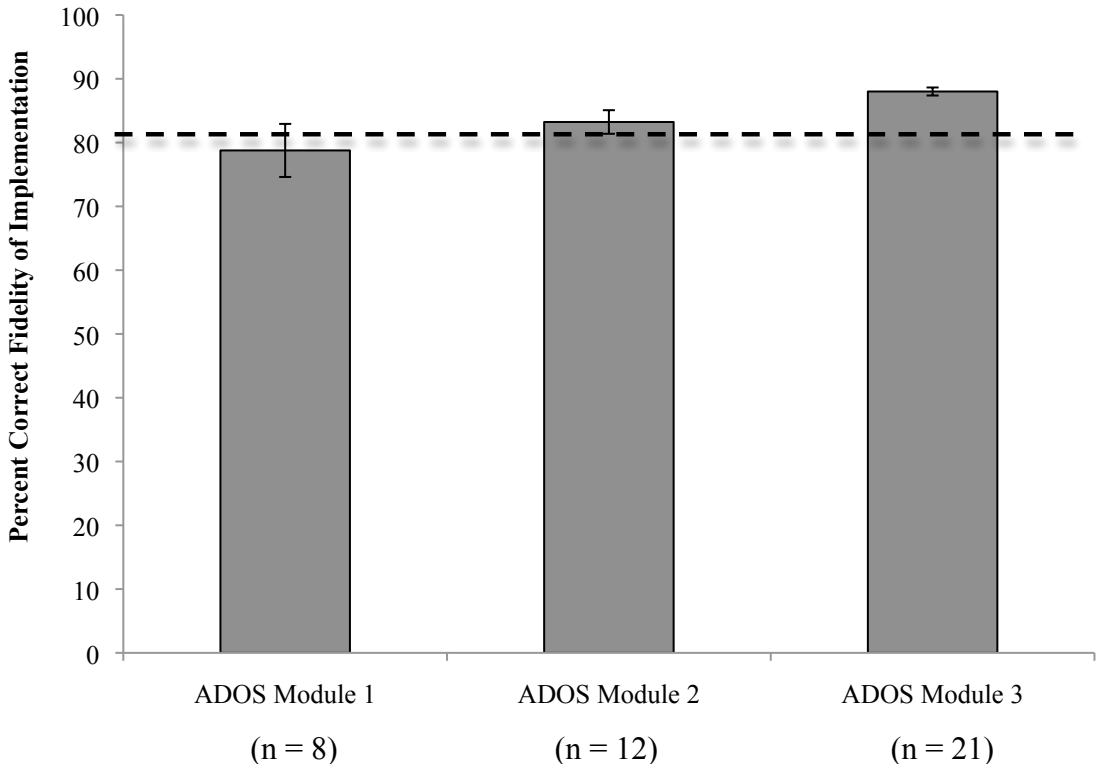


Figure 7: Overall ADOS Fidelity of Implementation by Module

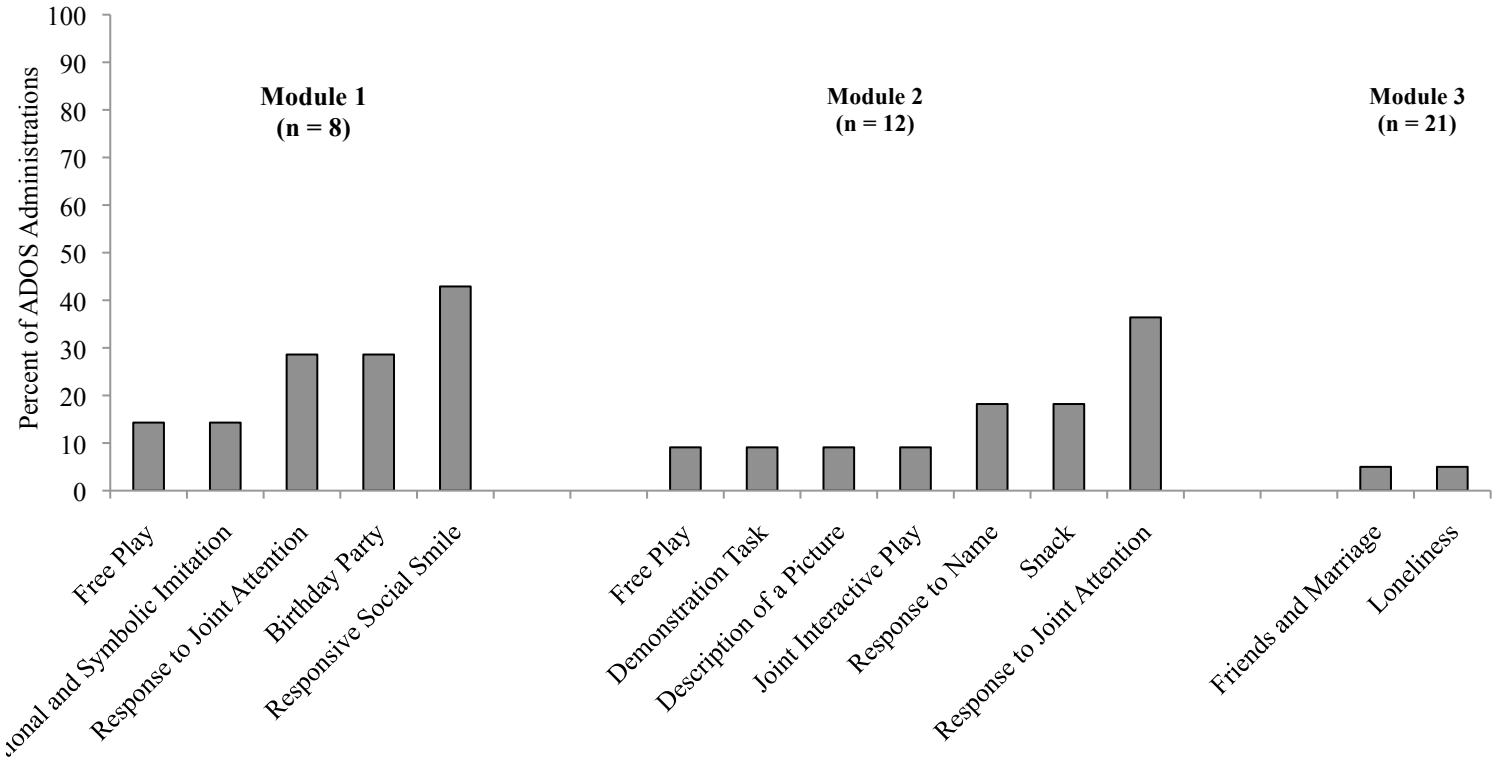
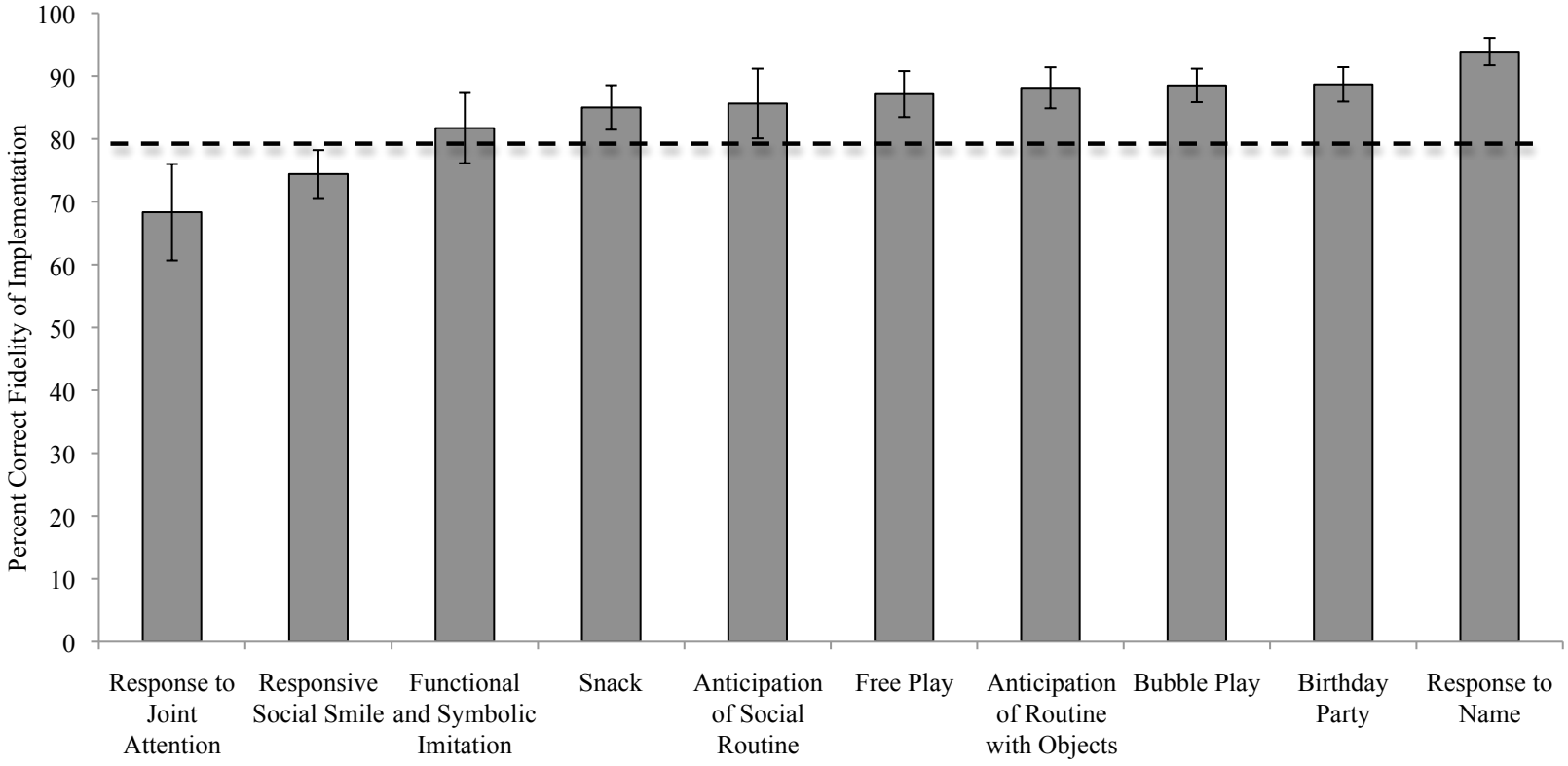
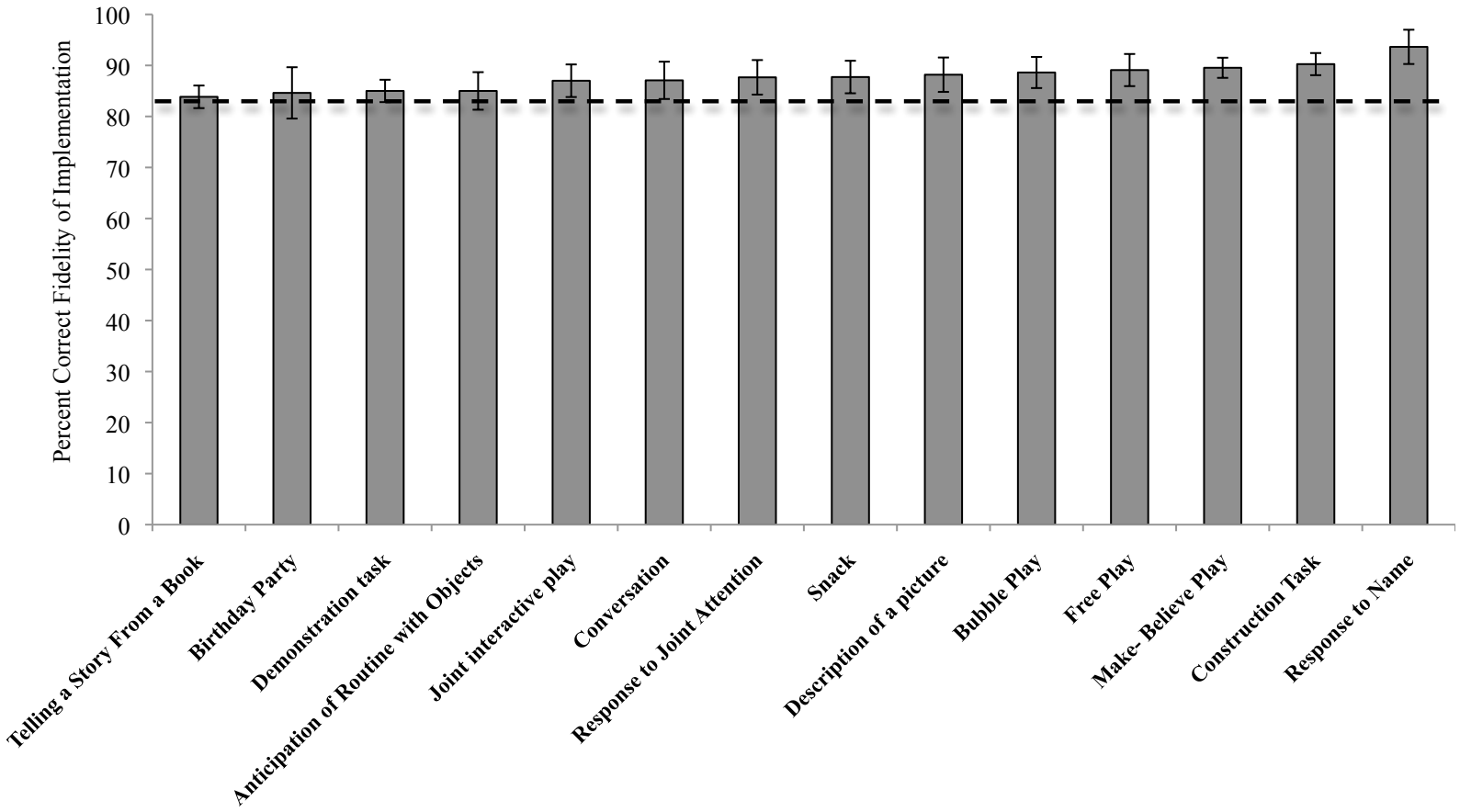


Figure 8: Percent of ADOS Administrations where ADOS Tasks were Omitted by Module



(n = 8)

Figure 9: ADOS Fidelity of Implementation by Task Module 1



(n = 12)

Figure 10: ADOS Fidelity of Implementation by Task Module 2

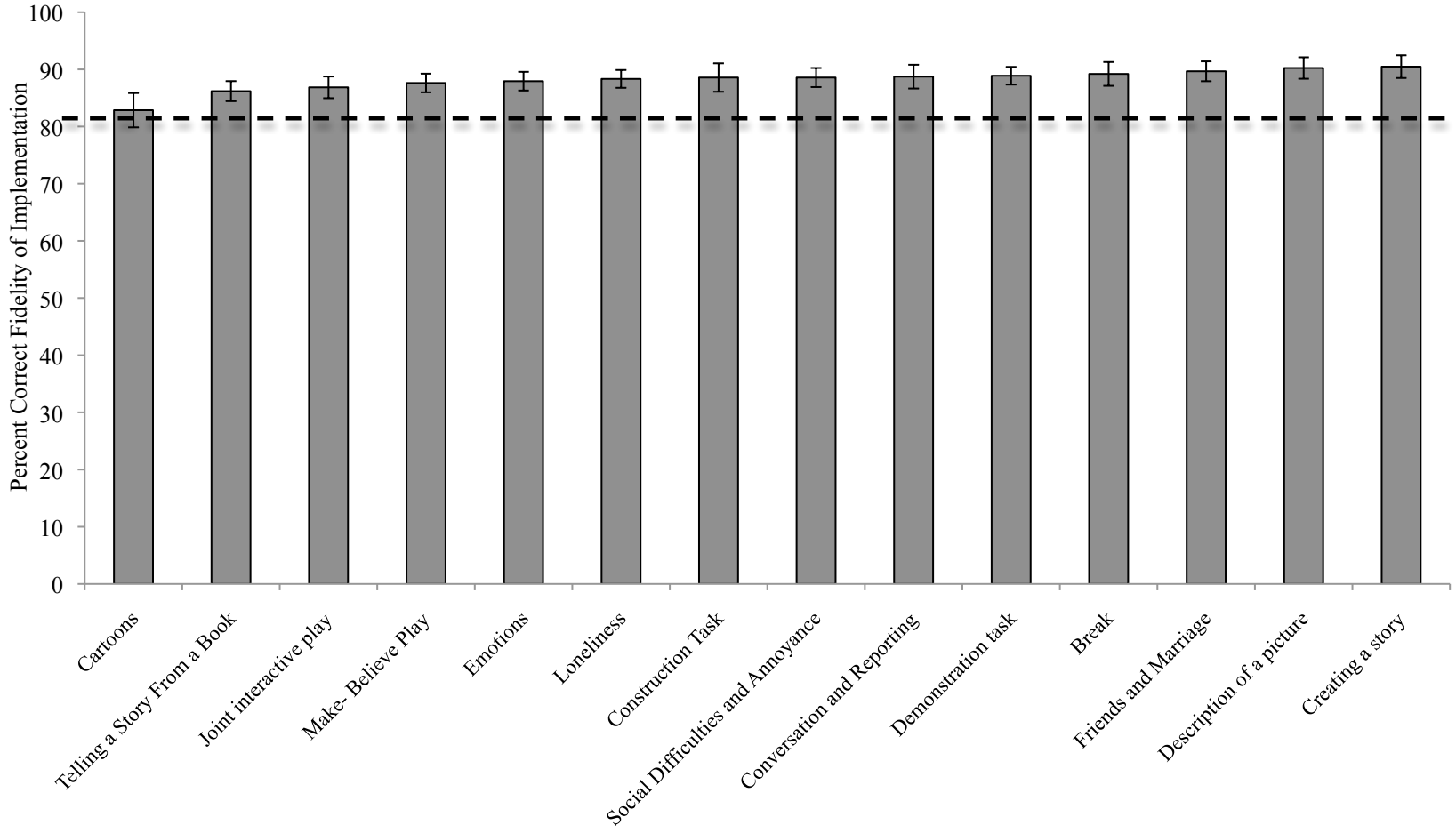


Figure 11: ADOS Fidelity of Implementation by Task Module 3 (n = 21)

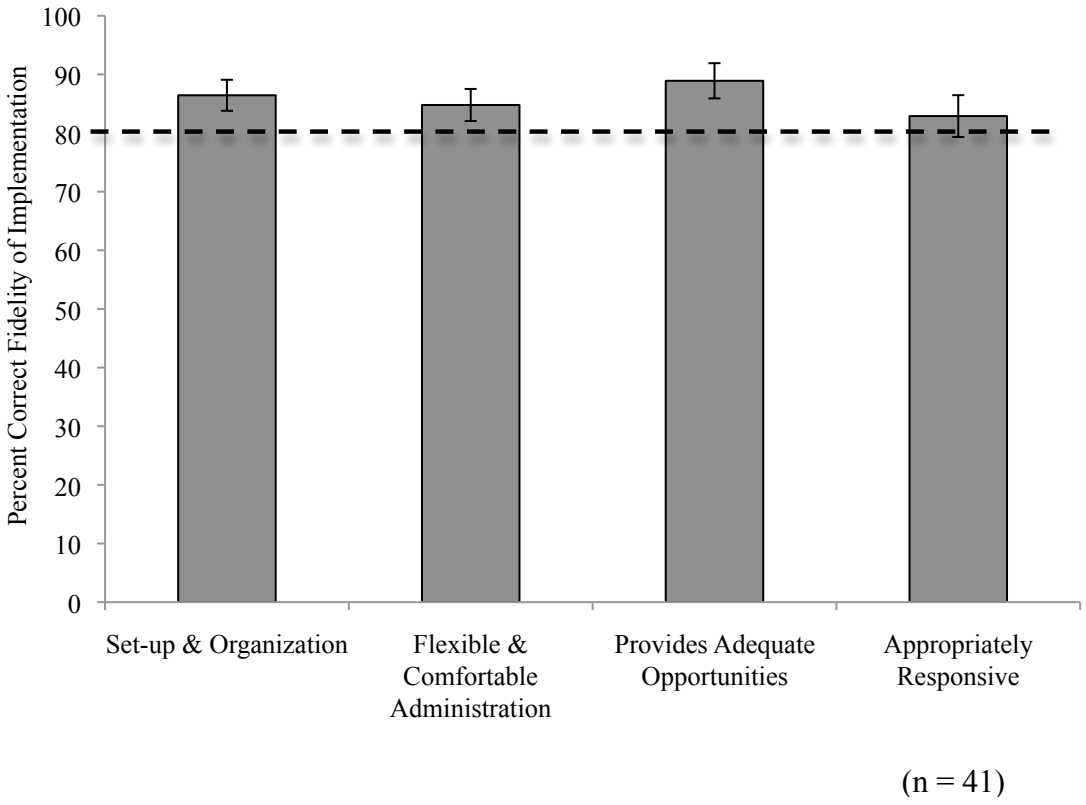
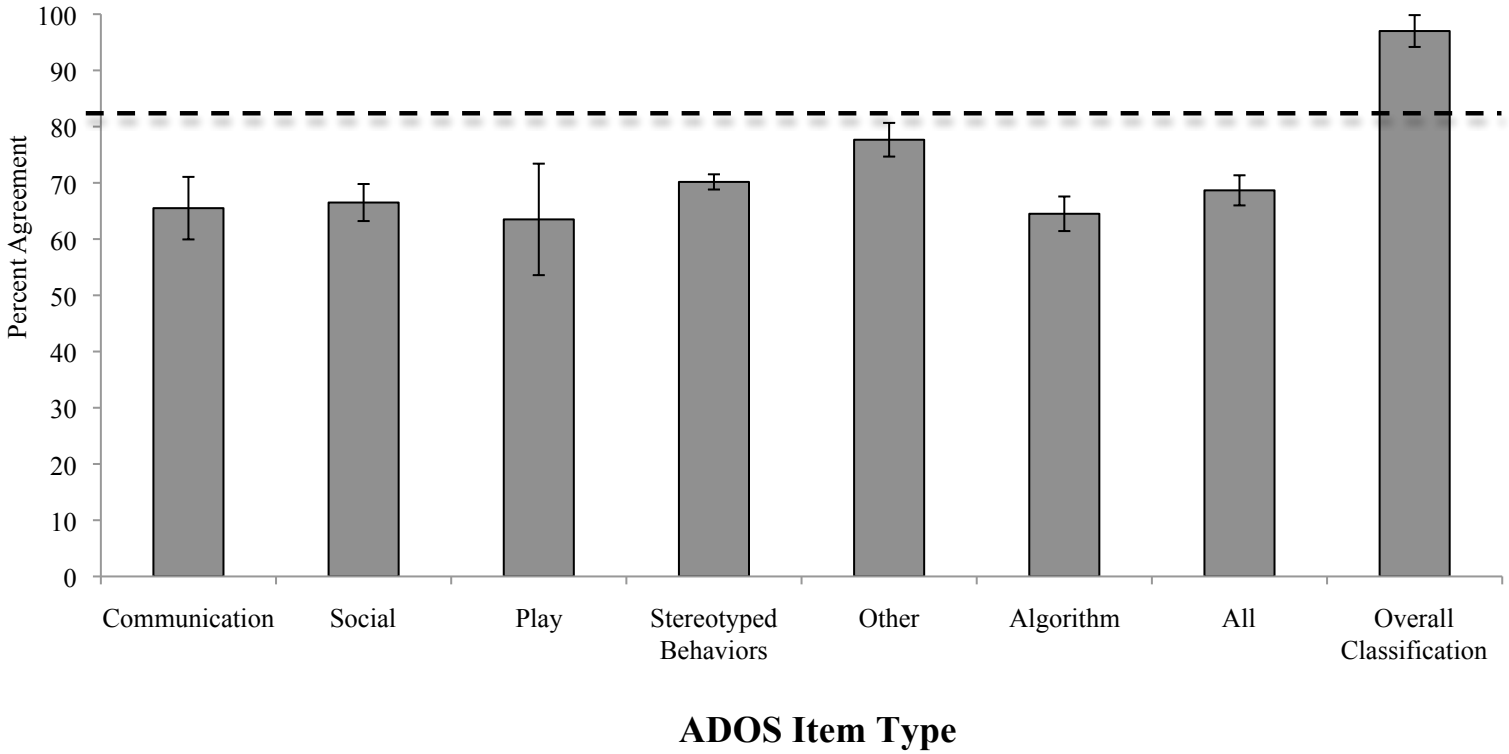


Figure 12: ADOS Fidelity of Implementation: Overall ADOS Administration



(n = 41)

Figure 13: Overall ADOS Coding Reliability

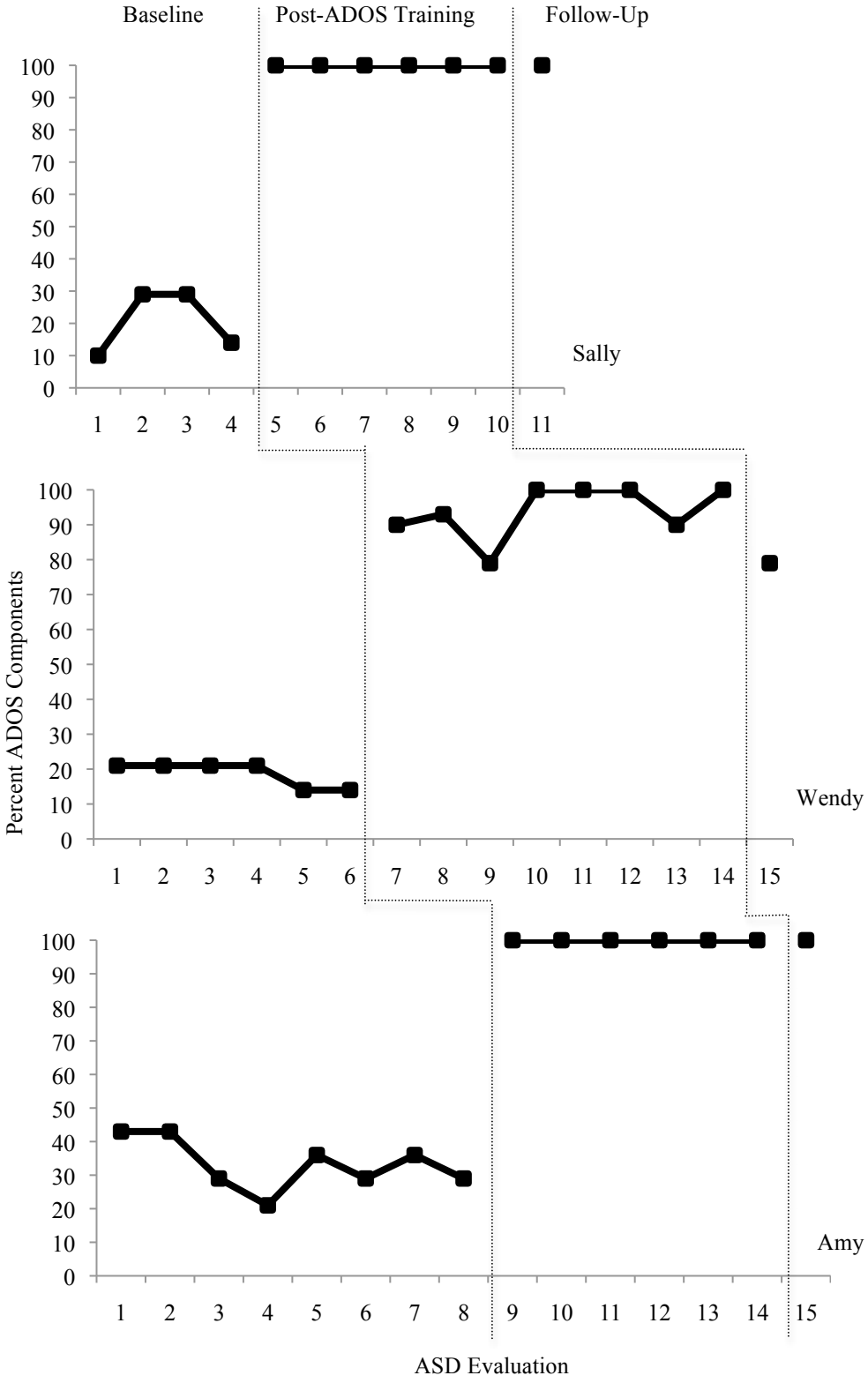


Figure 14: Percent of ADOS Components Implemented Over Time

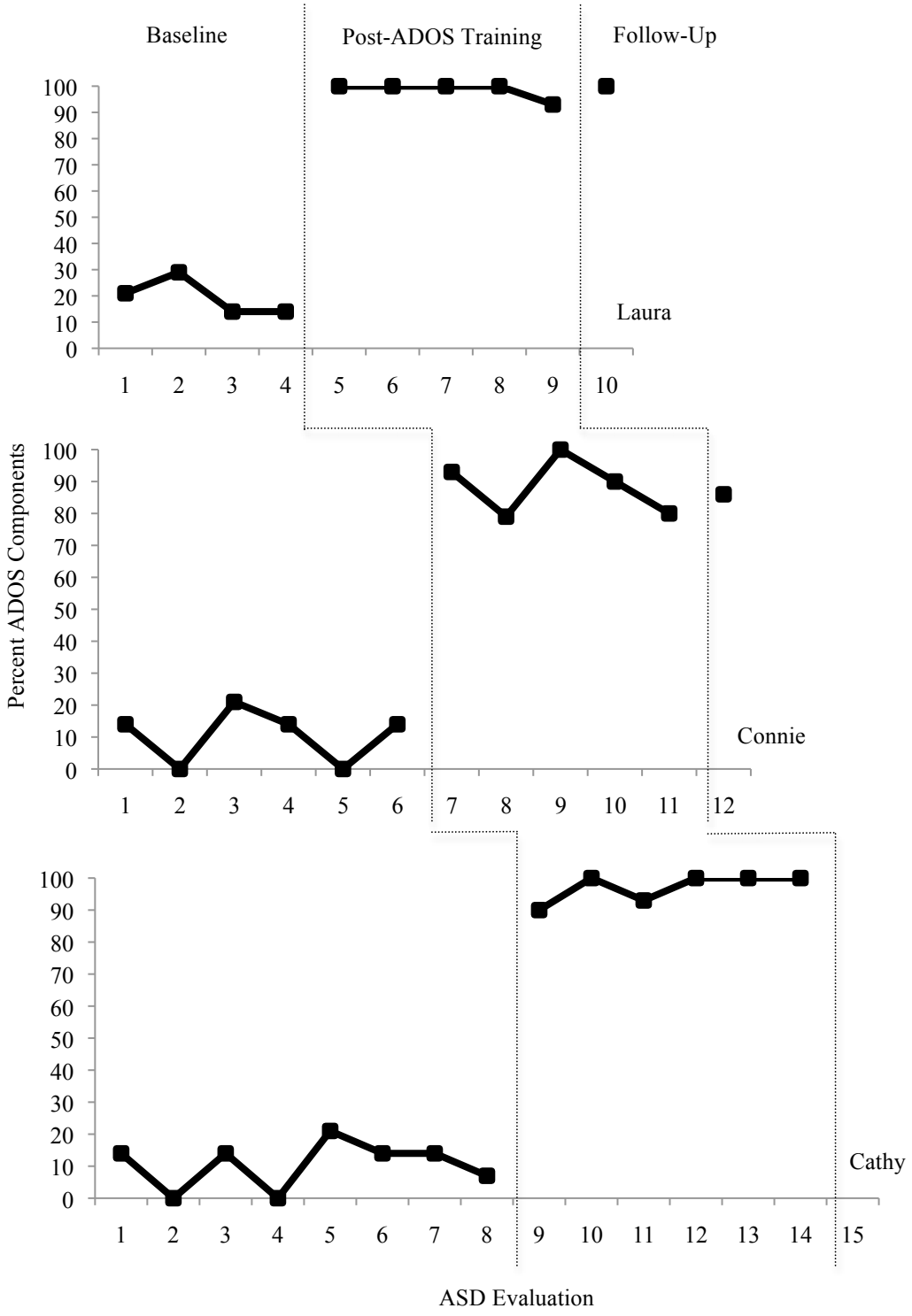


Figure 14: Continued

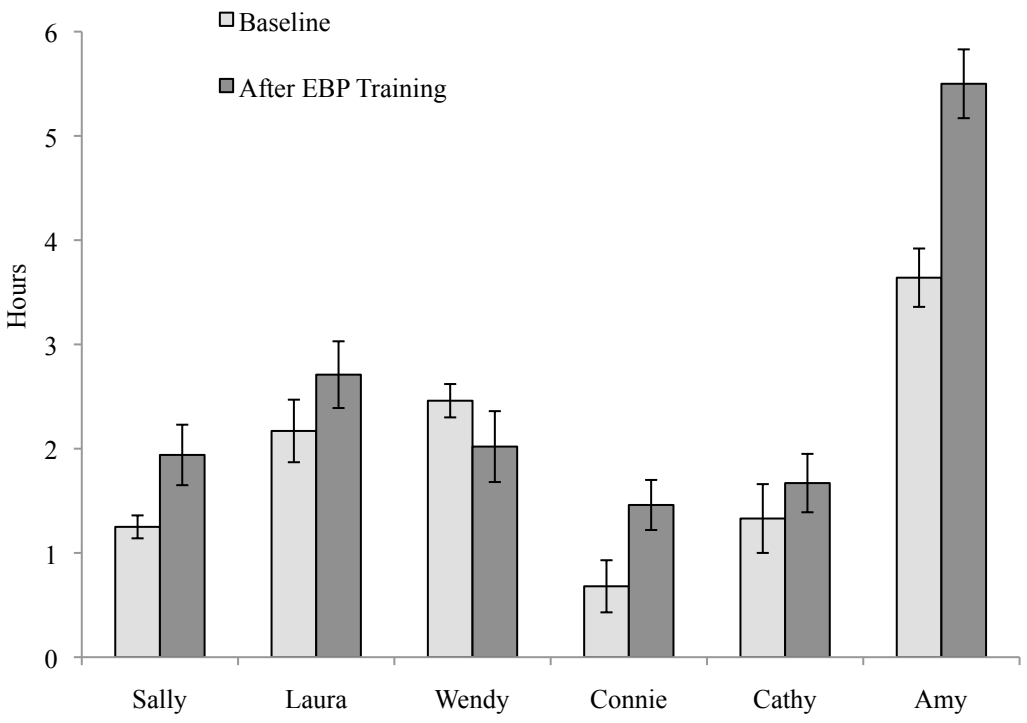


Figure 15: Total Assessment Time at Baseline and After EBP Training in Hours

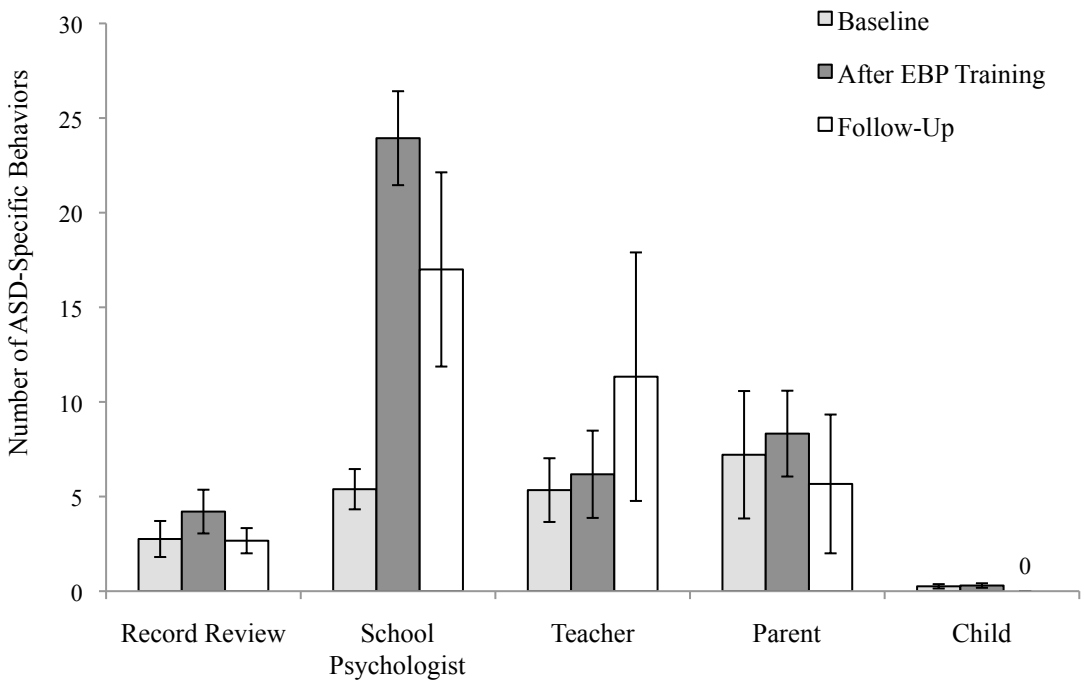


Figure 16: Source of ASD-Specific Behaviors Identified in ASD Evaluation Reports Over Time

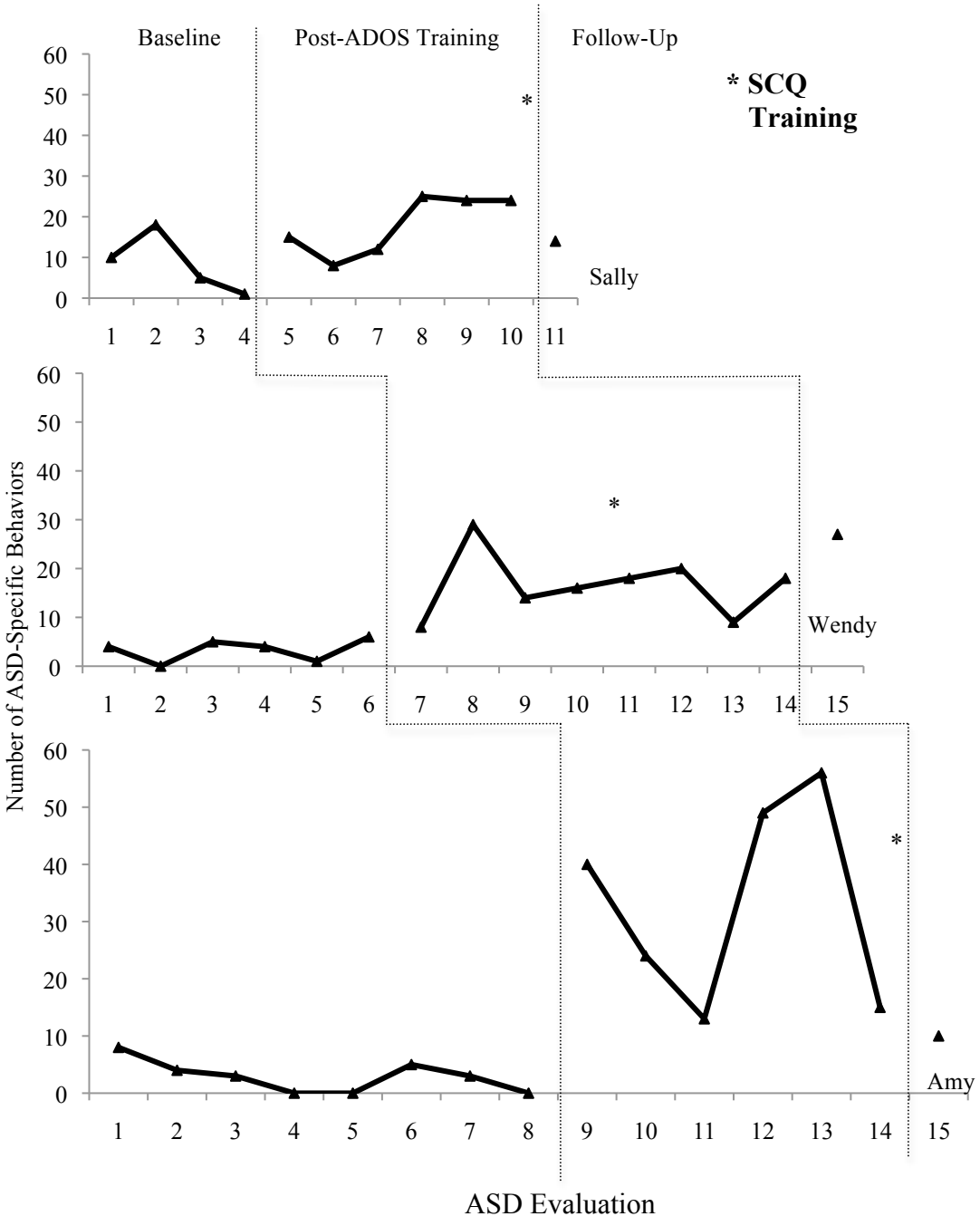


Figure 17: ASD-Specific Behaviors Identified By School Psychologists Over Time

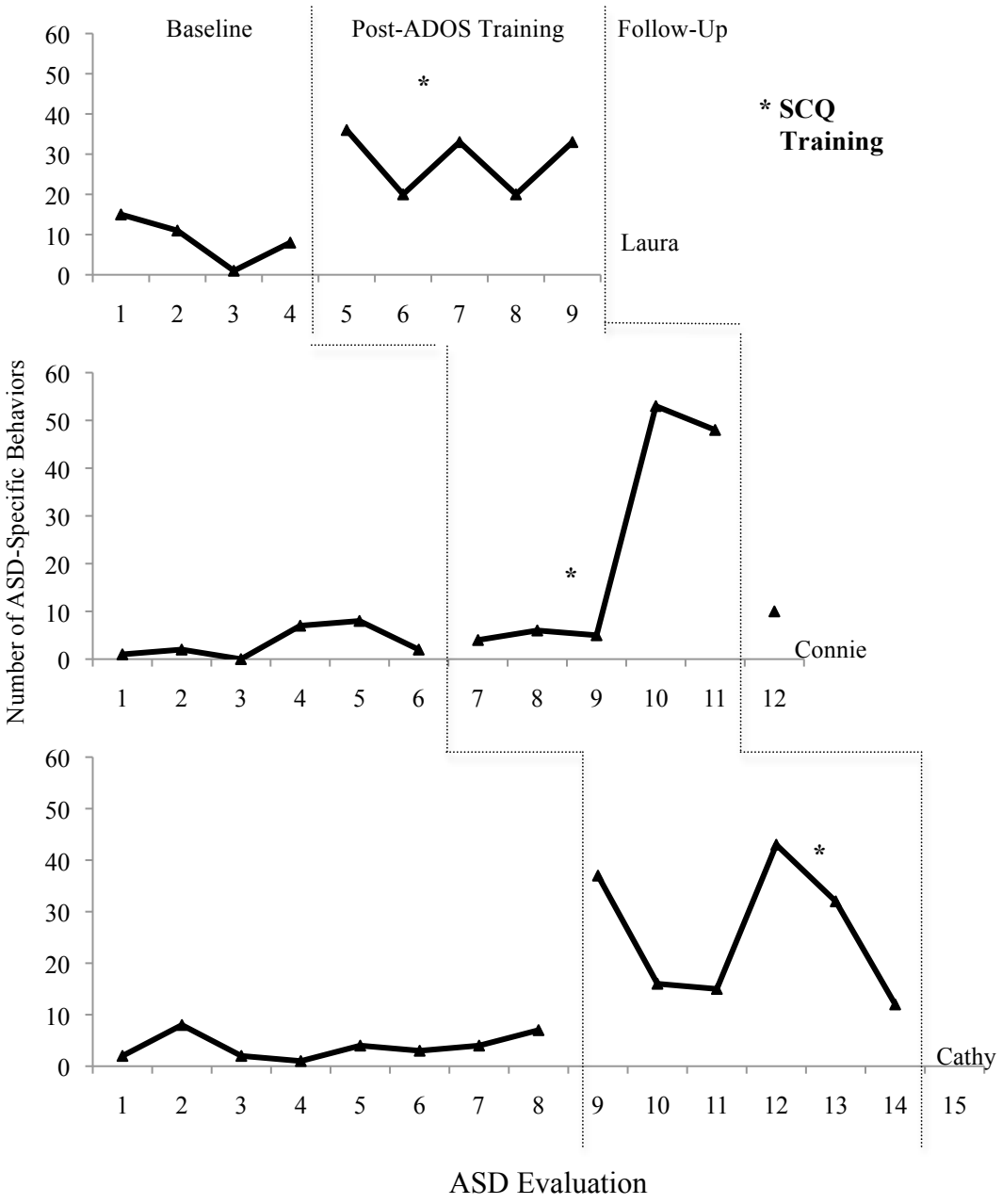


Figure 17: Continued

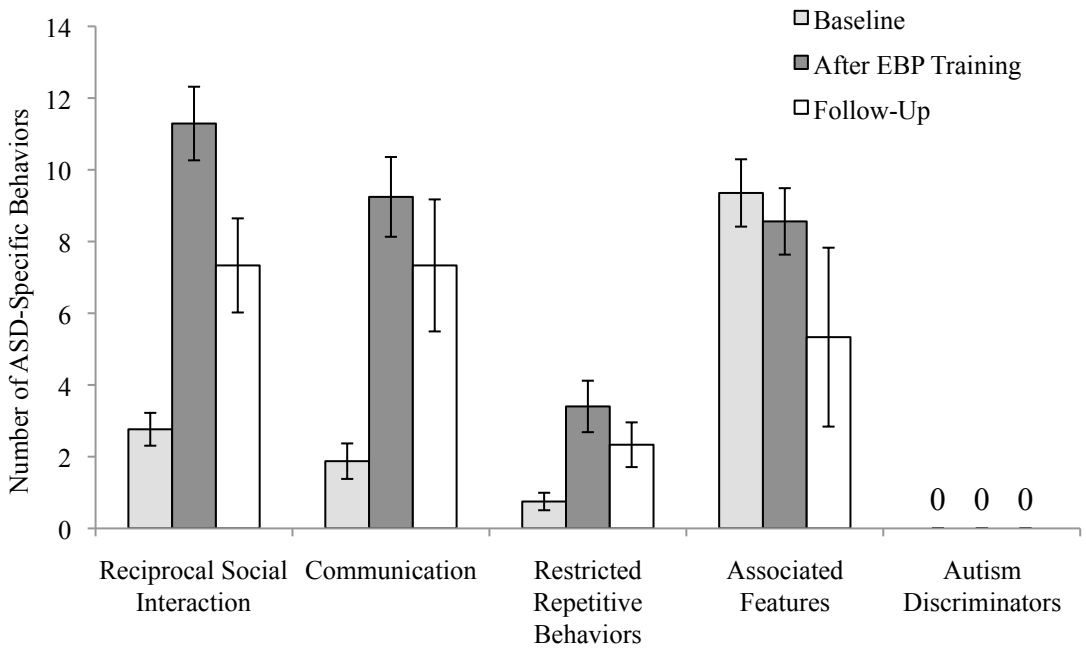
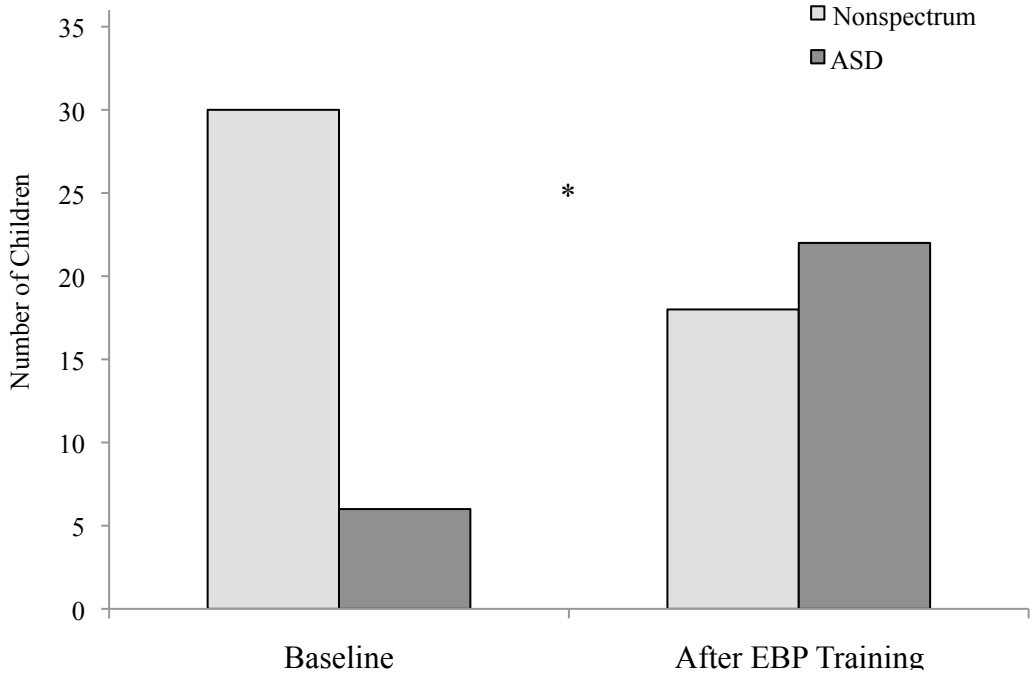
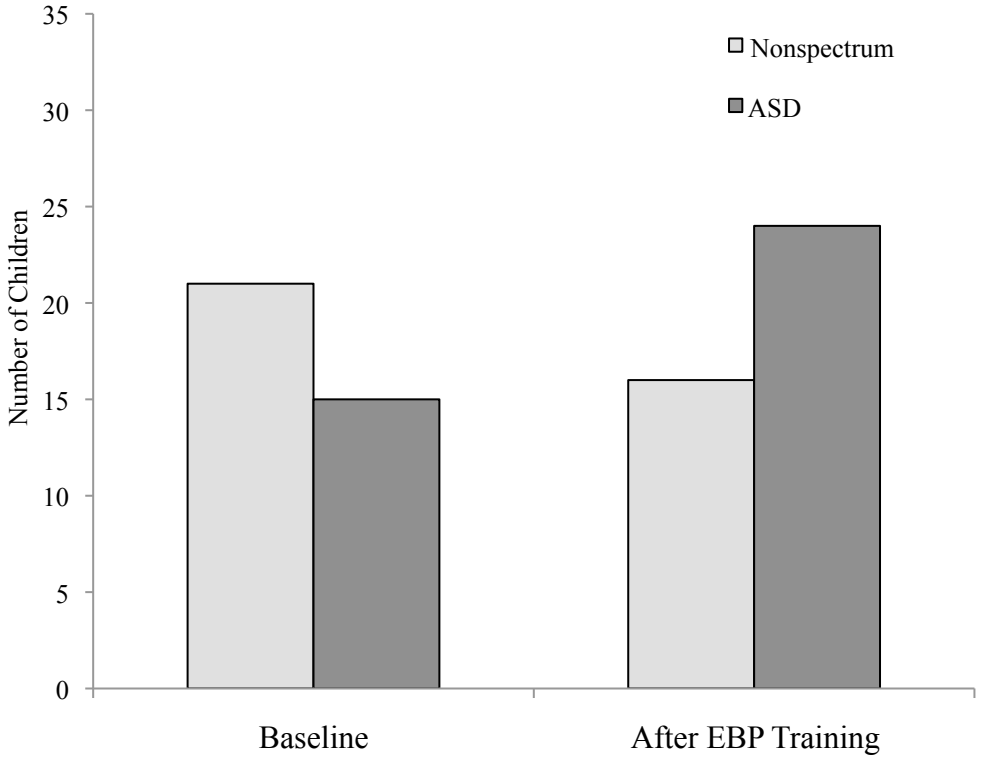


Figure 18: Type of ASD-Specific Behaviors Identified by School Psychologists Over Time



[X^2 (1, N = 76) = 11.97, $p < 0.01$]

Figure 19: Overall Child Autism Educational Eligibility Determined by School Psychologists Over Time



[X^2 (1, N = 76) = 2.55, p = 0.09]

Figure 20: Overall Child ASD Classification Determined by MADDSP Over Time

APPENDICES

Appendix A: Diagnostic Criteria for Autistic Disorder

Diagnostic criteria for Autistic Disorder

American Psychiatric Association (2000)

A. A total of six (or more) items from (1), (2), and (3), with at least two from (1), and one each from (2) and (3):

   (1) Qualitative impairment in social interaction, as manifested by at least two of the following:

      (1) Marked impairment in the use of multiple nonverbal behaviors such as eye-to-eye gaze, facial expression, body postures, and gestures to regulate social interaction
      (2) Failure to develop peer relationships appropriate to developmental level
      (3) A lack of spontaneous seeking to share enjoyment, interests, or achievements with other people (e.g., by a lack of showing, bringing, or pointing out objects of interest to other people)
      (4) Lack of social or emotional reciprocity

   (2) Qualitative impairments in communication as manifested by at least one of the following:

      (1) Delay in, or total lack of, the development of spoken language (not accompanied by an attempt to compensate through alternative modes of communication such as gesture or mime)
      (2) In individuals with adequate speech, marked impairment in the ability to initiate or sustain a conversation with others
      (3) Stereotyped and repetitive use of language or idiosyncratic language
      (4) Lack of varied, spontaneous make-believe play or social imitative play appropriate to developmental level

   (3) Restricted repetitive and stereotyped patterns of behavior, interests, and activities, as manifested by at least one of the following:

      (1) Encompassing preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal either in intensity or focus
      (2) Apparently inflexible adherence to specific, nonfunctional routines or rituals
      (3) Stereotyped and repetitive motor mannerisms (e.g., hand or finger flapping or twisting, or complex whole-body movements)
      (4) Persistent preoccupation with parts or objects

B. Delays or abnormal functioning in at lest one of the following areas, with onset prior to age 3 years: (1) social interaction, (2) language as used in social communication, or (3) symbolic or imaginative play.
C. The disturbance is not better accounted for by Rett's Disorder or Childhood Disintegrative Disorder.

Appendix B: Diagnostic Criteria for Asperger's Disorder

Diagnostic criteria for Asperger's Disorder

American Psychiatric Association (2000)

A. Qualitative impairment in social interaction, as manifested by at least two of the following:

(1) Marked impairment in the use of multiple nonverbal behaviors such as eye-to-eye gaze, facial expression, body postures, and gestures to regulate social interaction
(2) Failure to develop peer relationships appropriate to developmental level
(3) A lack of spontaneous seeking to share enjoyment, interests, or achievements with other people (e.g., by a lack of showing, bringing, or pointing out objects of interest to other people)
(4) Lack of social or emotional reciprocity

B. Restricted repetitive and stereotyped patterns of behavior, interests, and activities, as manifested by at least one of the following:

(1) Encompassing preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal either in intensity or focus
(2) Apparently inflexible adherence to specific, nonfunctional routines or rituals
(3) Stereotyped and repetitive motor mannerisms (e.g., hand or finger flapping or twisting, or complex whole-body movements)
(4) Persistent preoccupation with parts or objects

C. The disturbance causes clinically significant impairment in social, occupational, or other important areas of functioning.

D. There is no clinically significant general delay in language (e.g., single words used by age 2 years, communicative phrases used by age 3 years.

E. There is no clinically significant delay in cognitive development or in the development of age-appropriate self-help skills, adaptive behavior (other than in social interaction), and curiosity about the environment in childhood.

F. Criteria are not met for another specific Pervasive Developmental Disorder or Schizophrenia.

Appendix C: Student Recruitment Script

Community Practitioner Utilization of Evidence-based Practice for Diagnosis of Autism Spectrum Disorder Sarah Dufek, M.A. (sdufek@ucsd.edu)

The school psychologist you are scheduled to see for your child's evaluation is participating in a study at University of California, San Diego that is being done to find out how community practitioners assess and diagnose autism spectrum disorder or other clinical concerns. *Right now we are in need of child participants who are at-risk for autism spectrum disorder and also those who are not.* Are you interested in participating in the study as part of your child's evaluation? If so, I can give you the paperwork when you arrive or I can send it to you ahead of time. Also, may I give your contact information to the researcher (Sarah Dufek) so she can contact you to provide you with more information? You are under no obligation to participate at any time.

If the parent wants to know more information from you about specifics in participation…

Parent/Child participation usually consists of consenting to videotaping of the initial school psychologist evaluation and sometimes additional diagnostic testing on a different day if they want to participate further. This study has been approved by the UCSD Human Research Protection Program and all data collected will be treated in accordance with their rules and regulations.

Appendix D: ADOS Administration Cards- Module 1

Activities	Items Needed
Free Play	Table toys: pop-up, block, book, telephone, yarn Floor toys: music box, baby doll, JIB, truck, blocks, balls, cars, utensils, plates
Response to Name	Any of Module 1 toys
Response to Joint Attention	Remote-controlled bunny or car
Bubble play	Bubble gun and liquid
Anticipation of a Routine with Objects	Balloon or a cause-and-effect toy
Responsive Social Smile	-
Anticipation of a Social Routine	Baby blanket
Functional and Symbolic Imitation	Car, frog, cup, airplane, flower, block
Birthday Party	Baby, plate, fork, knife, cup, napkin, Play-Doh, candles, blanket
Snack	Cup, water/juice, plate, 2 snacks in containers

Overall Administration

Child-size table and chairs, chairs adjacent to each other at one corner of the table
Free Play toys should be in place before C and P arrive
Testing materials should be out of C's sight unless in use
E tells P that she wants to give C a few minutes to adjust to the room and play alone
During the Response to Joint Attention press, E asks P to sit slightly behind and away from C
During Bubble Play E tells P that she wants to see if C will notice the bubbles without having them pointed out to him
E asks P not to give instructions to C during imitation task
E takes adequate notes throughout administration

Free Play

E watches C play
E sometimes comments on C's behaviors, offers toys to C, participates in C's activities
E asks P to sit a few feet away and allow C to play alone
E says: "Are these the kinds of toys (C's name) likes to play with at home?" and "Is this how he usually behaves when he comes to a new place for the first time?"
If C is crying/clinging to P, or unable to play or look at toys after 2 min., E asks P: "Can you see if you can get him interested in some of these toys?"

Response to Name

Best conducted early during Free Play but can take place anytime during the assessment
E is positioned from a distance of 3-5 feet so that C has to turn in order to look at E
E calls C's name (4 attempts)
No response→ E asks P to call C's name to get his attention (2 attempts)
No response→ E says, "Is there any way you can get him to look at you without touching him?"
No response→ E asks P to use any method to get a response including touching

Response to Joint Attention

E calls C's name and/or touches him to get C's attention
E says "Look, (C's name)" as E looks toward the toy, then looks back to C
If no response→ E says "Look, (C's name), look at *that*!" (4 attempts)
If no response→ E points to the toy, saying "(C's name), look at *that*!"
If no response→ E uses the switch to activate the toy from E's position
If no response→ E places the toy in front of C

If no response→ E turns it on for 5 seconds, then turns it off and waits for C's next action

Bubble Play
E begins blowing bubbles with the bubble gun, holding it away from her body (~15 sec)
E continues blowing bubbles for at least 5 seconds after C sees them
E gives C an opportunity to request more bubbles
If no response→ E puts the bubble gun in an accessible but keeps the bubble fluid
If necessary, E shows C how the bubble gun works, step by step

Anticipation of a Routine with Objects
E blows up a large balloon slowly, exaggerating the behavior
E pinches the neck of the balloon so that it won't deflate
E holds it directly in front of C, letting him touch or hit it
E holds the inflated balloon over her head and says "Ready, set, go!" and lets go
E retrieves it to blow it up again (3 times total)
E waits each time for C to initiate the routine with the balloon
If C has a clear negative response to the balloon→ E establishes a routine with CaE toy
E places CaE toy in front of C, activates it 1 time
E makes a suitable sound of excitement
If C is not interested, E tries another toy
If no response→ E repeats the action 2 times, pausing in between presses

Responsive Social Smile
Responsive Social Smile can take place anytime during the assessment
E gets C's attention by calling his name or using a toy or noise
E smiles, makes a positive statement, or a silly face/funny noise
If no response→ E lets C play with toys for a short time, then tries again (2 times total)
If no response→ E says "Can you show me how you get him to smile, without touching him?"
If no response→ E encourages P to touch C in order to evoke a smile

Anticipation of a Social Routine
E engages C in at least 2 routines (either with E or P), 3 presses per routine
Peek-A-Boo
E holds the blanket between her face and C, E says "Where's (C's name)?"
E pulls the blanket down, saying "PAB" or C's name along with touching or tickling him
E repeats 1 time, then hesitates with the blanket held up between E and C
If C pulls blanket→ E repeats the routine, then pauses with the blanket held out toward C
E may put the blanket over C's head if he is comfortable with this
If no response to PAB→ E tries 1 other social routine (tickling, swing), first with E, then with P
Tickling
E holds her hands up in front of C and moves them in a tickling motion while saying "Here comes the tickle bug…" or something similar
E gently tickles C's leg up to his stomach
E repeats, then E holds her hands up or places them on C's leg without moving them or saying anything
E pauses to wait for C to vocalize, touch or move E's hands, or put his hands or body in a ready position in order to get E to go through the routine
E carries out the routine once more and then pauses
If no response→ E asks P to do the same thing
Swing
E approaches C with arms reaching out
E "jumps" C up and down lightly a couple of times, counting "One, two, three" aloud, and then swings him around when she says three
E puts C down, then approaches him again and repeats this routine
After the second time, E approaches him with arms extended and waits

If no response→ have P demonstrate a social routine that he/she engages in with C at home

Functional & Symbolic Imitation

E never labels any action while demonstrating for C
If C imitates or attempts to imitate an action, E claps and cheers
E puts the car (or frog) on the table, says "look at the car" ("look at the frog") and moves the car (or frog) across the table saying "vroom-vroom" ("ribitt, ribitt")
E then gives the car (or frog) to C and says, "you do it"
If C imitates this action→ E removes the car (or frog) and begins the actual trials
If no response→ E physically helps him to do so (1 time), then takes the car (or frog) back, demonstrates how to make it move, and gives it back to C (2 attempts)
If no response→ E discontinues this item and proceeds with other tasks
If C imitates→ E picks up the specified object saying "it's a (cup, flower, plane)" or "here's a (cup, flower, plane)", E demonstrates an appropriate action and sound effect for each object
After the demonstration, E gives it to C and says "you do it"
If imitation→ E picks up the block, saying "now this is a cup" or "look at this cup" and then demonstrates the same action previously used with the actual toy cup
E uses the block to represent a different action that C has not seen demonstrated earlier
If C cannot follow either of these demonstrations, E goes back to using a real object, in order to regain his interest, E then proceeds through the same sequence again
If C fails to imitate with any of the four real objects, E discontinues this activity

Birthday Party

E puts the doll up on the table or in a second chair and says "look, here's a baby"
E says "It's the baby's birthday! Let's have a birthday party for the baby!"
E makes a cake out of the play-doh on the plate by patting it, saying "here's the birthday cake"
E puts 1 of the candles in the cake, saying "here are the candles"
E gives the second candle to C and leaves the third and fourth within easy reach on the table
If no response→ E helps him add the other candles to the cake
E pretends to light the candles with a match, and shakes out the match, saying "hot"
E says "what should we do now?"
If no response→ E says "let's sing happy birthday" and does so
If no response→ E says "let's blow out the candles"

- E says "what's next?"
- E opens her mouth
- E puts her mouth in the blowing position
- E blows out the candles, then claps and cheers
- before each step, E looks at C and pauses briefly in anticipation

When the candles are blown out, E then gives the fork to C and says "the baby's hungry"
If no response→ E says "the baby wants some birthday cake"
If C begins to feed the baby, E makes appropriate "Yum!" sounds
If no response→ E demonstrates, saying "let's feed the baby" and then gives the fork to C
If no response→ E pretends to pour some juice into the cup and gives the doll a drink
E knocks over the cup and says "Oh, no! I spilled the juice! What a mess! What should we do!?"
If no response→ E asks him, "Can you help clean up?"
If no response→ E hands him the napkin
E says "Okay, the birthday party's over. Now what will the baby do?"
E lays the doll down on the table, and puts the blanket on the table within C's reach
If no response→ E says "The baby's tired. Time for the baby to sleep"
E pauses, and then gives the blanket to C
If no response→ E should cover the doll with the blanket, pat it, and say "night-night, baby"
E gives the doll to C and allows him to put it to bed or give it a kiss
E puts the birthday items back in their bag, giving C an opportunity to help E do so

Snack

E says “it’s time for a snack” and places the plate on the table
E puts 1 cookie and cracker on the plate, saying “we have cookies and crackers”
E holds up each food container and asks “what do you want?”
If no response→ E holds containers out and says “crackers” and then “cookies”
E then holds both containers in front and says “what do you want?”
If C seems to want something but can’t indicate, E gives him the cookie or cracker container
After C has had one or more cookie or cracker, E starts over again
E holds both containers up and says “what do you want?”
If no response→ E goes through the earlier steps again, but moves more quickly
E continues the snack, giving C cookies and/or crackers until C has had enough

Appendix E: ADOS Administration Cards- Module 2

Activities	Items Needed
Construction Task	Block puzzle
Response to Name	Any of the Module 2 toys
Make-Believe Play	Bag 1: Family set of human dolls and dog, 4 pieces of furniture, 1 piece baby furniture Bag 2: Miniature book, 2 small spoons, 2 plates, 4 pieces of miniature food, teapot or pitcher or measuring cup, toy car, rocket, small ball, hologram spin disk, two pieces of "junk" (small cloth and small "jewelry" box)
Joint Interactive Play	Materials from "Make-Believe Play"
Conversation	Materials from "Make-Believe Play" or "Free Play" or "Birthday Party"
Response to Joint Attention	Remote-control bunny or car
Demonstration Task	Hand towel and soap
Description of a Picture	Feast scene and resort scene (for back up use)
Telling a Story From a Book	2 picture storyboard books
Free Play	Table toys: pop-up, block, book, toy, yarn Floor toys: music box, baby doll, JIB, truck, blocks, balls, cars, utensils, plates, "Make-Believe" set
Birthday Party	Baby, plate, fork, knife, cup, napkin, Play-Doh, candles, blanket
Snack	Cup, water/juice, plate, 2 snacks in containers
Anticipation of a Routine With Objects	Balloon and cause-and-effect toy
Bubble Play	Bubble gun and liquid

Overall Administration

Child-size table and chairs, chairs adjacent to each other at one corner of the table
Testing materials should be out of C's sight unless in use
During the Response to Joint Attention press, E asks P to sit slightly behind and away from C
During Bubble Play E tells P that she wants to see if C will notice the bubbles without having them pointed out to him
E asks P not to give instructions to C during imitation task
E takes adequate notes throughout administration

Construction Task

E places the printed design and a few blocks in front of C
E points to the design and says "Show me how you'd put these blocks together to look like this picture. Let me know if you need more blocks."
Remaining blocks should be in view but out of reach on the other side of the E's arm
E should gesture to indicate the blocks she has kept and ensure that C can see them
When C assembles the few blocks he was given, E should turn slightly away from C and wait to see if he will ask for access to the remaining blocks
If no response→ E should deliberately look at him
If no response to direct gaze in 3 seconds→ E gestures toward C's blocks and says "Are you doing all right?" or "How are you doing?, then asks "Do you need more blocks?"
When done E places the container for the block puzzle in front of C, opens it, and puts some of the blocks in, while saying "Time to clean up"

Response to Name

Best conducted early during Free Play but can take place anytime during the assessment
E is positioned from a distance of 3-5 feet so that C has to turn in order to look at E

E calls C's name (4 attempts)
No response→ E asks P to call C's name to get his attention (2 attempts)
No response→ E says, "Is there any way you can get him to look at you without touching him?"
No response→ E asks P to use any method to get a response including touching

Make-Believe Play
With materials laid out, E says "This is a family, with a mother and father, and a young girl/boy, and a baby. Here are some of their things. Could you play with these now for a while?"
If no response→ E says "I'll play with these" picks up some of the objects, and makes some limited but creative use of them without including C
E then asks C "What are you going to do with yours?" while gesturing toward the remaining toys
E should comment, show interest, and encourage C without actually telling him/her what to do

Joint Interactive Play
After C can initiate make-believe play on his own, E says "Can I play too?"
E manipulates objects to produce a press for joint interactive play
If C responds, E should respond in turn
If no response→ E should try some other interactive play (4 attempts)

Conversation
E can initiate conversation with C at any time during the schedule.
E should offer simple comments about the materials
E should then add comments about related events or objects outside the immediate context
Eventually E should sit silently for a few seconds while looking interested
E should set up the beginning of an interchange
E must provide sufficient leads, guides, and prompts on a topic while avoiding a question and answer style.

Response to Joint Attention
E calls C's name and/or touches him to get C's attention
E says "Look, (C's name)" as E looks toward the toy, then looks back to C
If no response→ E says "Look, (C's name), look at *that*!" (4 attempts)
If no response→ E points to the toy, saying "(C's name), look at *that*!"
If no response→ E uses the switch to activate the toy from E's position
If no response→ E places the toy in front of C
If no response→ E turns it on for 5 seconds, then turns it off and waits for C's next action

Demonstration Task
E says "Now I want you to play a pretend game with me"
E sets the imaginary scene with appropriate gestures
E says "Let us pretend this is the washbasin in the bathroom."
E pretends to draw a basin and water taps around the area of the table in front of C
E says "this is the pretend toothpaste" and indicates the pretend object
E says "Now I want you to teach me how you brush your teeth. Can you show me and tell me? Start right at the beginning. You've come into the bathroom. What do you do now?"
If no response→ the scene should be described again in a similar way
If no response→ E may show "driving a car" before proceeding to the 2nd trial
If C does a limited demonstration E says, "That's good. Now tell me and show me again right from the beginning- from when you first came into the bathroom. It's OK for you to talk as well as show me."
For the 2nd trial, E sets the scene by pointing out four make-believe items: soap, a hand towel, a washcloth, and a washbasin with faucets
E says, "Now I want you to teach me how you wash your face, using soap."
If no response→ re-do the scene again by using real soap and towel

Description of a Picture
E says, "Let's look at this picture now. Can you tell me about it? What is happening in the picture?" (2 prompts)
If no response→ E models a complex sentence
If no response→ E can ask specific questions like "What's this?" "Who is this?" "What is he doing?" "What is happening over here?"
If no response→ E presents the 2nd picture
If no response→ E should ask questions requiring pointing response like "Do you see a cake in the picture? Show me where it is."

Telling a Story from a Book
E says "Have a look at this book. It tells a story. See, it starts out with …(describing the first picture in the book). Can you look at it, and tell me the story?"
E hands the book to C, giving whatever prompts may be necessary to encourage him to start at the beginning and then turn the page (2 prompts)
C describes the book for a few minutes
E says "That was great. Now I'll take a turn" and quickly completes the story

Free Play
E watches C play
E sometimes comments on C's behaviors, offers toys to C, participates in C's activities
E asks P to sit a few feet away and allow C to play alone
E says: "Are these the kinds of toys (C's name) likes to play with at home?" and "Is this how he usually behaves when he comes to a new place for the first time?"
If C is crying/clinging to P, or unable to play or look at toys after 2 min., E asks P: "Can you see if you can get him interested in some of these toys?"

Birthday Party
E puts the doll up on the table or in a second chair and says "look, here's a baby"
E says "It's the baby's birthday! Let's have a birthday party for the baby!"
E makes a cake out of the play-doh on the plate by patting it, saying "here's the birthday cake"
E puts 1 of the candles in the cake, saying "here are the candles"
E gives the second candle to C and leaves the third and fourth within easy reach on the table
If no response→ E helps him add the other candles to the cake
E pretends to light the candles with a match, and shakes out the match, saying "hot"
E says "what should we do now?"
If no response→ E says "let's sing happy birthday" and does so
If no response→ E says "let's blow out the candles"

- E says "what's next?"
- E opens her mouth
- E puts her mouth in the blowing position
- E blows out the candles, then claps and cheers
- before each step, E looks at C and pauses briefly in anticipation

When the candles are blown out, E then gives the fork to C and says "the baby's hungry"
If no response→ E says "the baby wants some birthday cake"
If C begins to feed the baby, E makes appropriate "Yum!" sounds
If no response→ E demonstrates, saying "let's feed the baby" and then gives the fork to C
If no response→ E pretends to pour some juice into the cup and gives the doll a drink
E knocks over the cup and says "Oh, no! I spilled the juice! What a mess! What should we do!?"
If no response→ E asks him, "Can you help clean up?"
If no response→ E hands him the napkin
E says "Okay, the birthday party's over. Now what will the baby do?"
E lays the doll down on the table, and puts the blanket on the table within C's reach

If no response→ E says "The baby's tired. Time for the baby to sleep"
E pauses, and then gives the blanket to C
If no response→ E should cover the doll with the blanket, pat it, and say "night-night, baby"
E gives the doll to C and allows him to put it to bed or give it a kiss
E puts the birthday items back in their bag, giving C an opportunity to help E do so

Snack
E says "it's time for a snack" and places the plate on the table
E puts 1 cookie and cracker on the plate, saying "we have cookies and crackers"
E holds up each food container and asks "what do you want?"
If no response→ E holds containers out and says "crackers" and then "cookies"
E then holds both containers in front and says "what do you want?"
If C seems to want something but can't indicate, E gives him the cookie or cracker container
After C has had one or more cookie or cracker, E starts over again
E holds both containers up and says "what do you want?"
If no response→ E goes through the earlier steps again, but moves more quickly
E continues the snack, giving C cookies and/or crackers until C has had enough
E gives C a drink if he is thirsty
E may follow the same procedure to solicit a request for a drink if C is not interested in the food

Anticipation of a Routine with Objects
E blows up a large balloon slowly, exaggerating the behavior
E pinches the neck of the balloon so that it won't deflate
E holds it directly in front of C, letting him touch or hit it
E holds the inflated balloon over her head and says "Ready, set, go!" and lets go
E retrieves it to blow it up again (3 times total)
E waits each time for C to initiate the routine with the balloon
If C has a clear negative response to the balloon→ E establishes a routine with CaE toy
E places CaE toy in front of C, activates it 1 time
E makes a suitable sound of excitement
If C is not interested, E tries another toy
If no response→ E repeats the action 2 times, pausing in between presses

Bubble Play
E begins blowing bubbles with the bubble gun, holding it away from her body (~15 sec)
E continues blowing bubbles for at least 5 seconds after C sees them
E gives C an opportunity to request more bubbles
If no response→ E puts the bubble gun in an accessible but keeps the bubble fluid
If necessary, E shows C how the bubble gun works, step by step

Appendix F: ADOS Administration Cards- Module 3

Activities	Items Needed
Construction Task	Block puzzle
Make-Believe Play	Bag 3: 2 male AF, 1 female AF, 3 props, mini brush, 2 tools, dinosaur From Bag 2: 2 spoons, 2 plates, teapot or pitcher or measuring cup, car, hologram, 2 "junk" items (small clothes and small "jewelry" box)
Joint Interactive Play	Materials from "Make-Believe Play" (Bags 2 and 3)
Demonstration Task	Hand towel and soap
Description of a Picture	American montage scene and resort scene (for backup use)
Telling a Story From a Book	2 picture storybooks
Cartoons	Series A: fisherman/pelican series Series B: monkey/coconut series
Conversation and Reporting	-
Emotions	-
Social Difficulties and Annoyance	-
Break	Shape puzzle, paper, 8 markers, pin art, spin pen, small radio, current newspaper and magazine, materials from "Make-Believe Play"
Friends and Marriage	-
Loneliness	-
Creating a Story	6 items w/ purpose, 6 items w/o clear purpose

Overall Administration

Child-size table and chairs, chairs adjacent to each other at one corner of the table
Testing materials should be out of C's sight unless in use
E takes adequate notes throughout administration

Construction Task

E places the printed design and a few blocks in front of C
E points to the design and says "Show me how you'd put these blocks together to look like this picture. Let me know if you need more blocks."
Remaining blocks should be in view but out of reach on the other side of the E's arm
E should gesture to indicate the blocks she has kept and ensure that C can see them
When C assembles the few blocks he was given, E should turn slightly away from C and wait to see if he will ask for access to the remaining blocks
If no response→ E should deliberately look at him
If no response to direct gaze in 3 seconds→ E gestures toward C's blocks and says "Are you doing all right?" or "How are you doing?, then asks "Do you need more blocks?"
When done E places the container for the block puzzle in front of C, opens it, and puts some of the blocks in, while saying "Time to clean up"

Make-Believe Play

With materials laid out, E says "Here are three characters for you to use to make up a story. Could you play with these for a while?" Introduce each with descriptions appropriate to their appearance.
If no response→ E says "I'll play with these" picks up some of the objects, and makes some limited but creative use of them without including C
E then asks C "What are you going to do with yours?" while gesturing toward the remaining toys

If no response→ E can frame task by saying it is a video game, MTV video, or TV show
E should comment, show interest, and encourage C without actually telling him/her what to do

Joint Interactive Play
After C can initiate make-believe play on his own, E says "Can I play too?"
E manipulates objects to produce a press for joint interactive play
If C responds, E should respond in turn
If no response→ E should try some other interactive play (4 attempts)

Demonstration Task
E says "Now I want you to play a pretend game with me"
E sets the imaginary scene with appropriate gestures
E says "Let us pretend this is the washbasin in the bathroom."
E pretends to draw a basin and water taps around the area of the table in front of C
E says "this is the pretend toothpaste" and indicates the pretend object
E says "Now I want you to teach me how you brush your teeth. Can you show me and tell me? Start right at the beginning. You've come into the bathroom. What do you do now?"
If no response→ the scene should be described again in a similar way
If no response→ E may show "driving a car" before proceeding to the 2nd trial
If C does a limited demonstration E says, "That's good. Now tell me and show me again right from the beginning- from when you first came into the bathroom. It's OK for you to talk as well as show me."
For the 2nd trial, E sets the scene by pointing out four make-believe items: soap, a hand towel, a washcloth, and a washbasin with faucets
E says, "Now I want you to teach me how you wash your face, using soap."
If no response→ re-do the scene again by using real soap and towel

Description of a Picture
E says, "Let's look at this picture now. Can you tell me about it? What is happening in the picture?"(2 prompts)
E should encourage conversation and respond positively to C without providing substantive info about the picture or asking specific questions about particular parts of the picture
If no response→ E models a complex observation
If no response→ E can ask specific questions like "What's this?" "Who is this?" "What is he doing?" "What is happening over here?"
If no response→ E presents the 2nd picture

Telling a Story from a Book
E says "Have a look at this book. It tells a story. See, it starts out with … (describing the first picture in the book). Can you tell me the story as we go along? You go first, then I'll take a turn"
E hands the book to C, giving whatever prompts may be necessary to encourage him to start at the beginning and then turn the page
If hesitant → give no more than 2 specific prompts
If focused on detail→ "You're right. Can you tell the story" or "What are the pictures all about?"

C describes the book for a few minutes
E says "That was great. Now I'll take a turn" and quickly completes the story

Cartoons
E tells C that he will be shown cartoons and will be asked to retell the story without looking at them
E presents each set of cartoons with a brief, general description of the setting
E asks C to look through the cartoons
If C is confused about the story, E may clarify
E should ask C to push his chair back from the table, stand up, and tell the story
If another person is in the room, E may ask C to tell that person the story

If C does not gesture much while telling the stories, E should ask him to tell another one.

Conversation and Reporting
E can initiate conversation with C at any time during the schedule.
E should offer simple comments about the materials
E should then add comments about related events or objects outside the immediate context
Eventually E should sit silently for a few seconds while looking interested
E should set up the beginning of an interchange
E must provide sufficient leads, guides, and prompts on a topic while avoiding a question and answer style.

Emotions
E should probe until C has given detailed descriptions of two emotions, the contexts in which they arise, and what C's individual experience of these emotions is like. If C is unable to, E may move on.

Social Difficulties and Annoyance
Interview questions

Break
E says "Let's take a break," and tells C that E needs some time to take notes
E points to the break materials and suggests that C look for something interesting
If C is unfamiliar with the materials, E demonstrates how they work
E should move so she is within view but away from the table where C is sitting
If no response→ E asks if there is something else he would like to do
If no response→ E offers a snack
E should take notes for at least 2 min
If C initiates an interaction, E responds briefly and positively, but lets C know that E has to work a bit more before they can talk
E looks up from her notes, catches C's eye, and smiles
If no response→ E continues taking notes or says "I'll just be a few more minutes."
After a few minutes, E should return to C's table.
E says "May I join you before we get back to work? What would you like to talk about?"

Friends and Marriage
Interview questions

Loneliness
Interview questions

Creating a Story
E tells C "Now you and I are going to make up stories using some of these objects."
C has to use 5 items to make up a story, newscast, or commercial.
E models choosing 5 items and making up a simple narrative
E gestures to C for him to choose a new group of five items from the pile

Appendix G: ADAPT Survey- Intake

adapt

Autism Diagnostic and Assessment Services Project

Survey

University of California, San Diego
Revised 6/2009

INSTRUCTIONS:

PLEASE WRITE NEATLY AND CLEARLY.

THIS SURVEY IS BEING DISTRIBUTED TO PEOPLE IN A VARIETY OF PROFESSIONS, SO NOT ALL QUESTIONS WILL APPLY TO EVERYONE. *PLEASE ATTEMPT TO ANSWER ALL QUESTIONS, EVEN IF THEY DO NOT DIRECTLY APPLY TO YOU.*

YOUR ANSWERS TO THE QUESTIONS ARE CONFIDENTIAL. THEY WILL NOT BE MADE AVAILABLE TO YOUR SUPERVISOR OR ANYONE ELSE AT ANY TIME. NO IDENTIFYING INFORMATION, SUCH AS YOUR NAME, WILL BE ATTACHED TO THE SURVEY AT ANY TIME.

AUTISM ASSESSMENT AND DIAGNOSTIC PRACTICES SURVEY

1. Please indicate your position:

- ☐ Clinical Psychologist
- ☐ School Psychologist
- ☐ Psychologist – Research
- ☐ Pediatrician
- ☐ Neurologist
- ☐ Speech and Language Pathologist
- ☐ Social Worker
- ☐ Post-Doc
- ☐ Graduate Student
- ☐ Post-Bachelor's degree Research Assistant
- ☐ Other: _____

2. Are you considered an autism specialist?

- ☐ Yes
- ☐ No

If no, is there someone in your workplace who is considered an autism specialist?

- ☐ Yes
- ☐ No

3. Do you work on a team when conducting assessments? If yes, who is on this team (e.g., a speech-language pathologist, psychologist, psychiatrist, etc.)?

TRAINING:

4. What kind of graduate program did you attend?

- ☐Clinical Psychology, Ph.D.
- ☐Clinical Psychology, Psy.D.
- ☐School Psychology, Ph.D.
- ☐Developmental Psychology, Ph.D.
- ☐Other Psychology, Ph.D.
- ☐Other Ph.D.
- ☐M.D. Specialty: _____
- ☐Psychology, Masters
- ☐Education, Masters
- ☐Social Work, Masters
- ☐Other Masters
- ☐Have not attended Graduate School

5. How long was the program?

- ☐Less than 2 years
- ☐2 years
- ☐3 years
- ☐4 years
- ☐5 years
- ☐More than 5 years
- ☐N/A

6. Did you receive any training on the diagnosis of Autistic Spectrum Disorders (ASD) through your graduate school coursework?

   ☐Yes

   ☐ No

   ☐ N/A

   If yes, what kind of training?

   ☐Seminars

   ☐Practicum/Field Work/Internship

   ☐Classes

   ☐Other, please describe: _____

7. a. Describe any training that you have received outside of graduate school on the assessment and diagnosis of ASD.

   b. What did you find to be particularly helpful during these trainings?

EXPERIENCE AND CURRENT WORK PLACEMENT:

8. What clinical groups of children do you typically work with now?

9. Have you worked with different clinical groups or ages of children in the past? If yes, please specify.

10. Approximately how many children per year do you see for an initial assessment where there is a possibility of an ASD?

11. Approximately how many children per year do you see for a repeated or follow-up assessment where the child is already diagnosed with ASD?

12. Approximately how many children have you assessed (in your career) for a possible ASD?

13. Approximately how many years have you been working in a setting where you may have the opportunity to assess a child with a possible or known diagnosis of ASD?

ASSESSMENT:

14. How would you describe the differences between the DSM-IV criteria for ASD and the autism disability category as defined by your state's special education code?

15. How do you utilize information from teachers when determining if a child meets criteria for ASD?

16. How do you use assessments and diagnoses from outside sources? If these are available, how do they change your assessment process?

17. How long does an assessment typically take you to complete?

18. What diagnostic techniques do you find most helpful when evaluating a child for ASD?

19. What diagnostic techniques do you think are absolutely necessary in order to determine a diagnosis of ASD?

20. Have you had to adapt diagnostic techniques for use in your practice? If so, how might your use of the technique be different from what the "manual" says?

21. Are there parts of diagnostic techniques that you especially like? Why do you like them? How have you found them helpful?

22. Are there parts of diagnostic techniques you don't like? Why don't you like them? Why do you still use them?

23. Are there diagnostic techniques you have tried and discontinued? What prompted you to discontinue them?

24. How do <u>you</u> distinguish between autism, Asperger's syndrome, and PDD-NOS?

25. How do <u>you</u> differentiate an ASD from mental retardation without autism?

26. How do you differentiate an ASD from a significant language impairment?

TOOLS:

27. INSTRUMENTS SOMETIMES ADMINISTERED IN AN ASD ASSESSMENT - FOR EACH TOOL, PLEASE CHECK THE APPROPRIATE BOX THAT CORRESPONDS TO HOW OFTEN YOU ADMINISTER THE INSTRUMENT: NEVER, SOMETIMES, MOST OF THE TIME, OR ALWAYS.

	Never	Sometimes	Most of time	Always
Parent Interview	☐	☐	☐	☐
Developmental History of the Child	☐	☐	☐	☐
Teacher Interview	☐	☐	☐	☐
Teacher Questionnaires	☐	☐	☐	☐
Cognitive Assessments				
Children under 5 years of age:				
Bayley	☐	☐	☐	☐
Mullen	☐	☐	☐	☐

WPPSI-R	☐	☐	☐	☐
Children 5 years of age and older:				
Bayley	☐	☐	☐	☐
Mullen	☐	☐	☐	☐
WPPSI-R	☐	☐	☐	☐
WISC-III	☐	☐	☐	☐
DAS	☐	☐	☐	☐

	Never	Sometimes	Most of time	Always
Stanford-Binet	☐	☐	☐	☐
School or Home Observation	☐	☐	☐	☐
Diagnostic Instruments designed for ASD				
Autism Diagnostic Observation Schedule	☐	☐	☐	☐
Autism Diagnostic Interview – Revised	☐	☐	☐	☐
Social Communication Questionnaire (SCQ)	☐	☐	☐	☐
Autism Screening Questionnaire (ASQ)	☐	☐	☐	☐
Childhood Autism Rating Scale (CARS)	☐	☐	☐	☐
Modified Checklist for Autism in Toddlers (M-CHAT)	☐	☐	☐	☐
Checklist for Autism in Toddlers (CHAT)	☐	☐	☐	☐
Autism Behavior Checklist (ABC)	☐	☐	☐	☐
PDD Screening Test (PDDST)	☐	☐	☐	☐
Gilliam Autism Rating Scale (GARS)	☐	☐	☐	☐

	Never	Sometimes	Most of time	Always
Gilliam Asperger's Rating Scale	☐	☐	☐	☐
Psychoeducational Profile –Revised (PEP-R)	☐	☐	☐	☐
Play-based Assessment Please explain:	☐	☐	☐	☐
Communication and Symbolic Behavior Scales (CSBS)	☐	☐	☐	☐
Vineland Adaptive Behavior Scales (VABS)	☐	☐	☐	☐
Scales of Independent Behavior	☐	☐	☐	☐
Child Development Inventory (CDI)	☐	☐	☐	☐
Review of Records	☐	☐	☐	☐
Others? (List) _____	☐	☐	☐	☐
_____	☐	☐	☐	☐
_____	☐	☐	☐	☐
_____	☐	☐	☐	☐
_____	☐	☐	☐	☐

28. If you are assessing a child for something other than an ASD, but throughout the course of the assessment you begin to suspect an ASD, what do you do?

29. In your opinion, are there any possible advantages of using the Autism Diagnostic Observation Schedule (ADOS) as part of a standard battery when there is a question of ASD?

30. In your opinion, are there any possible disadvantages of using the ADOS as part of a standard battery when there is a question of ASD?

31. In your opinion, are there any possible advantages of using the Social Communication Questionnaire (SCQ) as part of a standard battery when there is a question of ASD?

32. In your opinion, are there any possible disadvantages of using the SCQ as part of a standard battery when there is a question of ASD?

PARENT ROLE:

33. When you decide that a child meets criteria for ASD, how does a parent's attitude about their child's needs or strengths and weaknesses affect your presentation of the diagnosis of ASD?

34. Similarly, when you give a child a diagnosis of autism, how do parent attitudes affect the placement and intervention recommendations you will make for that child?

FINAL QUESTIONS:

35. When seeing a child for a question or confirmation of an ASD, what do you find difficult or different about the diagnostic process compared to other children?

36. Do you have any other comments that you would like to make?

DEMOGRAPHICS:

37. Please indicate your race/ethnicity:

- ☐American Indian or Alaska Native
- ☐Asian
- ☐Caucasian, not Latino
- ☐Hispanic or Latino
- ☐Black or African American
- ☐Native Hawaiian or other Pacific Islander (Guam, Samoa, other Pacific Islands)
- ☐Other

38. Gender

- ☐Male
- ☐Female

39. What is your highest level of education?

- ☐Bachelor's Degree
- ☐Master's Degree
- ☐Ph.D.
- ☐Ed.D.
- ☐Psy.D.
- ☐Other: _____

51. What is the size of the area in which you live?

- ☐Rural – fewer than 5,000 residents
- ☐Small town – 5,000-24,999 residents
- ☐Large town – 25,000-74,999 residents
- ☐Small city – 75,000-299,999 residents
- ☐Large city – more than 300,000 residents

FOR SCHOOL PERSONNEL ONLY:

Approximately how many students are served by your district?

_____

Approximately how many of the following are there in your district?

_____ School Psychologists

_____ Autism Specialists

_____ Speech and Language Pathologists

Thank you for your participation!!!

Appendix H: ADAPT survey- Exit

adapt

Autism Diagnostic and Assessment Services Project

Survey

University of California, San Diego

INSTRUCTIONS:

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AUTISM ASSESSMENT AND DIAGNOSTIC PRACTICES SURVEY

1. Please indicate your position:

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- ☐ School Psychologist
- ☐ Psychologist – Research
- ☐ Pediatrician
- ☐ Neurologist
- ☐ Speech and Language Pathologist
- ☐ Social Worker
- ☐ Post-Doc
- ☐ Graduate Student
- ☐ Post-Bachelor's degree Research Assistant
- ☐ Other: _____

2. Are you considered an autism specialist?

- ☐ Yes
- ☐ No

If no, is there someone in your workplace who is considered an autism specialist?

- ☐ Yes
- ☐ No

3. Do you work on a team when conducting assessments? If yes, who is on this team (e.g., a speech-language pathologist, psychologist, psychiatrist, etc.)?

TRAINING:

40. What kind of graduate program did you attend?

- ☐Clinical Psychology, Ph.D.
- ☐Clinical Psychology, Psy.D.
- ☐School Psychology, Ph.D.
- ☐Developmental Psychology, Ph.D.
- ☐Other Psychology, Ph.D.
- ☐Other Ph.D.
- ☐M.D. Specialty: _____
- ☐Psychology, Masters
- ☐Education, Masters
- ☐Social Work, Masters
- ☐Other Masters
- ☐Have not attended Graduate School

41. How long was the program?

- ☐Less than 2 years
- ☐2 years
- ☐3 years
- ☐4 years
- ☐5 years
- ☐More than 5 years
- ☐N/A

42. Did you receive any training on the diagnosis of Autistic Spectrum Disorders (ASD) through your graduate school coursework?

☐Yes

☐ No

☐ N/A

If yes, what kind of training?

☐Seminars

☐Practicum/Field Work/Internship

☐Classes

☐Other, please describe: _____

43. a. Describe any training that you have received outside of graduate school on the assessment and diagnosis of ASD.

b. What did you find to be particularly helpful during these trainings?

EXPERIENCE AND CURRENT WORK PLACEMENT:

44. What clinical groups of children do you typically work with now?

45. Have you worked with different clinical groups or ages of children in the past? If yes, please specify.

46. Approximately how many children per year do you see for an initial assessment where there is a possibility of an ASD?

47. Approximately how many children per year do you see for a repeated or follow-up assessment where the child is already diagnosed with ASD?

48. Approximately how many children have you assessed (in your career) for a possible ASD?

49. Approximately how many years have you been working in a setting where you may have the opportunity to assess a child with a possible or known diagnosis of ASD?

ASSESSMENT:

50. How would you describe the differences between the DSM-IV criteria for the ASD's and the autism disability category as defined by your state's special education code?

51. How do you utilize information from teachers when determining if a child meets criteria for ASD?

52. How do you use assessments and diagnoses from outside sources? If these are available, how do they change your assessment process?

53. How long does an assessment typically take you to complete?

54. How do you distinguish between autism, Asperger's syndrome, and PDD-NOS?

55. How do you differentiate an ASD from mental retardation without autism?

56. How do you differentiate an ASD from a significant language impairment?

TOOLS:

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	Never	Sometimes	Most of time	Always
Parent Interview	☐	☐	☐	☐
Developmental History of the Child	☐	☐	☐	☐
Teacher Interview	☐	☐	☐	☐
Teacher Questionnaires	☐	☐	☐	☐
Cognitive Assessments				
Children under 5 years of age:				
Bayley	☐	☐	☐	☐
Mullen	☐	☐	☐	☐
WPPSI-R	☐	☐	☐	☐
Children 5 years of age and older:				
Bayley	☐	☐	☐	☐
Mullen	☐	☐	☐	☐
WPPSI-R	☐	☐	☐	☐
WISC-III	☐	☐	☐	☐
DAS	☐	☐	☐	☐
Stanford-Binet	☐	☐	☐	☐
School or Home Observation	☐	☐	☐	☐
Diagnostic Instruments designed for ASD				
Autism Diagnostic Observation Schedule	☐	☐	☐	☐

Autism Diagnostic Interview – Revised	☐	☐	☐	☐
	Never	Sometimes	Most of time	Always
Social Communication Questionnaire (SCQ)	☐	☐	☐	☐
Autism Screening Questionnaire (ASQ)	☐	☐	☐	☐
Childhood Autism Rating Scale (CARS)	☐	☐	☐	☐
Modified Checklist for Autism in Toddlers (M-CHAT)	☐	☐	☐	☐
Checklist for Autism in Toddlers (CHAT)	☐	☐	☐	☐
Autism Behavior Checklist (ABC)	☐	☐	☐	☐
PDD Screening Test (PDDST)	☐	☐	☐	☐
Gilliam Autism Rating Scale (GARS)	☐	☐	☐	☐
Gilliam Asperger's Rating Scale	☐	☐	☐	☐
Psychoeducational Profile –Revised (PEP-R)	☐	☐	☐	☐
Play-based Assessment Please explain:	☐	☐	☐	☐
Communication and Symbolic Behavior Scales (CSBS)	☐	☐	☐	☐
Vineland Adaptive Behavior Scales (VABS)	☐	☐	☐	☐

Scales of Independent Behavior	☐	☐	☐	☐
Child Development Inventory (CDI)	☐	☐	☐	☐
Review of Records	☐	☐	☐	☐
Others? (List) _____	☐	☐	☐	☐
_____	☐	☐	☐	☐
_____	☐	☐	☐	☐
_____	☐	☐	☐	☐
_____	☐	☐	☐	☐

If you are assessing a child for something other than an ASD, but throughout the course of the assessment you begin to suspect an ASD, what do you do?

AUTISM DIAGNOSTIC OBSERVATION SCHEDULE (ADOS):

58. Do you use the ADOS?

☐Yes

☐ No

59. Have you ever watched videotapes of the ADOS, including those that were part of a training or from WPS?

☐Yes

☐ No

60. Have you completed a workshop on the ADOS? If yes, did you attend the clinical training, the research training, or both?

If no, please proceed to question #26. If yes, please answer the following:

a. Why did you attend this training?

b. When did you attend the workshop?

c. Where was the workshop held?

d. What did you find to be useful about the ADOS workshop?

e. Were there any limitations or do you have any suggestions that might make the ADOS workshop more helpful?

f. Since attending the ADOS workshop, have you consulted with colleagues or trainers regarding questions or concerns you may have had about administration or coding? Please give specific examples.

61. Have you achieved reliability on the ADOS?

62. Approximately how many times have you administered the ADOS for clinical purposes?

Per Year:_____ Total: _____

63. How many times has someone watched you administer the ADOS outside of a training workshop?

64. How many times have you watched someone else administer the ADOS?

65. How do you typically administer the ADOS? (i.e. do you videotape the administration? do other coworkers attend? How is the caregiver involved?)

66. In your opinion, what are some of the possible advantages of using the ADOS as part of a standard battery when there is a question of ASD?

67. What are some possible disadvantages of using the ADOS as part of a standard battery when there is a question of ASD?

68. Have you ever used "parts" of the ADOS?
If so, why and how was the information useful?

69. Have you ever trained someone else to use the ADOS?
If yes, who did you train and for what reason?

SOCIAL COMMUNICATION QUESTIONNAIRE (SCQ):

70. Do you use the SCQ?

☐ Yes

☐ No

71. Have you ever read a manual about the SCQ, including those that were part of a training or from WPS?

☐Yes

☐ No

If no, please proceed to question #37. If yes, please answer the following:

a. Why did you read the SCQ manual or attend a training?

b. When did you read the SCQ manual or attend a training?

c. Where did you attend a training about the SCQ?

d. What did you find to be useful about the SCQ manual or training?

e. Were there any limitations or do you have any suggestions that might make the SCQ manual or training more helpful?

f. Since reading the SCQ manual and/or attending an SCQ training, have you consulted with colleagues or trainers regarding questions or concerns

you may have had about administration or coding? Please give specific examples.

72. Approximately how many times have you administered the SCQ for clinical purposes?

73. How many times has someone watched you administer the SCQ outside of a training workshop?

74. How many times have you watched someone else administer the SCQ?

75. In your opinion, what are some of the possible advantages of using the SCQ as part of a standard battery when there is a question of ASD?

76. What are some possible disadvantages of using the SCQ as part of a standard battery when there is a question of ASD?

77. Have you ever used "parts" of the SCQ or administered it in a nonstandardized way?
    If so, why and how was the information useful?

78. Have you ever trained someone else to use the SCQ?
    If yes, who did you train and for what reason?

PARENT ROLE:

79. When you decide that a child meets criteria for ASD, how does a parent's attitude about their child's needs or strengths and weaknesses affect your presentation of the diagnosis of ASD?

80. Similarly, when you give a child a diagnosis of autism, how do parent attitudes affect the placement and intervention recommendations you will make for that child?

FINAL QUESTIONS:

81. When seeing a child for a question or confirmation of an ASD, what do you find difficult or different about the diagnostic process compared to other children?

82. Do you have any other comments that you would like to make?

DEMOGRAPHICS:

83. Please indicate your race/ethnicity:

- ☐American Indian or Alaska Native
- ☐Asian
- ☐Caucasian, not Latino
- ☐Hispanic or Latino
- ☐Black or African American
- ☐Native Hawaiian or other Pacific Islander (Guam, Samoa, other Pacific Islands)
- ☐Other

84. Gender

- ☐Male
- ☐Female

85. What is your highest level of education?

- ☐Bachelor's Degree
- ☐Master's Degree
- ☐Ph.D.
- ☐Ed.D.
- ☐Psy.D.
- ☐Other: _____

51. What is the size of the area in which you live?

- ☐Rural – fewer than 5,000 residents
- ☐Small town – 5,000-24,999 residents
- ☐Large town – 25,000-74,999 residents
- ☐Small city – 75,000-299,999 residents
- ☐Large city – more than 300,000 residents

FOR SCHOOL PERSONNEL ONLY:

Approximately how many students are served by your district?

_____

Approximately how many of the following are there in your district?

_____ School Psychologists

_____ Autism Specialists

_____ Speech and Language Pathologists

Thank you for your participation!!!

Appendix I: EBPAS Questionnaire

EBPAS (©Gregory A. Aarons, Ph.D.)
Evidence-Based Practice Attitude Scale (Practitioner Version)

The following questions ask about your feelings about using new types of diagnostic assessments. Diagnostic assessment refers to any assessment that has specific guidelines and/or components that are outlined in a manual and/or that are to be followed in a structured/predetermined way.
Fill in the circle indicating the extent to which you agree with each item using the following scale:

0	1	2	3	4
Not at All	To a Slight Extent	To a Moderate Extent	To a Great Extent	To a Very Great Extent

1. I like to use new types of diagnostic assessments to help my clients…… 0 1 2 3 4
2. I am willing to try new types of diagnostic assessments even if I have to follow a manual…… 0 1 2 3 4
3. I know better than academic researchers how to care for my clients…… 0 1 2 3 4
4. I am willing to use new and different types of diagnostic assessments developed by researchers…… 0 1 2 3 4
5. Research based diagnostic assessments are not useful in practice…… 0 1 2 3 4
6. Clinical experience is more important than using manualized methods for diagnostic assessment…… 0 1 2 3 4
7. I would not use manualized methods for diagnostic assessment…… 0 1 2 3 4
8. I would try a new diagnostic assessment even if it were very different than what I am used to doing…… 0 1 2 3 4

For questions 9-15: If you received training in a diagnostic assessment that was new to you, how likely would you adopt it if:

9. it was intuitively appealing?..... 0 1 2 3 4
10. it "made sense" to you?..... 0 1 2 3 4
11. it was required by your supervisor?..... 0 1 2 3 4
12. it was required by your agency?..... 0 1 2 3 4
13. it was required by your state?..... 0 1 2 3 4
14. it was being used by colleagues who were happy with it?..... 0 1 2 3 4
15. you felt you had enough training to use it correctly?..... 0 1 2 3 4

Appendix J: ADOS Module 1 Fidelity of Implementation Coding Definitions

ADOS Fidelity of Implementation Scoring Definitions—Module 1

Activities	Items Needed
Free Play	Toys on table: pop-up toy, textured block, book, toy telephone, 2 pieces of yarn. Toys on floor: music box, baby doll with eyes that open and shut, jack-in-the-box, dump truck, 8 letter blocks, ball, 2 pairs of matching balls, 2 identical cars, 4 small plastic utensils, 4 small plastic plates
Response to Name	Any of Module 1 toys
Response to Joint Attention	Remote-controlled bunny or car
Bubble play	Bubble gun and bubble liquid
Anticipation of a Routine with Objects	Balloon or a cause-and-effect toy
Responsive Social Smile	-
Anticipation of a Social Routine	Baby blanket
Functional and Symbolic Imitation	Toy car, squeaking frog, toy, cup, toy airplane, flower, cylindrical block
Birthday Party	Baby doll (same as free play), plate, fork, knife, cup, napkin, Play-Doh, 4 candles, blanket
Snack	Small cup, water or juice in a clear container, paper plate, two kinds of small cookies or crackers in clear plastic containers with lids that are difficult to open

Overall Administration

1. *Organizes space and furniture*

- Child-size table and chairs should be present, with two chairs adjacent to each other at one corner of the table or side by side at a round table
- Free Play toys should be in place before C and P arrive, with the appropriate toys on the table and floor (see chart above)
- Testing materials should be out of C's sight unless in use
    - Materials are arranged before the assessment in order to have convenient access during the sessions

2. *Maintains rapport with parents*

- E greets P when she enters the room
- E responds to any of P's questions and engages P socially
- **If non-applicable, score as NA**

3. *Lets parents know expectations and assessment process*
   - During Free Play, E tells P that she wants to give C a few minutes to adjust to the room and play alone
   - During Response to Joint Attention, E asks P to sit slightly behind and away from C
   - During Bubble Play, E tells P that she wants to see if C will notice the bubbles without having them pointed out to him
   - During Functional and Symbolic Imitation, E asks P not to give instructions to C
   - **If non-applicable, score as NA**

4. *Politely helps parents refrain from becoming over-involved*
   - If P becomes over-involved in the assessment (e.g., P tries to help C respond to E's presses), E politely asks P to refrain from participating
   - **If non-applicable, score as NA**

5. *Fluid movement from task to task*
   - E's movement from task to task seems natural, not forced
   - E does not spend too much time making notes or on tasks outside of the protocol

6. *Manages difficult behavior without affecting rapport*
   - E makes sure C is in a pleasant, receptive mood rather than keeping him seated or close to the table (e.g., if C cries every time E steers him near the table, all tasks can be performed on the floor)
   - If C protests persistently when separated from P, most tasks can be performed in P's lap. However, E must make some attempts at separation throughout the assessment
   - If C becomes attached to a particular assessment material, E should remove it from the room if it interferes many times with other tasks. If C tantrums in response to removal, he can hold the toy while completing the rest of the tasks
   - E should offer toys to C and allow free access to create rapport during Free Play

7. *Takes notes adequate for making scoring decisions*
   - E should pause to take notes throughout the assessment
   - If note-taking interferes with pace of assessment, score on each individual task in the "well-paced" items, not here
   - **Score as yes or no (1 or 5)**

Examiner administers the ADOS in a flexible, comfortable manner

1. *Examiner is knowledgeable about procedures*
   - E ensures that she is in the correct positions and the toys are in the correct positions during presses
   - During Response to Name, E adheres to the following guidelines:
     - E is positioned from a distance of ~3-5 feet so that C has to turn in order to look at E
   - During the Response to Joint Attention task, E adheres to the following guidelines:
     - E positions the bunny or car so C can easily see it
     - E brings C to the table and gives him a book or quiet toy to play with
     - C should be sitting, facing the front of room
     - E places the toy on a table, ~65 degrees to the front and right of C, and ~4-5 feet away from him
       - E may also place the toy on the floor or on a chair
     - Toy should not be at a higher level than C
     - E is positioned between C and the toy
   - During Bubble Play, E adheres to the following guidelines:
     - The remote-controlled toy should be put away
     - E has C stay close to the table or on the floor with a book or quiet toy
     - E gets the bubble gun and bubble liquid and moves to a spot ~5 ft. in front of C and slightly to one side
   - During the Functional and Symbolic Imitation task, E adheres to the following guidelines:
     - All materials for the imitation task should be easily accessible to E, but not immediately visible to C
   - During the Birthday Party task, E adheres to the following guidelines:
     - C should be seated at the table or P's lap during the birthday party
   - During the Snack task, E adheres to the following guidelines:
     - C should be seated at the table for snack

2. *Examiner is knowledgeable about materials*
   - E uses the correct materials for tasks (please see chart above)

3. *Persists as needed to ensure child engages in task*
   - E adheres to all rules about number of presses for each task
   - If rules are not present for number of presses, E should try to engage C before abandoning a task

4. *Appropriately returns to tasks or changes order to obtain valid information*

- If E moves on from a task because of C's disruptive behavior (or other interference), E returns to that task again before abandoning the task
- If C tantrums in response to a task, E will change the order of tasks in order to maintain rapport

5. *Examiner is comfortable and appropriate with child*
   - E's behavior is not awkward or stilted (e.g., E smiles at P and E to welcome them, E's voice is appropriate, not too sing-song or loud/soft)
   - E engages with C at his developmental level

6. *Ends administration on a successful note*
   - E ensures that C achieves a success before conclusion of the assessment (e.g. C obtains a snack, imitates a model, plays quietly with toys)
   - E does not end the assessment when C is being disruptive (e.g., C is crying, screaming, or engaging in stereotyped behavior)
   - If C is not interested/disruptive, E scores 5 if redirects C or gets C to calm down
   - **Score as yes or no (1 or 5)**

Examiner provides adequate opportunities for the child to interact

1. *Examiner initiates interactions appropriately*
   - E approaches C to get his attention a few times during the assessment
   - When E approaches C, she may smile at C, comment on C's behavior, or request C to perform an action

2. *Examiner gives enough opportunities for child to initiate and respond*
   - E does not dominate the interaction by talking, playing or directing the child
   - E allows C to play undisturbed a few times during the assessment

Examiner is appropriately responsive to child's social bids and positive behaviors

1. *Actively seeks opportunities to respond to child where appropriate*
   - E looks at C, verbally and nonverbally responds to C's behaviors (e.g., orients her body toward C and responds appropriately when C requests something by providing the requested activity) during tasks

2. *Examiner recognizes and responds appropriately to the majority of opportunities presented by the child*
   - E returns C's social bids and positive behaviors (e.g., if C smiles at E, E returns a smile; if C requests something, comments on E's behavior,

shows or gives E something, E will respond with positive language or behavior)
- If C is not playing comfortably or is afraid of particular materials, E moves on to the next task

3. *Takes opportunities to test child's responses and play routines for flexibility, rituals, unusual interests*
   - If C shows a particular interest in certain materials or routines, E will allow C to engage in that interest before intervening
   - E will intervene when C is engaging in a special interest to observe any disruptive behavior

Free Play

1. *Examiner initiates interactions with the child appropriately*
   - If C plays with and appears comfortable with the toys, E watches and sometimes comments on C's behaviors, offers toys to C, participates in C's activities
   - If C does not initiate independently, E or P should show a toy to C
   - If C is still not playing, E later returns to Free Play with the same Free Play materials out
     - E should let C know there's a break in the activities, saying "Time to see the new toys."
     - E allows C to look and choose a toy

2. *Examiner leaves enough time for the child to explore on his own*
   - E does not dominate the interaction by talking to, playing with, or directing C constantly

3. *Examiner tries to get the child interested in toys as needed*
   - E shows, gives, or plays with toys in an enticing way if C does not play

4. *Examiner includes the parent in Free Play as appropriate*
   - E asks P to allow C to play alone
     - E engages P by saying, "Are these the kinds of toys (C's name) likes to play with at home?" and "Is this how he usually behaves when he comes to a new place for the first time?"
   - After C has played alone, E asks P to initiate play with C
   - If C is crying/clinging to P, or unable to play or look at toys, E asks P: "Can you see if you can get him interested in some of these toys?"
   - **If non-applicable, rate as NA**

5. *Examiner responds to child where appropriate*

- E looks at C, verbally and nonverbally responds to C's behaviors (e.g., orients her body toward C and responds appropriately when C requests something by providing the requested activity)
- If C is not playing comfortably, E removes the Free Play materials and moves on

Response to Name

1. *Examiner chooses appropriate time to administer Response to Name*
   - Response to Name is best conducted early during Free Play but can take place anytime during the assessment
     - E does not administer during Response to Joint Attention
   - E ensures that C is not overly involved in a toy, P is not talking to C, C is not crying or engaging in disruptive behavior
   - E ensures toys are present and says "It's time to play now"

2. *Examiner uses prompts hierarchically*
   - E calls C's name once or twice
   - E pauses and watches for C to look at E
     - If C does not respond, E repeats for a total of **four** times
   - If C still does not clearly respond, P should be asked to call C's name to get his attention without physical contact
     - If C does not respond to **two** of these presses E asks P, "Is there any way you can get him to look at you without touching him?"
     - If C still does not respond, E asks P to use any method to get a response including touching

3. *Movement up hierarchy is well-paced*
   - E or P pauses between presses

4. *Examiner appropriately cues parents to next step in the hierarchy if necessary*
   - If C does not respond to E, E asks P to call C's name twice, to make a familiar noise, and eventually touch C if needed
   - E advises P to pause between each press as needed
   - **If non-applicable, rate as NA**

5. *Examiner ceases prompting when eye contact is made in response to name*
   - After E has established eye contact with C (or has completed the prompt hierarchy), E ends Response to Name
   - **Score as yes or no (1 or 5)**

Response to Joint Attention

1. *Examiner gets child's attention before initiating prompts for Response to Joint Attention, without touching child's face*
   - E calls C's name and/or touches him to get C's attention.
   - Throughout this activity, E may touch C's arm/leg to get his attention or to orient him toward E but cannot physically orient his face toward the toy

2. *Examiner uses prompts hierarchically*
   - E says "Look, (C's name)" as E looks toward the toy, then looks back to C
   - If C does not look toward the toy, E repeats the attempt to direct his gaze, saying, "Look, (C's name), look at *that*!" and E turns toward the toy
   - E does not say the name of the toy
   - If after **five** attempts, C still does not follow E's gaze alone to look at the toy
     - E points to the toy, making sure E's hand is directly in C's visual field, saying "(C's name), look at *that*!"
   - If C still does not look at E and/or the toy
     - E uses the switch to activate the toy from E's position
     - E watches to see if there is any response from C
     - E turns the toy off, pauses and waits for a response from C
   - If no response, E places the toy in front of C and observes whether he hands it to E or P to request its activation.
   - If C does not hand the toy to E or P, or pull someone's hand to it, E turns it on, then turns it off and waits for C's next action

3. *Movement up hierarchy is well-paced*
   - E pauses between presses

4. *Provides a number of opportunities for child to request*
   - E looks at C, holds activation button out of reach of C, and stops and starts the toy

5. *Provides opportunities for spontaneous joint attention by continually activating toy*
   - E activates toy for a few seconds

6. *Examiner recognizes and responds appropriately to requests and/or bids for shared enjoyment*
   - E looks at C, verbally and nonverbally responds to C's behaviors (e.g., orients her body toward C, responds appropriately by acknowledging

C's attempts to share enjoyment with E, responds appropriately when C requests the toy by activating it)
- If C is not engaged, E removes the toy and moves on

Bubble Play

1. *Examiner uses prompts hierarchically*
   - E begins blowing bubbles with the bubble gun, holding it away from her body
   - E continues blowing bubbles for a few seconds after C sees them, so he does not need to request more
   - E watches for initiation of joint attention
   - E gives C an opportunity to request more bubbles and waits for C to initiate a request either physically or vocally
   - If C fails to initiate a request, E puts the bubble gun in an accessible location to allow C to hand it to E as a request, or E gives C the bubble gun, but keeps the bubble fluid so that C needs to request access to it from E
   - If necessary, E shows C how the bubble gun works, step by step

2. *Movement up hierarchy is well-paced*
   - E pauses between presses

3. *Provides a number of opportunities for child to request*
   - E looks at C
   - E starts and stops bubble gun
   - E puts the bubble gun in an accessible location or E gives C the bubble gun, but keeps the bubble fluid

4. *Provides opportunities for spontaneous joint attention*
   - E initially allows the bubbles to blow for a few seconds
   - **Score as yes or no (1 or 5)**

5. *Examiner recognizes and responds appropriately to requests and/or bids for shared enjoyment*
   - E looks at C, verbally and nonverbally responds to C's behaviors (e.g., orients her body toward C, responds appropriately by acknowledging C's attempts to share enjoyment with E, responds appropriately when C requests the bubble gun by activating it)
   - If C is not engaged, E removes the bubble gun and moves on

Anticipation of a Routine with Objects

1. *Examiner uses prompts hierarchically*
   - E blows up a large balloon slowly, exaggerating the behavior, E pinches the neck of the balloon so that it won't deflate, E holds it directly in front of C, letting C touch or hit it
   - E says "Ready, set, go!" and lets go of the balloon's neck so air flies out of it, then retrieves it to blow it up again
   - E holds the balloon over her own head and lets go of the balloon so that it will fly around the room, after the balloon lands, E waits for C to bring it to E or to indicate in some other way that C wants it to be blown up again
   - If C throws the balloon in the air or loses interest, E gets the deflated balloon, shows it to C, and repeats the procedure in deliberate steps pausing each step to see what C will do

2. *Movement up hierarchy is well-paced*
   - E pauses between presses

3. *Establishes a routine with appropriate pauses to allow for communication*
   - E presents this task gradually and slowly
   - E holds the balloon in front of her mouth
   - E puts the balloon to her mouth
   - E blows up the balloon
   - E holds the inflated balloon over her head
   - E says, "Ready, set, go!"
   - E releases the balloon
   - E repeats the procedure **two** more times, waiting each time for C to initiate the routine with the balloon

4. *Examiner recognizes and responds appropriately to requests and/or bids for shared enjoyment*
   - If C initially seems afraid of the balloon, E may have C sit in P's lap while E carries out the routine at the other end of the room, making sure the balloon does not fly near C
   - If C has a clear negative response to the balloon, E establishes a routine with one of the cause-and-effect toys using the following procedure:
     - E places the toy of choice in front of C, preferably on the table, and activates it once
     - When the action occurs, E makes a suitable sound of excitement
     - If C is not interested, E tries another toy

    - If C does show interest, E repeats the action **twice** with accompanying sound effects, pausing in between presses
- E looks at C, verbally and nonverbally responds to C's behaviors (e.g., orients her body toward C, responds appropriately by acknowledging C's attempts to share enjoyment with E, responds appropriately when C requests the balloon by blowing it up)
- If C is not engaged, E removes the balloon and moves on

Responsive Social Smile

1. *Selects appropriate time to administer RSS*
    - Responsive Social Smile can take place anytime during the assessment
    - E ensures that C is not overly involved in a toy, P is not talking to C, C is not crying or engaging in disruptive behavior
    - **Score as yes or no (1 or 5)**

2. *Appropriately gets child's attention before starting prompts*
    - E gets C's attention by calling his name or using a toy or noise

3. *Examiner uses prompts hierarchically*
    - E tries to elicit a smile by smiling and making a positive statement or making a silly face or funny noise
        - E can use any visual, verbal, and/or vocal means to elicit a smile at first, but E cannot touch C
    - If C does not respond clearly, E lets C play with toys for a short time, then attempts to press again

4. *Movement up hierarchy is well-paced*
    - E pauses between presses

5. *Cues parents appropriately to next step in the hierarchy if necessary*
    If C's response is still not clearly positive after **two** presses by E, E says to P, "Can you show me how you get him to smile, without touching him?"
    - If this approach is unsuccessful, E encourages P to touch C in order to evoke a smile
    - **If non-applicable, score as NA**

6. *Examiner responds appropriately to child's smile*
    - If E establishes a responsive social smile, E responds by making a positive statement (e.g., Oh! Am I funny?)

- After E has established a responsive social smile from C (or has completed the prompt hierarchy), E ends Responsive Social Smile
- **Score as yes or no (1 or 5)**

Anticipation of a Social Routine

1. *Persists as needed to engage child*
   - E attempts to engage C in a social routine (presses detailed below)
   - If C does not respond positively to E's first routine selection, E tries at least one other social routine
     - First with E, then with P
   - If C still does not respond, E has P demonstrate a social routine that she engages in with C at home
   - **Score as yes or no (1 or 5)**

2. *Examiner uses prompts hierarchically*
   - Peekaboo
     - Works best when C is stationary, sitting on the floor, in P's lap, or at the table
     - From about ~1 foot away, E holds the baby blanket between her face and C, E says "Where's (C's name)?"
     - E pulls the blanket down with excitement, saying "Peekaboo" or C's name in conjunction with touching or tickling him
     - E repeats then hesitates with the blanket held up between E and C
       - If C pulls the blanket down, E repeats the routine, then pauses with the blanket held out toward C
       - If C does not appear engaged, E tries the sequence once more
     - E may put the blanket over C's head if he is comfortable with this
   - Tickling
     - From about ~2 ft. away, E holds her hands up in front of C and moves them in a tickling motion while saying "Here comes the tickle bug…" or something similar
     - E gently tickles C's leg up to his stomach
     - E repeats, then E holds her hands up or places them on C's leg without moving them or saying anything
     - E pauses to wait for C to vocalize, touch or move E's hands, or put C's hands or body in a ready position in order to get E to go through the routine
     - E carries out the routine once more and then pauses
     - If C does not respond, E asks P to do the same thing
   - Swinging
     - E approaches C with arms reaching out

- E "jumps" C up and down lightly a couple of times, counting "One, two, three," aloud, and then swings C around on three
- E puts C down, then approaches C again and repeats this routine
- After the second time, E approaches C with arms extended and waits

3. *Movement up hierarchy is well-paced*
   - E pauses between presses

4. *Examiner provides opportunities for the child to initiate and maintain routine*
   - E looks at C, verbally and nonverbally responds to C's behaviors (e.g., orients her body toward C, responds appropriately by acknowledging C's attempts to share enjoyment with E, responds appropriately when C requests the routine by engaging in the routine)

Functional and Symbolic Imitation

1. *Examiner presents task clearly to ensure understanding*
   - E seats C at the table in a chair, or on P's lap if necessary
   - E ensures that C is not playing with a toy, P is not talking to C, C is not crying or engaging in disruptive behavior
   - **Score as yes or no (1 or 5)**

2. *Examiner remembers not to label action*
   - E never labels any action while demonstrating for C

3. *Examiner uses prompts hierarchically*
   - E uses the car or frog as an example
     - E puts the car (or frog) on the table and says "Look at the car" ("look at the frog") and moves the car (or frog) across the table saying "vroom-vroom" ("ribitt, ribitt")
     - E then gives the car (or frog) to C and says "You do it"
     - If C imitates this action, E removes the car (or frog) and begins the actual trials using the remaining objects
     - If C does not imitate the action, E physically helps C to do so, then takes the car (or frog) back, demonstrates how to make it move, and gives it back to C
     - A total of **3** attempts may be made to teach C to imitate E's actions using either the car or the frog, with physical assistance offered on only **1** attempt
     - As soon as C imitates the action independently, E proceeds with the actual trials

    - If C does not learn to imitate the action independently, E discontinues this item and proceeds with other tasks
- For each trial, E picks up the specified object saying “It’s a (cup, flower, plane)” or “Here’s a (cup, flower, plane)”
    - E demonstrates an appropriate action and sound effect for each object
    - After the demonstration, E gives it to C and says “You do it”
- For the cylindrical block trial, it is used as a placeholder representing some other common object
    - E picks up the block, saying “Now this is a cup” or “Look at this cup” and then demonstrates the same action previously used with the actual toy cup
    - E then uses the block as a placeholder to represent a different action that C has not seen demonstrated earlier
    - If C cannot follow either of these demonstrations, E goes back to using a real object, in order to regain his interest
    - E proceeds through the same sequence again
    - Once C imitates using a placeholder to represent an object that he has not yet seen, the task is complete
    - If C fails to imitate with any of the four real objects, E discontinues this activity

4. *Movement up hierarchy is well-paced*
    - E pauses between presses

5. *Examiner responds positively to child’s successes*
    - If C imitates or attempts to imitate an action, E responds positively (e.g., cheers)

Birthday Party

1. *Examiner uses prompts hierarchically*
    - E puts the doll up on the table or in a second chair and says “Look, here’s a baby”
    - E provides an opportunity for C to touch, hug, or speak to the doll if he wants to do so
    - E says “It’s the baby’s birthday! Let’s have a birthday party for the baby!”
    - E makes a cake out of the Play-doh on the plate by patting it, saying “Here’s the birthday cake”
    - E gives C a chance to pat it if appropriate
    - E puts 1 of the candles in the cake, saying “Here are the candles”
    - E gives the second candle to C and leaves the third and fourth within easy reach on the table to allow C the opportunity to place them in the cake

    - If C doesn't do so independently, E helps him add the other candles to the cake
- E pretends to light the candles with a match, and shakes out the match, saying "Hot"
- Then E says, "What should we do now?"
    - If C does not respond, E says "Let's sing happy birthday" and does so
- If C does not spontaneously blow out the candles or help the doll to do so, E says "Let's blow out the candles," and follows these four steps:
    - E says, "What's next?"
    - E opens her mouth
    - E puts her mouth in the blowing position
    - E blows out the candles
    - Before each step, E looks at C and pauses briefly in anticipation
- When the candles are blown out, E then gives the fork to C and says "The baby's hungry"
    - If C does not begin feeding the doll, E says "The baby wants some birthday cake"
    - If C begins to feed the baby, E makes appropriate "Yum!" sounds
    - If C does not feed the doll, E demonstrates doing so, saying "Let's feed the baby," and then gives the fork to C, E may cut the Play-doh into pieces
- The cup should also be available in case C wants to give the doll a drink
    - If C does not spontaneously give the doll a drink, E pretends to pour some juice into the cup and gives the doll a drink
- After placing the napkin on the table, E knocks over the cup as if by accident and says "Oh, no! I spilled the juice! What a mess! What should we do!?"
    - If C does not respond, E asks him, "Can you help clean up?"
    - If still no response, E hands him the napkin
- Then E says "Okay, the birthday party's over. Now what will the baby do?"
- E lays the doll down on the table, and puts the blanket on the table within C's reach without indicating it
    - If C does not respond by putting the doll to bed or with any action directed to the doll, E says, "The baby's tired. Time for the baby to sleep."
        - E pauses, and then gives the blanket to C
    - If C still does not respond, E should cover the doll with the blanket, pat it, and say "Night-night, baby"
- E gives the doll to C and allows him to put it to bed or give it a kiss
- E puts the birthday items back in their bag, giving C an opportunity to help E do so

- If C does not like the Birthday Party, E may use other forms of ritualized social events as an alternative, such as a picnic, going to McDonalds, getting pizza, or having tea

2. *Movement up hierarchy is well-paced*
   - E pauses between presses

3. *Examiner leaves enough time for child to initiate and respond*
   - This activity should be carried out at a slow pace to allow C to initiate or join in activities with the doll
   - E does not dominate the interaction by talking, playing, or directing C
   - After blowing out the birthday candles, E allows C to play undisturbed with the Birthday Party materials at least once

4. *Movement through steps of the Birthday Party is well-paced*
   - E pauses between presses

5. *Examiner shows changes in affect where appropriate*
   - With animation, E says, “It’s the baby’s birthday! Let’s have a birthday party for the baby!”
   - E looks concerned and says “Hot!” when shaking out the match
   - After the candles are blown out E claps and cheers
   - E sounds distressed when she spills the juice

Snack

1. *Examiner leaves enough time for child to initiate requests*
   - E does not dominate the interaction by talking or directing C
   - E waits for C to request at least once during snack

2. *Examiner uses verbal and nonverbal prompts hierarchically in getting child to request more snack*
   - E says “It’s time for a snack” and places the plate on the table in easy reach of C
   - E puts each type of cookie or cracker on the plate, saying “We have cookies and crackers (or pretzels, etc)”
   - After C has eaten the food, E holds up each food container in a different hand, well out of C’s reach, asks “What do you want?” and waits for a response
   - E watches for C to point, reach, offer his empty plate, make eye contact, and/or vocalize
     - If C makes no response, E holds 1 container out and says “Crackers”
     - Then E then holds the other container out and says “Cookies”
     - Finally, E holds both containers in front and says, “What do you want?”

- If C requests either of the foods by any means, E gives him one
- If C seems to want something, but cannot indicate a choice or becomes frustrated, E gives C the cookie or cracker container (after asking P which) to see if C will request help in opening it by handing it to E
- After C has had one or more cookie or cracker, E starts over again
- E holds both containers up and says, “What do you want?”
- If necessary, E goes through the earlier steps again, but moves more quickly to avoid too much frustration
- E continues the snack, giving C cookies and/or crackers until C has had enough
- E gives C a drink if he is thirsty
- E may follow the same procedure to solicit a request for a drink if C is not interested in the food, otherwise E does not press again for requests

3. *Movement up hierarchy is well-paced*
   - E pauses between presses

4. *Placement of food is appropriate to allow for multiple communication modalities*
   - E places the snack in hard to open containers or out of C’s reach
   - C should be able to observe the snack but not access it on his own

Appendix K: ADOS Module 1 Fidelity of Implementation Coding Checklist
Adapted from UMACC ADOS Fidelity Checklists, 2005

Module 1- ADOS Administration Fidelity Checklist

Child: **Examiner:** **Observer:** **Date of Session:**

1	2	3	4	5
Examiner does not implement throughout assessment	**Examiner implements occasionally, but misses majority of opportunities**	**Examiner implements up to half of the time, but misses many opportunities**	**Examiner implements a majority of the time, but misses some opportunities**	**Examiner implements throughout the assessment**
No if yes/no item				**Yes if yes/no item**
Score NA if item is not applicable				

Overall Administration		***Time*:**
Rating		Comments
	Organizes space and furniture	
	Maintains rapport with parents	
	Lets parents know expectations and assessment process	
	Politely helps parents refrain from becoming over-involved	
	Fluid movement from task to task	
	Manages difficult behavior without affecting rapport	
	Takes notes adequate for making scoring decisions (1/5)	

Examiner administers the ADOS in a flexible, comfortable manner		***Time*:**
Rating		Comments
	Examiner is knowledgeable about procedures	
	Examiner is knowledgeable about materials	
	Persists as needed to ensure child engages in task	
	Appropriately returns to tasks or changes order to obtain valid information	
	Examiner is comfortable and appropriate with child	
	Ends administration on a successful note (1/5)	

Examiner provides adequate opportunities for the child to interact		***Time*:**
Rating		Comments
	Examiner initiates interactions appropriately	
	Examiner gives enough opportunities for child to initiate and respond	

Examiner is appropriately responsive to child's social bids and positive behaviors		***Time*:**
Rating		Comments
	Actively seeks opportunities to respond to child where appropriate	
	Examiner recognizes and responds appropriately to the majority of opportunities presented by the child	
	Takes opportunities to test child's responses and play routines for flexibility, rituals, unusual interests	

Free Play		***Time*:**
Rating		Comments
	Examiner initiates interactions with the child appropriately	
	Examiner leaves enough time for the child to explore on his own	
	Examiner tries to get the child interested in toys as needed	
	Examiner includes the parents in free play as appropriate	
	Examiner responds to child where appropriate	

Response to Name		***Time*:**
Rating		Comments
	Examiner chooses appropriate time to administer Response to Name	
	Examiner uses prompts hierarchically	
	Movement up hierarchy is well-paced	
	Examiner appropriately cues parents to next step in the hierarchy if necessary	
	Examiner ceases prompting when eye contact is made in response to name (1/5)	

Response to Joint Attention		***Time*:**
Rating		Comments
	Examiner gets child's attention before initiating prompts for RJA, without touching child's face	
	Examiner uses prompts hierarchically	
	Movement up hierarchy is well-paced	
	Provides a number of opportunities for child to request	
	Provides opportunities for spontaneous joint attention by continually activating toy	
	Examiner recognizes and responds appropriately to requests and/or bids for shared enjoyment	

Bubble Play		***Time*:**
Rating		Comments
	Examiner uses prompts hierarchically	
	Movement up hierarchy is well-paced	
	Provides a number of opportunities for child to request	
	Provides opportunities for spontaneous joint attention (1/5)	
	Examiner recognizes and responds appropriately to requests and/or bids for shared enjoyment	

Anticipation of Routine with Objects		***Time*:**
Rating		Comments
	Examiner uses prompts hierarchically	
	Movement up hierarchy is well-paced	
	Establishes a routine with appropriate pauses to allow for communication	
	Examiner recognizes and responds appropriately to requests and/or bids for shared enjoyment	

Responsive Social Smile		***Time*:**
Rating		Comments
	Selects appropriate time to administer RSS (1/5)	
	Appropriately gets child's attention before starting prompts	
	Examiner uses prompts hierarchically	
	Movement up hierarchy is well-paced	
	Cues parents appropriately to next step in the hierarchy if necessary	
	Examiner responds appropriately to child's smile (1/5)	

Anticipation of Social Routine		***Time*:**
Rating		Comments
	Persists as needed to engage child (1/5)	
	Examiner uses prompts hierarchically	
	Movement up hierarchy is well-paced	
	Examiner provides opportunities for the child to initiate and maintain routine	

Functional and Symbolic Imitation		***Time*:**
Rating		Comments
	Examiner presents task clearly to ensure understanding (1/5)	
	Examiner remembers not to label action	
	Examiner uses prompts hierarchically	
	Movement up hierarchy is well-paced	
	Examiner responds positively to child's successes	

Birthday Party		***Time*:**
Rating		Comments
	Examiner uses prompts hierarchically	
	Movement up hierarchy is well-paced	
	Examiner leaves enough time for child to initiate and respond	
	Movement through steps of the Birthday Party is well-paced	
	Examiner shows changes in affect where appropriate	

Snack		***Time*:**
Rating		Comments
	Examiner leaves enough time for child to initiate requests	
	Examiner uses verbal and nonverbal prompts hierarchically in getting child to request more snack	
	Movement up hierarchy is well-paced	
	Placement of food is appropriate to allow for multiple communication modalities	

Appendix L: ADOS Module 2 Fidelity of Implementation Coding Definitions

ADOS Fidelity of Implementation Scoring Definitions—Module 2

Activities	Items Needed
Construction Task	Block puzzle
Response to Name	Any of the Module 2 toys
Make-Believe Play	Bag 1: Family set of human dolls and dog, 4 pieces of furniture, 1 piece baby furniture Bag 2: Miniature book, 2 small spoons, 2 plates, 4 pieces of miniature food, teapot or pitcher or measuring cup, toy car, rocket, small ball, hologram spin disk, two pieces of "junk" (small cloth and small "jewelry" box)
Joint Interactive Play	Materials from "Make-Believe Play"
Conversation	Materials from "Make-Believe Play" or "Free Play" or "Birthday Party"
Response to Joint Attention	Remote-control bunny or car
Demonstration Task	Hand towel and soap
Description of a Picture	Feast scene and resort scene (for back up use)
Telling a Story From a Book	2 picture storyboard books
Free Play	Table toys: pop-up, block, book, toy, yarn Floor toys: music box, baby doll, JIB, truck, blocks, balls, cars, utensils, plates, "Make-Believe" set
Birthday Party	Baby, plate, fork, knife, cup, napkin, Play-Doh, candles, blanket
Snack	Cup, water/juice, plate, 2 snacks in containers
Anticipation of a Routine With Objects	Balloon and cause-and-effect toy
Bubble Play	Bubble gun and liquid

Overall Administration

1. *Organizes space and furniture*
   - Child-size table and chairs should be present, with two chairs adjacent to each other at one corner of the table or side by side at a round table
   - Testing materials should be out of C's sight unless in use
     - Materials are arranged before the assessment in order to have convenient access during the sessions

2. *Maintains rapport with parents*
   - E greets P when she enters the room
   - E responds to any of P's questions and engages P socially
   - **If non-applicable, score as NA**

3. *Lets parents know expectations and assessment process*

- During Free Play, E tells P that she wants to give C a few minutes to adjust to the room and play alone
- During Response to Joint Attention, E asks P to sit slightly behind and away from C
- During Bubble Play, E tells P that she wants to see if C will notice the bubbles without having them pointed out to him
- **If non-applicable, score as NA**

4. *Politely helps parents refrain from becoming over-involved*
   - If P becomes over-involved in the assessment (e.g., P tries to help C respond to E's presses), E politely asks P to refrain from participating
   - **If non-applicable, score as NA**

5. *Fluid movement from task to task*
   - E's movement from task to task seems natural, not forced
   - E does not spend too much time making notes or on tasks outside of protocol

6. *Manages difficult behavior without affecting rapport*
   - E makes sure C is in a pleasant, receptive mood rather than keeping him seated or close to the table (e.g., if C cries every time E steers him near the table, all tasks can be performed on the floor)
   - If C protests persistently when separated from P, most tasks can be performed in P's lap. However, E must make some attempts at separation throughout the assessment
   - If C becomes attached to a particular assessment material, E should remove it from the room if it interferes many times with other tasks. If C tantrums in response to removal, he can hold the toy while completing the rest of the tasks
   - E should offer toys to C and allow free access to create rapport during Free Play

7. *Takes notes adequate for making scoring decisions*
   - E should pause to take notes throughout the assessment
   - If note-taking interferes with pace of assessment, score on each individual task in the "well-paced" items, not here
   - **Score as yes or no (1 or 5)**

<u>Examiner administers the ADOS in a flexible, comfortable manner</u>

1. *Examiner is knowledgeable about procedures*
   - E ensures that she is in the correct positions and the materials are in the correct positions during presses
   - During the Construction task, E adheres to the following guidelines:

    - E sits sufficiently far apart from C, so that some of the blocks can be placed outside of C's reach
- During Response to Name, E adheres to the following guidelines:
    - E is positioned from a distance of ~3-5 feet so that C has to turn in order to look at E
- During the Response to Joint Attention task, E adheres to the following guidelines:
    - E positions the bunny or car so C can easily see it
    - E brings C to the table and gives him a book or quiet toy to play with
    - C should be sitting, facing the front of room
    - E places the toy on a table, ~65 degrees to the front and right of C, and ~4-5 feet away from him
        - E may also place the toy on the floor or on a chair
    - Toy should not be at a higher level than C
    - E is positioned between C and the toy
- During the Birthday Party task, E adheres to the following guidelines:
    - C should be seated at the table or P's lap during the birthday party
- During the Snack task, E adheres to the following guidelines:
    - C should be seated at the table for snack
- During Bubble Play, E adheres to the following guidelines:
    - The remote-controlled toy should be put away
    - E has C stay close to the table or on the floor with a book or quiet toy
    - E gets the bubble gun and bubble liquid and moves to a spot ~5 ft. in front of C and slightly to one side

2. *Examiner is knowledgeable about materials*
    - E uses the correct materials for tasks (see chart above)

3. *Persists as needed to ensure child engages in task*
    - E adheres to all rules about number of presses for each task
    - If rules are not present for number of presses, E should try to engage C before abandoning task

4. *Appropriately returns to task or changes order to obtain valid information*
    - If E moves on from a task because of C's disruptive behavior (or other interference), E returns to that task again before abandoning the task
    - If C tantrums in response to task, E will change the order of tasks in order to maintain rapport

5. Examiner is comfortable and appropriate with child
    - E's behavior is not awkward or stilted (e.g., E smiles at P and E to welcome them, E's voice is appropriate, not too sing-song or loud/soft)

- E engages with C at his developmental level

6. Ends administration on a successful note

- E ensures that C achieves a success before conclusion of the assessment (e.g. C obtains a snack, imitates a model, plays quietly with toys)
- E does not end the assessment when C is being disruptive (e.g., C is crying, screaming, or engaging in stereotyped behavior)
- If C is not interested/disruptive, E scores 5 if redirects C or gets C to calm down
- **Score as yes or no (1 or 5)**

Examiner provides adequate opportunities for the child to interact

1. *Examiner initiates interactions appropriately*

- E approaches C to get his attention a few times during the assessment
- When E approaches C, she may smile at C, comment on C's behavior, or request C to perform an action

2. Examiner gives enough opportunities for child to initiate and respond

- E does not dominate the interaction by talking, playing or directing the child
- E allows C to play undisturbed a few times during the assessment

Examiner is appropriately responsive to child's social bids and behaviors

1. *Actively seeks opportunities to respond to child where appropriate*

- E looks at C, verbally and nonverbally responds to C's behaviors (e.g. orients his/her body toward C and responds appropriately when C requests something)

2. *Examiner recognizes and responds appropriately to the majority of opportunities*
presented by the child

- E returns C's social bids and positive behaviors (e.g. if C smiles at E, E returns a smile; if C requests something, comments on E's behavior, shows or gives E something, E will respond with positive language or behavior)
- If C is not comfortable or is afraid of particular materials, E moves on to the next task

3. *Takes opportunities to test child's responses and play routines for flexibility, rituals,*
unusual interests

- If C shows a particular interest in certain materials or routines, E will allow C to engage in that interest before intervening
- E will intervene when C is engaging in a special interest to observe any disruptive behavior

Construction Task

1. *Introduces task and establishes rapport*
   - E places printed design and a few blocks in front of C
   - E places the remaining blocks on the table within sight, but out of the C's reach, and on the other side of the examiner's arm

2. *Examiner uses prompts hierarchically; ensuring child has more than one chance to request blocks*
   - E points to the printed design and says "Show me how you'd put these blocks together to look like this picture. Let me know if you need more blocks."
   - E gestures to indicate the blocks she has kept and ensures that that C can see the additional pieces
   - When C has assembles the blocks he was given, E turns slightly away from C and waits to see if he will ask for access to the remaining blocks
   - If C does not respond
     - E looks deliberately at C
   - If C makes no response to E's direct gaze
     - E gestures toward C's blocks and says "Are you doing alright?" or "How are you doing?"
     - After this, E asks, "Do you need more blocks?"
   - When task is finished
     - E places the container for the block puzzle in front of C
     - E opens the container and puts some blocks in it while saying "Time to clean up"
     - E watches to see if C helps put away the remaining blocks

3. *Movement up hierarchy is well paced*
   - E pauses between presses

Response to Name

6. *Examiner chooses appropriate time to administer Response to Name*
   - Response to Name is best conducted early during Free Play but can take place anytime during the assessment
     - E does not administer during Response to Joint Attention
   - E ensures that C is not overly involved in a toy, P is not talking to C, C is not crying or engaging in disruptive behavior

- E ensures toys are present and says “It’s time to play now”

7. *Examiner uses prompts hierarchically*
   - E calls C’s name once or twice
   - E pauses and watches for C to look at E
     - If C does not respond, E repeats for a total of **four** times
   - If C still does not clearly respond, P should be asked to call C’s name to get his attention without physical contact
     - If C does not respond to **two** of these presses E asks P, “Is there any way you can get him to look at you without touching him?”
     - If C still does not respond, E asks P to use any method to get a response including touching

8. *Movement up hierarchy is well-paced*
   - E or P pauses between presses

9. *Examiner appropriately cues parents to next step in the hierarchy if necessary*
   - If C does not respond to E, E asks P to call C’s name twice, to make a familiar noise, and eventually touch C if needed
   - E advises P to pause between each press as needed
   - **If non-applicable, rate as NA**

10. *Examiner ceases prompting when eye contact is made in response to name*
    - After E has established eye contact with C (or has completed the prompt hierarchy), E ends Response to Name
    - **Score as yes or no (1 or 5)**

<u>Make-Believe Play</u>

1. *Examiner introduces activity and toys*
   - E lays out the play materials
   - E tells C, “This is a family, with a mother and father, and a young girl/boy, and a baby. Here are some of their things. Could you play with these now for awhile?”
     - Materials from Module 3 may be added or substituted as necessary to ensure that they will be appropriate for the child’s chronological age

2. *Examiner leaves enough time for child to initiate and respond*
   - E does not dominate the interaction by talking, playing, or directing C

3. *Examiner uses prompts hierarchically*

- If C does nothing or cannot quite get started after materials are laid out
    - E picks up some of the objects, saying “I’ll play with these”
    - E proceeds to make some limited but creative use of the objects without including C, describing events while carrying them out
    - E asks C, “What are you going to do with yours?” and gestures to remaining toys
- If the requirement to “play” in front of E seems inappropriate for C
    - E may frame the task as the creation of a video game, MTV video, or television show

4. *Movement up hierarchy is well paced*
    - E pauses between presses

5. *Examiner responds to child where appropriate*
    - E comments, shows interest, and encourages C without telling him what to do
    - If C does not initiate creative play, E prompts him and demonstrates some make-believe usage of objects that is sufficiently limited in scope to allow C freedom to demonstrate his own creativity

Joint Interactive Play

1. *Examiner transitions from Make-Believe Play to Joint Interactive Play smoothly and clearly*
    - After C has had sufficient time for make-believe play, E redefines the activity by saying “Can I play too?” or “Now I’d like to join you, if I may?”
    - **Score as yes or no (1 or 5)**

2. *Examiner uses prompts hierarchically*
    - E manipulates objects to produce a press for joint interactive play
        - E does something that requires a response from C (e.g., picks up a doll and has it give something to C’s doll)
    - If C responds, E responds in return
    - If C does not respond, E attempts some other interactive play (up to four attempts if C does not respond)

3. *Movement up hierarchy is well paced*
    - E pauses between presses

4. *Examiner leaves enough time for child to initiate and respond*
    - E does not dominate the interaction by talking, playing, or directing C
    - E does not direct the play or impose a story sequence on what C is doing

5. *Examiner shows changes in affect where appropriate*
   - E enters into the spirit of the play and shows ample pleasure or worry (or whatever emotion is appropriate) in relation to the play produced

Conversation (Presses throughout the ADOS)

1. *Examiner chooses appropriate context to administer Conversation*
   - E can initiate conversation with C at any time during the schedule
   - E may leave out toys from "Make-Believe Play" or other later activities such as the "Birthday Party"
   - E makes sure conversations are not centered exclusively around the child's strongest interests

2. *Examiner structures conversation to facilitate back and forth communication*
   - E should offer simple comments about the materials and then give C time to reply or make his own comments
   - E avoids a question and answer style conversation and instead uses a conversational approach
   - E should set up the beginning of an interchange and see if C follows up
   - E must provide sufficient leads, guides, and prompts on a topic
   - Wherever possible, E uses C's own interests by incorporating his earlier statements, comments, or questions wherever possible
   - E should include some discussion of age-appropriate topics of interest (e.g., pets, birthdays, outings, videos) that are not stereotyped or circumscribed

3. *Examiner shows appropriate interest and involvement in conversation*
   - E responds appropriately and enthusiastically to C's talk
   - E makes a point of including brief statements about her own interests, activities or feelings to see if C can follow up on such comments.

4. *Examiner provides opportunity for child to discuss topics outside of the immediate situation*
   - E adds comments about related events or objects outside the immediate context (e.g., school, work, sibling, leisure activities) to assess C's ability to report on such situations.

5. *Examiner leaves enough time for child to initiate and respond*
   - E does not dominate the interaction by talking or directing C
   - At some point, E should stop maintaining the conversation and sit silently for a while looking interested to see if C can take the initiative without a specific prompt

Response to Joint Attention

7. *Examiner gets child's attention before initiating prompts for Response to Joint Attention, without touching child's face*
   - E calls C's name and/or touches him to get C's attention.
   - Throughout this activity, E may touch C's arm/leg to get his attention or to orient him toward E but cannot physically orient his face toward the toy

8. *Examiner uses prompts hierarchically*
   - E says "Look, (C's name)" as E looks toward the toy, then looks back to C
   - If C does not look toward the toy, E repeats the attempt to direct his gaze, saying, "Look, (C's name), look at *that*!" and E turns toward the toy
   - E does not say the name of the toy
   - If after **five** attempts, C still does not follow E's gaze alone to look at the toy
     - E points to the toy, making sure E's hand is directly in C's visual field, saying "(C's name), look at *that*!"
   - If C still does not look at E and/or the toy
     - E uses the switch to activate the toy from E's position
     - E watches to see if there is any response from C
     - E turns the toy off, pauses and waits for a response from C
   - If no response, E places the toy in front of C and observes whether he hands it to E or P to request its activation.
   - If C does not hand the toy to E or P, or pull someone's hand to it, E turns it on, then turns it off and waits for C's next action

9. *Movement up hierarchy is well-paced*
   - E pauses between presses

10. *Provides a number of opportunities for child to request*
    - E looks at C, holds activation button out of reach of C, and stops and starts the toy

11. *Provides opportunities for spontaneous joint attention by continually activating toy*
    - E activates toy for a few seconds

12. *Examiner recognizes and responds appropriately to requests and/or bids for shared enjoyment*
    - E looks at C, verbally and nonverbally responds to C's behaviors (e.g., orients her body toward C, responds appropriately by acknowledging

C's attempts to share enjoyment with E, responds appropriately when C requests the toy by activating it)
- If C is not engaged, E removes the toy and moves on

Demonstration Task

1. *Examiner introduces task clearly and appropriately*
   - E introduces the task clearly
     - E says "Now I want you to play a pretend game with me" and then "Let us pretend this is a sink in the bathroom"
     - E pretends to draw a basin and water taps on the table in front of C
     - E says "This is a pretend toothbrush" and pretends to draw the toothbrush
     - E says "This is the pretend toothpaste" and pretends to draw the toothpaste
   - E uses slow gestures without any extraneous movement

2. *Examiner uses prompts hierarchically*
   - After introducing task, E says, "Now I want you to teach me how you brush your teeth. Can you show me and tell me? Start right at the beginning. You've come into the bathroom. What do you do now?"
   - If C does not understand/respond, the E describes the scene again in the same manner
     - If C still does not respond, E may demonstrate an entirely different event (e.g., "driving a car") before moving on to second trial
   - If C displays a limited demonstration (e.g., demonstrates an isolated action very rapidly and conventionally or pantomimes without speaking)
     - E says, "That's good. Now, *tell* me and show me again right from the beginning—from when you first came into the bathroom. It's OK for you to talk as well as show me."
   - E sets up the scene for the second trial
     - E points out four *make-believe* items: soap, a hand towel, a washcloth, and a sink with faucets
     - E says "Now I want you to *teach* me how you wash your face, using soap."
   - If C does not understand/respond, E resets the scene again, this time using the real soap and towel

3. *Movement through hierarchy is well paced*
   - E pauses between presses

Description of a Picture

1. *In the initial phase, examiner remembers not to model or ask specific questions about particular parts of the picture*
   - E can comment and ask general questions, but does not provide further substantive information about the picture that is being described

2. *Examiner uses prompts hierarchically*
   - E tells C, "Let's look at this picture now. Can you tell me about it? What is happening in the picture?"
   - If after general prompts and questions C does not respond, fails to provide more than isolated specific labels of objects or people, or mentions only one statement containing an agent, object, or action
     - E models a complex observation (e.g., E says "Look over here. That man on the tractor must be a farmer. He's next to a big ear of corn.")
   - If C still does not respond or identify any objects in the picture
     - E asks specific questions (e.g., "Who is this?", "What is he doing?")
   - If C does not respond to the first picture, the second picture is presented

3. *Examiner initiates appropriate conversational interaction*
   - E encourages C and responds positively and enthusiastically to what he says
   - If C relates the picture to his own experiences (family, friends, activities, etc.), E encourages this as an opportunity to generate conversation
   - (Conversations held here may be rated under Conversation and Reporting)

4. *Movement through hierarchy is well paced*
   - E pauses between presses

Telling a Story From a Book

1. *Examiner introduces task clearly*
   - E presents C with one book
   - E says, "Have a look at this book. It tells a story in pictures. See it starts out with…*(E describes the first picture in the book).* Can you tell me the story as we go along? You go first, then I'll take a turn."
   - E hands the book to C, giving whatever prompts may be necessary to encourage him to start at the beginning and then turn the page

2. *Examiner uses prompts hierarchically*
    - If C seems hesitant, E gives ***no more than two*** specific prompts to get him started (e.g., "I wonder what happens next" and then give C a chance to comment)
        - If C only focuses on specific details of the picture, E says, "You're right. Can you tell the story?" or "What are the pictures all about?" (Up to **2** such general prompts are allowed)
    - After C has described the book, E says, "That was great. Now I'll take a turn," and quickly completes the story for or with C
    - If C is determined to complete the story, E notes this and lets him do so

3. *Movement up hierarchy is well paced*
    - E pauses between presses

4. *Examiner responds positively to child telling story*
    - E makes comments, shows enthusiasm, verbally and nonverbally responds to C

Free Play

6. *Examiner initiates interactions with the child appropriately*
    - If C plays with and appears comfortable with the toys, E watches and sometimes comments on C's behaviors, offers toys to C, participates in C's activities
    - If C does not initiate independently, E or P should show a toy to C
    - If C is still not playing, E later returns to Free Play with the same Free Play materials out
        - E should let C know there's a break in the activities, saying "Time to see the new toys."
        - E allows C to look and choose a toy

7. *Examiner leaves enough time for the child to explore on his own*
    - E does not dominate the interaction by talking to, playing with, or directing C constantly

8. *Examiner tries to get the child interested in toys as needed*
    - E shows, gives, or plays with toys in an enticing way if C does not play

9. *Examiner includes the parent in Free Play as appropriate*
    - E asks P to allow C to play alone
        - E engages P by saying, "Are these the kinds of toys (C's name) likes to play with at home?" and "Is this how he usually behaves when he comes to a new place for the first time?"
    - After C has played alone, E asks P to initiate play with C

- If C is crying/clinging to P, or unable to play or look at toys, E asks P: "Can you see if you can get him interested in some of these toys?"
- **If non-applicable, rate as NA**

10. *Examiner responds to child where appropriate*
    - E looks at C, verbally and nonverbally responds to C's behaviors (e.g., orients her body toward C and responds appropriately when C requests something by providing the requested activity)
    - If C is not playing comfortably, E removes the Free Play materials and moves on

Birthday Party

6. *Examiner uses prompts hierarchically*
    - E puts the doll up on the table or in a second chair and says "Look, here's a baby"
    - E provides an opportunity for C to touch, hug, or speak to the doll if he wants to do so
    - E says "It's the baby's birthday! Let's have a birthday party for the baby!"
    - E makes a cake out of the Play-doh on the plate by patting it, saying "Here's the birthday cake"
    - E gives C a chance to pat it if appropriate
    - E puts 1 of the candles in the cake, saying "Here are the candles"
    - E gives the second candle to C and leaves the third and fourth within easy reach on the table to allow C the opportunity to place them in the cake
        - If C doesn't do so independently, E helps him add the other candles to the cake
    - E pretends to light the candles with a match, and shakes out the match, saying "Hot"
    - Then E says, "What should we do now?"
        - If C does not respond, E says "Let's sing happy birthday" and does so
    - If C does not spontaneously blow out the candles or help the doll to do so, E says "Let's blow out the candles," and follows these four steps:
        - E says, "What's next?"
        - E opens her mouth
        - E puts her mouth in the blowing position
        - E blows out the candles
        - Before each step, E looks at C and pauses briefly in anticipation
    - When the candles are blown out, E then gives the fork to C and says "The baby's hungry"

    - If C does not begin feeding the doll, E says “The baby wants some birthday cake”
    - If C begins to feed the baby, E makes appropriate “Yum!” sounds
    - If C does not feed the doll, E demonstrates doing so, saying “Let’s feed the baby,” and then gives the fork to C, E may cut the Play-doh into pieces
- The cup should also be available in case C wants to give the doll a drink
    - If C does not spontaneously give the doll a drink, E pretends to pour some juice into the cup and gives the doll a drink
- After placing the napkin on the table, E knocks over the cup as if by accident and says “Oh, no! I spilled the juice! What a mess! What should we do!?”
    - If C does not respond, E asks him, “Can you help clean up?”
    - If still no response, E hands him the napkin
- Then E says “Okay, the birthday party’s over. Now what will the baby do?”
- E lays the doll down on the table, and puts the blanket on the table within C’s reach without indicating it
    - If C does not respond by putting the doll to bed or with any action directed to the doll, E says, “The baby’s tired. Time for the baby to sleep.”
        - E pauses, and then gives the blanket to C
    - If C still does not respond, E should cover the doll with the blanket, pat it, and say “Night-night, baby”
- E gives the doll to C and allows him to put it to bed or give it a kiss
- E puts the birthday items back in their bag, giving C an opportunity to help E do so
- If C does not like the Birthday Party, E may use other forms of ritualized social events as an alternative, such as a picnic, going to McDonalds, getting pizza, or having tea

7. *Movement up hierarchy is well-paced*
    - E pauses between presses

8. *Examiner leaves enough time for child to initiate and respond*
    - This activity should be carried out at a slow pace to allow C to initiate or join in activities with the doll
    - E does not dominate the interaction by talking, playing, or directing C
    - After blowing out the birthday candles, E allows C to play undisturbed with the Birthday Party materials at least once

9. *Movement through steps of the Birthday Party is well-paced*
    - E pauses between presses

10. *Examiner shows changes in affect where appropriate*
    - With animation, E says, “It’s the baby’s birthday! Let’s have a birthday party for the baby!”
    - E looks concerned and says “Hot!” when shaking out the match
    - After the candles are blown out E claps and cheers
    - E sounds distressed when she spills the juice

Snack

5. *Examiner leaves enough time for child to initiate requests*
    - E does not dominate the interaction by talking or directing C
    - E waits for C to request at least once during snack

6. *Examiner uses verbal and nonverbal prompts hierarchically in getting child to request more snack*
    - E says “It’s time for a snack” and places the plate on the table in easy reach of C
    - E puts each type of cookie or cracker on the plate, saying “We have cookies and crackers (or pretzels, etc)”
    - After C has eaten the food, E holds up each food container in a different hand, well out of C’s reach, asks “What do you want?” and waits for a response
    - E watches for C to point, reach, offer his empty plate, make eye contact, and/or vocalize
        - If C makes no response, E holds 1 container out and says “Crackers”
        - Then E then holds the other container out and says “Cookies”
        - Finally, E holds both containers in front and says, “What do you want?”
    - If C requests either of the foods by any means, E gives him one
    - If C seems to want something, but cannot indicate a choice or becomes frustrated, E gives C the cookie or cracker container (after asking P which) to see if C will request help in opening it by handing it to E
    - After C has had one or more cookie or cracker, E starts over again
    - E holds both containers up and says, “What do you want?”
    - If necessary, E goes through the earlier steps again, but moves more quickly to avoid too much frustration
    - E continues the snack, giving C cookies and/or crackers until C has had enough
    - E gives C a drink if he is thirsty
    - E may follow the same procedure to solicit a request for a drink if C is not interested in the food, otherwise E does not press again for requests

7. *Movement up hierarchy is well-paced*
   - E pauses between presses

8. *Placement of food is appropriate to allow for multiple communication modalities*
   - E places the snack in hard to open containers or out of C's reach
   - C should be able to observe the snack but not access it on his own

Anticipation of a Routine with Objects

5. *Examiner uses prompts hierarchically*
   - E blows up a large balloon slowly, exaggerating the behavior, E pinches the neck of the balloon so that it won't deflate, E holds it directly in front of C, letting C touch or hit it
   - E says "Ready, set, go!" and lets go of the balloon's neck so air flies out of it, then retrieves it to blow it up again
   - E holds the balloon over her own head and lets go of the balloon so that it will fly around the room, after the balloon lands, E waits for C to bring it to E or to indicate in some other way that C wants it to be blown up again
   - If C throws the balloon in the air or loses interest, E gets the deflated balloon, shows it to C, and repeats the procedure in deliberate steps pausing each step to see what C will do

6. *Movement up hierarchy is well-paced*
   - E pauses between presses

7. *Establishes a routine with appropriate pauses to allow for communication*
   - E presents this task gradually and slowly
   - E holds the balloon in front of her mouth
   - E puts the balloon to her mouth
   - E blows up the balloon
   - E holds the inflated balloon over her head
   - E says, "Ready, set, go!"
   - E releases the balloon
   - E repeats the procedure **two** more times, waiting each time for C to initiate the routine with the balloon

8. *Examiner recognizes and responds appropriately to requests and/or bids for shared enjoyment*
   - If C initially seems afraid of the balloon, E may have C sit in P's lap while E carries out the routine at the other end of the room, making sure the balloon does not fly near C
   - If C has a clear negative response to the balloon, E establishes a routine with one of the cause-and-effect toys using the following procedure:

    - E places the toy of choice in front of C, preferably on the table, and activates it once
    - When the action occurs, E makes a suitable sound of excitement
    - If C is not interested, E tries another toy
    - If C does show interest, E repeats the action **twice** with accompanying sound effects, pausing in between presses
- E looks at C, verbally and nonverbally responds to C's behaviors (e.g., orients her body toward C, responds appropriately by acknowledging C's attempts to share enjoyment with E, responds appropriately when C requests the balloon by blowing it up)
- If C is not engaged, E removes the balloon and moves on

<u>Bubble Play</u>

6. *Examiner uses prompts hierarchically*
    - E begins blowing bubbles with the bubble gun, holding it away from her body
    - E continues blowing bubbles for a few seconds after C sees them, so he does not need to request more
    - E watches for initiation of joint attention
    - E gives C an opportunity to request more bubbles and waits for C to initiate a request either physically or vocally
    - If C fails to initiate a request, E puts the bubble gun in an accessible location to allow C to hand it to E as a request, or E gives C the bubble gun, but keeps the bubble fluid so that C needs to request access to it from E
    - If necessary, E shows C how the bubble gun works, step by step

7. *Movement up hierarchy is well-paced*
    - E pauses between presses

8. *Provides a number of opportunities for child to request*
    - E looks at C
    - E starts and stops bubble gun
    - E puts the bubble gun in an accessible location or E gives C the bubble gun, but keeps the bubble fluid

9. *Provides opportunities for spontaneous joint attention*
    - E initially allows the bubbles to blow for a few seconds
    - **Score as yes or no (1 or 5)**

10. *Examiner recognizes and responds appropriately to requests and/or bids for shared enjoyment*

- E looks at C, verbally and nonverbally responds to C's behaviors (e.g., orients her body toward C, responds appropriately by acknowledging C's attempts to share enjoyment with E, responds appropriately when C requests the bubble gun by activating it)
- If C is not engaged, E removes the bubble gun and moves on

Appendix M: ADOS Module 2 Fidelity of Implementation Coding Checklist
Adapted from UMACC ADOS Fidelity Checklists, 2005

Module 2 – ADOS Administration Fidelity Checklist

Child: **Examiner:** **Observer:** **Date of Session:**

1	2	3	4	5
Examiner does not implement throughout assessment	**Examiner implements occasionally, but misses majority of opportunities**	**Examiner implements up to half of the time, but misses many opportunities**	**Examiner implements a majority of the time, but misses some opportunities**	**Examiner implements throughout the assessment**
No if yes/no item				**Yes if yes/no item**
Score NA if item is not applicable				

Overall Administration		***Time*:**
Rating		Comments
	Organizes space and furniture	
	Maintains rapport with parents	
	Lets parents know expectations and assessment process	
	Politely helps parents refrain from becoming over-involved	
	Fluid movement from task to task	
	Manages difficult behavior without affecting rapport	
	Takes notes adequate for making scoring decisions (1/5)	

Examiner administers the ADOS in a flexible, comfortable manner		***Time*:**
Rating		Comments
	Examiner is knowledgeable about procedures	
	Examiner is knowledgeable about materials	
	Persists as needed to ensure child engages in task	
	Appropriately returns to task or changes order to obtain valid information	
	Examiner is comfortable and appropriate with the child	
	Ends administration on a successful note (1/5)	

Examiner provides adequate opportunities for the child to interact	***Time*:**
	Comments
Examiner initiates interactions appropriately	
Examiner gives enough opportunities for child to initiate and respond	

Examiner is appropriately responsive to child's social bids and positive behaviors	***Time*:**
	Comments
Actively seeks opportunities to respond to child where appropriate	
Examiner recognizes and responds appropriately to the majority of opportunities presented by the child	
Takes opportunities to test child's responses and play routines for flexibility, rituals, unusual interests	

Construction Task		***Time*:**
Rating		Comments
	Introduces task and establishes rapport	
	Examiner uses prompts hierarchically, ensuring child has more than one chance to request blocks	
	Movement up hierarchy is well paced	

Response to Name		***Time*:**
Rating		Comments
	Examiner chooses appropriate time to administer Response to Name	
	Examiner uses prompts hierarchically	
	Movement up hierarchy is well-paced	
	Examiner appropriately cues parents to next step in the hierarchy if necessary	
	Examiner ceases prompting when eye contact is made in response to name (1/5)	

Make-Believe Play		***Time*:**
Rating		Comments
	Examiner introduces activity and toys	
	Examiner leaves enough time for child to initiate and respond	
	Examiner uses prompts hierarchically	
	Movement up hierarchy is well paced	
	Examiner responds to child where appropriate	

Joint Interactive Play		***Time*:**
Rating		Comments
	Examiner transitions from Make Believe Play to Joint Interactive Play smoothly and clearly (1/5)	
	Examiner uses prompts hierarchically	
	Movement up hierarchy is well paced	
	Examiner leaves enough time for child to initiate and respond	
	Examiner shows changes in affect where appropriate	

Conversation		***Time*:**
Rating		Comments
	Examiner chooses appropriate context to administer Conversation	
	Examiner structures conversation to facilitate back and forth communication	
	Examiner shows appropriate interest and involvement in conversation	
	Examiner provides opportunity for child to discuss topics outside of the immediate situation	
	Examiner leaves enough time for child to initiate and respond	

Response to Joint Attention	***Time*:**	
Rating		Comments
	Examiner gets child's attention before initiating prompts for RJA, without touching child's face	
	Examiner uses prompts hierarchically	
	Movement up hierarchy is well-paced	
	Provides a number of opportunities for child to request	
	Provides opportunities for spontaneous joint attention by continually activating toy	
	Examiner recognizes and responds appropriately to requests and/or bids for shared enjoyment	

Demonstration Task	***Time*:**	
Rating		Comments
	Examiner introduces task clearly and appropriately	
	Examiner uses prompts hierarchically	
	Movement through hierarchy is well paced	

Description of a Picture	***Time*:**	
Rating		Comments
	In the initial phase, examiner remembers not to model or ask specific questions about particular parts of the picture	
	Examiner uses prompts hierarchically	
	Examiner initiates appropriate conversational interaction	
	Movement through hierarchy is well paced	

Telling a Story From a Book	***Time*:**	
Rating		Comments
	Examiner introduces task clearly	
	Examiner uses prompts hierarchically	
	Movement up hierarchy is well paced	
	Examiner responds positively to child telling story	

Free Play	***Time*:**	
Rating		Comments
	Examiner initiates interactions with the child appropriately	
	Examiner leaves enough time for the child to explore on his own	
	Examiner tries to get the child interested in toys as needed	
	Examiner includes the parents in free play as appropriate	
	Examiner responds to child where appropriate	

Birthday Party	***Time*:**	
Rating		Comments
	Examiner uses prompts hierarchically	
	Movement up hierarchy is well-paced	
	Examiner leaves enough time for child to initiate and respond	
	Movement through steps of the Birthday Party is well-paced	
	Examiner shows changes in affect where appropriate	

Snack	***Time*:**	
Rating		Comments
	Examiner leaves enough time for child to initiate requests	
	Examiner uses verbal and nonverbal prompts hierarchically in getting child to request more snack	
	Movement up hierarchy is well-paced	
	Placement of food is appropriate to allow for multiple communication modalities	

Anticipation of a Routine with Objects	***Time*:**	
Rating		Comments
	Examiner uses prompts hierarchically	
	Movement up hierarchy is well-paced	
	Establishes a routine with appropriate pauses to allow for communication	
	Examiner recognizes and responds appropriately to requests and/or bids for shared enjoyment.	

Bubble Play		***Time*:**
Rating		Comments
	Examiner uses prompts hierarchically	
	Movement up hierarchy is well-paced	
	Provides a number of opportunities for child to request	
	Provides opportunities for spontaneous joint attention (1/5)	
	Examiner recognizes and responds appropriately to requests and/or bids for shared enjoyment	

Appendix N: ADOS Module 3 Fidelity of Implementation Coding Definitions

ADOS Fidelity of Implementation Scoring Definitions—Module 3

Activities	Items Needed
Construction task	Block puzzle and printed design to be duplicated
Make-Believe Play	From Bag 3: 2 male action figures and 1 female action; 3 props (one for each action figure); miniature hairbrush, 2 small tools; toy dinosaur From Bag 2: 2 spoons, 2 plates, little teapot or measuring cup; toy car; hologram disk; 2 "junk" items (small piece of cloth and small "jewelry" box)
Joint Interactive Play	Materials from "Make-Believe Play"
Demonstration Task	Hand towel and soap
Description of a Picture	American montage scene and resort scene (for backup use)
Telling a Story From a Book	2 picture storybooks
Cartoons	*Series A* cartoons (fisherman story) and *Series B* cartoons (monkey story)
Conversation and Reporting	none
Emotions	none
Social Difficulties and Annoyance	none
Break	Shape puzzle, drawing paper, 8 markers, pin art, spin pen, small radio, current copies of a newspaper and a magazine, materials from "Make-Believe Play"
Friends and Marriage	none
Loneliness	none
Creating a Story	6 items with a definite purpose and 6 items with no purpose

Overall Administration

1. *Organizes space and furniture*
   - Table and chairs should be present, with two chairs adjacent to each other at one corner of the table or side by side at a round table
   - Testing materials should be out of C's sight unless in use

2. *Fluid movement from task to task*
   - E's movement from task to task seems natural, not forced
   - E does not spend too much time making notes or on tasks outside of protocol

3. *Manages difficult behavior without affecting rapport*
    - E makes sure C is in a pleasant, receptive mood rather than keeping him seated or close to the table (e.g. if C engages in disruptive behavior every time E steers him near the table, all tasks can be performed on the floor)
    - If C becomes attached to a particular assessment material, E should remove it from the room if it interferes with other tasks. If C engages in disruptive behavior in response to removal, he can hold the toy while completing the rest of the tasks

4. *Takes notes adequate for making scoring decisions*
    - E should pause to take notes throughout the assessment
    - If note-taking interferes with pace of assessment, score on each individual task in the "well-paced" items, not here
    - **Score as yes or no (1 or 5)**

Examiner administers the ADOS in a flexible, comfortable manner

1. *Examiner is knowledgeable about procedures*
    - E ensures that she is in the correct positions and the materials are in the correct positions during presses
    - During the Construction task, E adheres to the following guidelines:
        - E sits sufficiently far apart from C, so that some of the blocks can be placed outside of C's reach
    - During Break, E adheres to the following guidelines:
        - E sits within view of C, but away from the table where the participant is sitting
    - During Emotions, Friends and Marriage, and Loneliness, E adheres to the following guidelines:
        - E avoids sitting opposite C across a table
        - E and C are facing each other diagonally at the corner of a table or side by side at a round table

2. *Examiner is knowledgeable about materials*
    - E uses the correct materials for tasks (see chart above)

3. *Persists as needed to ensure child engages in task*
    - E adheres to all rules about number of presses for each task
    - If rules are not present for number of presses, E should try to engage C before abandoning the task

4. *Appropriately returns to task or changes order to obtain valid information*
    - If E moves on from a task because of C's disruptive behavior (or other interference), E returns to that task before abandoning the task

- If C tantrums in response to a task, E will change the order of tasks in order to maintain rapport

5. *Ends administration on a successful note*
   - E ensures that C achieves a success before conclusion of the assessment
   - E does not end the assessment when C is being disruptive (e.g. C is crying, screaming, or engaging in stereotyped behavior)
   - If C is not interested/disruptive, E scores 5 if redirects C or gets C to calm down
   - **Score as yes or no (1 or 5)**

Examiner provides adequate opportunities for the child to interact

1. *Examiner initiates interaction appropriately*
   - E approaches C to get his attention during the assessment
   - When E approaches C, she may smile at C or comment on C's behavior

2. *Examiner gives enough opportunities for child to initiate and respond*
   - E does not dominate interaction by talking, playing, or directing C
   - However, E does not provide so little structure that that C becomes uncomfortable
   - E refrains from directly prompting specific behaviors from C

Examiner is appropriately responsive to child's social bids and behaviors

1. *Actively seeks opportunities to respond to child where appropriate*
   - E looks at C, verbally and nonverbally responds to C's behaviors (e.g. orients her body toward C and responds appropriately when C requests something)

2. *Examiner recognizes and responds appropriately to the majority of opportunities presented by the child*
   - E returns C's social bids and positive behaviors (e.g. if C smiles at E, E returns a smile; if C requests something, comments on E's behavior, shows or gives E something, E will respond with positive language or behavior)
   - If C is not comfortable or is afraid of particular materials, E moves on to the next task

3. *Takes opportunities to test child's responses and routines for flexibility, rituals, unusual interests*

- If C shows a particular interest in certain materials, E will allow C to engage in that interest before intervening
- E will intervene when C is engaging in a special interest to observe any disruptive behavior
- If C shows repeated mannerisms, social disinhibitions, or inappropriate behaviors, then at some point E should ask C to stop them or try to prevent these behaviors (e.g., by placing out of sight an object with which the participant is preoccupied) so the effect of E's interference can be assessed

Construction Task

1. *Introduces task and establishes rapport*
   - E places printed design and a few blocks in front of C
   - E places the remaining blocks on the table within sight, but out of the C's reach, and on the other side of the examiner's arm

2. *Examiner uses prompts hierarchically; ensuring child has more than one chance to request blocks*
   - E points to the printed design and says "Show me how you'd put these blocks together to look like this picture. Let me know if you need more blocks."
   - E gestures to indicate the blocks she has kept and ensures that that C can see the additional pieces
   - When C has assembles the blocks he was given, E turns slightly away from C and waits to see if he will ask for access to the remaining blocks
   - If C does not respond
     - E looks deliberately at C
   - If C makes no response to E's direct gaze
     - E gestures toward C's blocks and says "Are you doing alright?" or "How are you doing?"
     - After this, E asks, "Do you need more blocks?"
   - When task is finished
     - E places the container for the block puzzle in front of C
     - E opens the container and puts some blocks in it while saying "Time to clean up"
     - E watches to see if C helps put away the remaining blocks

3. *Movement up hierarchy is well paced*
   - E pauses between presses

Make-Believe Play

1. *Examiner introduces activity and toys*
   - E lays out the play materials
   - E tells C “Here are three characters for you to use to make up a story. Could you play with these for a while?”
   - E introduces action figures with descriptions appropriate to their appearance (e.g. “a princess, a wrestler, and a soldier, and they have a pet dinosaur”)

2. *Examiner leaves enough time for child to initiate and respond*
   - E does not dominate the interaction by talking, playing, or directing C

3. *Examiner uses prompts hierarchically*
   - If C does nothing or seems uncomfortable after materials are laid out
     - E picks up some of the objects, saying “I’ll play with these”
     - E proceeds to make some limited but creative use of the objects without including C, describing events while carrying them out
     - E asks C, “What are you going to do with yours?” and gestures to remaining toys
   - If the requirement to “play” in front of E seems inappropriate for C
     - E may frame the task as the creation of a video game, MTV video, or television show

4. *Movement up hierarchy is well paced*
   - E pauses between presses

5. *Examiner responds to child where appropriate*
   - E comments, shows interest, and encourages C without telling him what to do
   - If C does not initiate creative play, E prompts him and demonstrates some make-believe usage of objects that is sufficiently limited in scope to allow C freedom to demonstrate his own creativity

Joint Interactive Play

1. *Examiner transitions from Make-Believe Play to Joint Interactive Play smoothly and clearly*
   - After C has had sufficient time for make-believe play, E redefines the activity by saying “Can I play too?” or “Now I’d like to join you, if I may?”
   - **Score as yes or no (1 or 5)**

2. *Examiner uses prompts hierarchically*

- E manipulates objects to produce a press for joint interactive play
    - E does something that requires a response from C (e.g., picks up a doll and has it give something to C's doll)
- If C responds, E responds in return
- If C does not respond, E attempts some other interactive play (up to four attempts if C does not respond)

3. *Movement up hierarchy is well paced*
    - E pauses between presses

4. *Examiner leaves enough time for child to initiate and respond*
    - E does not dominate the interaction by talking, playing, or directing C
    - E does not direct the play or impose a story sequence on what C is doing

5. *Examiner shows changes in affect where appropriate*
    - E enters into the spirit of the play and shows ample pleasure or worry (or whatever emotion is appropriate) in relation to the play produced

Demonstration Task

1. *Examiner introduces task clearly and appropriately*
    - E introduces the task clearly
        - E says "Now I want you to play a pretend game with me" and then "Let us pretend this is a sink in the bathroom"
        - E pretends to draw a basin and water taps on the table in front of C
        - E says "This is a pretend toothbrush" and pretends to draw the toothbrush
        - E says "This is the pretend toothpaste" and pretends to draw the toothpaste
    - E uses slow gestures without any extraneous movement

2. *Examiner uses prompts hierarchically*
    - After introducing task, E says, "Now I want you to teach me how you brush your teeth. Can you show me and tell me? Start right at the beginning. You've come into the bathroom. What do you do now?"
    - If C does not understand/respond, the E describes the scene again in the same manner
        - If C still does not respond, E may demonstrate an entirely different event (e.g., "driving a car") before moving on to second trial
    - If C displays a limited demonstration (e.g., demonstrates an isolated action very rapidly and conventionally or pantomimes without speaking)

    - E says, “That’s good. Now, *tell* me and show me again right from the beginning—from when you first came into the bathroom. It’s OK for you to talk as well as show me.”
- E sets up the scene for the second trial
    - E points out four *make-believe* items: soap, a hand towel, a washcloth, and a sink with faucets
    - E says “Now I want you to *teach* me how you wash your face, using soap.”
- If C does not understand/respond, E resets the scene again, this time using the real soap and towel

3. *Movement through hierarchy is well paced*
- E pauses between presses

<u>Description of a Picture</u>

1. *In the initial phase, examiner remembers not to model or ask specific questions about particular parts of the picture*
- E can comment and ask general questions, but does not provide further substantive information about the picture that is being described

2. *Examiner uses prompts hierarchically*
- E tells C, “Let’s look at this picture now. Can you tell me about it? What is happening in the picture?”
- If after general prompts and questions C does not respond, fails to provide more than isolated specific labels of objects or people, or mentions only one statement containing an agent, object, or action
    - E models a complex observation (e.g., E says “Look over here. That man on the tractor must be a farmer. He’s next to a big ear of corn.”)
- If C still does not respond or identify any objects in the picture
    - E asks specific questions (e.g., “Who is this?”, “What is he doing?”)
- If C does not respond to the first picture, the second picture is presented

3. *Examiner initiates appropriate conversational interaction*
- E encourages C and responds positively and enthusiastically to what he says
- If C relates the picture to his own experiences (family, friends, activities, etc.), E encourages this as an opportunity to generate conversation
- (Conversations held here may be rated under Conversation and Reporting)

4. *Movement through hierarchy is well paced*
    - E pauses between presses

Telling a Story From a Book

1. *Examiner introduces task clearly*
    - E presents C with one book
    - E says, "Have a look at this book. It tells a story in pictures. See it starts out with…*(E describes the first picture in the book).* Can you tell me the story as we go along? You go first, then I'll take a turn."
    - E hands the book to C, giving whatever prompts may be necessary to encourage him to start at the beginning and then turn the page

2. *Examiner uses prompts hierarchically*
    - If C seems hesitant, E gives ***no more than two*** specific prompts to get him started (e.g., "I wonder what happens next" and then give C a chance to comment)
        - If C only focuses on specific details of the picture, E says, "You're right. Can you tell the story?" or "What are the pictures all about?" (Up to **2** such general prompts are allowed)
    - After C has described the book, E says, "That was great. Now I'll take a turn," and quickly completes the story for or with C
    - If C is determined to complete the story, E notes this and lets him do so

3. *Movement up hierarchy is well paced*
    - E pauses between presses

4. *Examiner responds positively to child telling story*
    - E makes comments, shows enthusiasm, verbally and nonverbally responds to C

Cartoons

1. *Examiner presents task clearly to ensure understanding*
    - E explains to C that he will now be shown a brief story in cartoons and then asked to retell it without looking at the pictures
    - As E presents each set of cartoons, she offers a brief, very general description of the setting
    - E asks C to look through cartoons
    - If C is confused about the nature of the story, E helps clarify the events depicted

2. *Examiner provides adequate opportunities to judge use of descriptive gesture with speech*

- After each set of cartoons has been presented, E asks C to push his chair back from the table so that the table is not within reach, stand up, and tell the story (this allows C to gesture freely)
    - If C is uncomfortable standing, he may remain seated
- If someone else is in the room, E may ask C to tell her the story
- If C does not gesture much while telling the stories, E asks him to tell another one

3. *Movement up hierarchy is well paced*

- E pauses between presses

Conversation and Reporting (Presses throughout ADOS)

1. *Examiner chooses appropriate context to administer Conversation and Reporting*

- Conversation and Reporting is carried out at various times throughout the assessment
- E makes sure conversations are not centered exclusively around C's strongest interests
- E makes sure conversations include discussion of age-appropriate topics of interest that are not stereotyped or circumscribed (e.g., music, pets, sports)

2. *Examiner structures conversation to facilitate back and forth communication*

- E uses sufficient questions and comments in prompting conversation
- Whenever possible, E uses C's interests and earlier statements, comments, or questions to facilitate conversation
- E avoids a question and answer style conversation and instead uses a conversational approach

3. *Examiner shows appropriate interest and involvement in conversation*

- E responds appropriately and enthusiastically to C's talk
- E makes a point of including brief statements about her own interests, activities, or feelings to see if C can follow up on such comments

4. *Examiner provides opportunity for child to discuss topics outside of the immediate situation*

- E develops conversation to discuss topics outside the immediate situation (e.g., school, work, siblings, leisure activities) to assess child's ability to report on such situations

5. *Examiner provides opportunity for child to describe a non-routine event*
   - E provides opportunity for C to report on a non-routine event that actually occurred (e.g., a vacation or family celebration)
   - E may use specific questions to introduce a topic
   - At some point, E remains silent for a few seconds while looking interested to see if C can take the initiative without a specific prompt

6. *Examiner leaves enough time for child to initiate and respond*
   - E does not dominate the interaction by talking or directing C

Emotions

1. *Persists as needed to elicit responses from child*
   - E attempts to probe until C has given detailed descriptions of two emotions, the contexts in which they arise, and what the participant's individual experience of these emotions is like

2. *Examiner presents interview questions appropriately*
   - E avoids presenting the questions in a question-and-answer cross examination manner and instead uses a conversational approach
   - Any order of emotions may be used
   - E asks the following interview questions:
     - What do you like doing that makes you feel happy and cheerful?
     - What kinds of things make you feel this way? How *do* you feel when you're happy? Can you describe it?
     - What about things that you're afraid of?
     - What makes you feel frightened or anxious? How does it feel? What do you do?
     - What about feeling angry?
     - What kinds of things make you feel that way? How do you feel 'inside' when you're angry?
     - Most people have times when they feel sad. What kinds of things make you feel that way?
     - How *do* you feel when you're sad? What is it like when you're sad? Can you describe that?

3. *Movement through interview is well paced*
   - E carries out conversation at a casual, conversational pace

Social Difficulties and Annoyance

1. *Examiner presents interview questions appropriately*

- E avoids presenting the questions in a question-and-answer cross examination manner and instead uses a conversational approach
- E asks the following interview questions:
    - Have you ever had problems getting along with people at school (or work)?
    - Are there things that other people do that irritate or annoy you? What are they?
    - Were you ever teased or bullied? Why do you think?
    - What about things you do that annoy others?
    - Did you ever try to change these things? Did you ever do anything so that others wouldn't tease you? Did it work?

2. *Examiner probes as needed to gain information*
    - E may query further on an item in order to gain information on C's insight into social difficulties

3. *Movement through interview is well paced*
    - E carries out conversation at a casual, conversational pace

Break

1. *Examiner initiates break appropriately*
    - E says "Let's take a break" and indicates that she needs some time to make notes
    - E gestures to the "Break" materials and expresses the hope that C can find something of interest among them
    - If C is unfamiliar with any of the materials, E demonstrates how they work
    - E moves her chair back from the table or moves to another chair, so that she is sitting within view but away from the table where C is sitting
    - E works on notes while C plays

2. *Examiner responds appropriately to child's bids for attention*
    - If C initiates an interaction, E responds briefly and positively, but indicates that she has to finish more paperwork before she can talk
    - After a few seconds, E looks up, catches C's eye, and smiles briefly in encouragement
        - If no response, E returns to her notes and says "I'll just be a few more minutes"

3. *Examiner re-initiates interaction appropriately*
    - After several minutes, E returns to the table
    - If needed, E may offer food and/or drink to C

    - E takes a plate and cup but does not take any food unless C offers
- E says “May I join you before we get back to work? What would you like to talk about?”
    - If necessary, E can look through the objects on the table, indicating interest in them, but continuing to allow C to take the lead

Friends and Marriage

1. *Examiner presents interview questions appropriately*
    - E avoids presenting the questions in a question-and-answer cross examination manner and instead uses a conversational approach
    - E asks the following interview questions:
        - Do you have some friends? Can you tell me about them?
        - What do you like doing together? How did you get to know them? How often do you get together?
        - What does being a friend mean to you?
        - What is different about a friend than someone whom you just work with or go to school with?
        - Do you have a girlfriend/boyfriend? What is her/his name? How old is she/he?
        - When did you see her/him last?
        - What is she/he like? What do you like to do together?
        - How do you know she/he is your girlfriend/boyfriend?
        - Do you ever think about having a long-term relationship or getting married (when you are older)?
        - Why, do you think, do some people get married when they grow up?
        - What would be nice about it? What might be difficult about being married?

2. *Examiner probes as needed to gain information*
    - E may query further on an item in order to gain information on C’s insight into relationships

3. *Movement through interview is well paced*
    - E carries out conversation at a casual, conversational pace

Loneliness

1. *Examiner presents interview questions appropriately*
    - E avoids presenting the questions in a question-and-answer cross examination manner and instead uses a conversational approach

- E asks the following interview questions:
  - Do you ever feel lonely?
  - Do you think other (young) people in your circumstances ever feel lonely?
  - Are there things that you do to help yourself feel better?

2. *Examiner probes as needed to gain information*
   - E may query further on an item in order to gain information on C's insight into loneliness

3. *Movement through interview is well paced*
   - E carries out conversation at a casual, conversational pace

Creating a Story

1. *Examiner uses prompts hierarchically*
   - E tells C, "Now you and I are going to make up stories using some of these objects."
   - E either chooses between a story, newscast, or commercial or allows C to choose
   - E models a simple narrative in the format that has been selected
   - E gestures to C to choose a new group of five items from those remaining

2. *E gives appropriate introduction and administration of her model story*
   - E chooses five items and makes up a simple narrative
   - E primarily uses items in ways for which they are not intended (e.g., using a toy parasol as a basket)
   - E's story is simple enough so as not to inhibit C's creativity by seeming impossible to compete with
   - One object is used as the "actor" in the story (e.g., "Mr. Flame woke up one morning," using a candle stick)

3. *Movement up hierarchy is well paced*
   - E pauses between presses

Appendix O: ADOS Module 3 Fidelity of Implementation Coding Checklist
Adapted from UMACC ADOS Fidelity Checklists, 2005

Module 3 – ADOS Administration Fidelity Checklist

Child: **Examiner:** **Observer:** **Date of Session:**

1	2	3	4	5
Examiner does not implement throughout assessment	**Examiner implements occasionally, but misses majority of opportunities**	**Examiner implements up to half of the time, but misses many opportunities**	**Examiner implements a majority of the time, but misses some opportunities**	**Examiner implements throughout the assessment**
No if yes/no item				**Yes if yes/no item**
Score NA if item is not applicable				

Overall Administration		***Time*:**
Rating		Comments
	Organizes space and furniture	
	Fluid movement from task to task	
	Manages difficult behavior without affecting rapport	
	Takes notes adequate for making scoring decisions (1/5)	

Examiner administers the ADOS in a flexible, comfortable manner		***Time*:**
Rating		Comments
	Examiner is knowledgeable about procedures	
	Examiner is knowledgeable about materials	
	Persists as needed to ensure child engages in task	
	Appropriately returns to task or changes order to obtain valid information	
	Ends administration on a successful note (1/5)	

Examiner provides adequate opportunities for the child to interact		***Time*:**
Rating		Comments
	Examiner initiates interaction appropriately	
	Examiner gives enough opportunities for child to initiate and respond	

Examiner is appropriately responsive to child's social bids and positive behaviors		***Time*:**
Rating		Comments
	Actively seeks opportunities to respond child where appropriate	
	Examiner recognizes and responds appropriately to the majority of opportunities presented by the child	
	Takes opportunities to test child's responses and routines for flexibility, rituals, unusual interests	

Construction Task		***Time*:**
Rating		Comments
	Introduces task and establishes rapport	
	Examiner uses prompts hierarchically, ensuring child has more than one chance to request blocks	
	Movement up hierarchy is well paced	

Make-Believe Play		***Time*:**
Rating		Comments
	Examiner introduces activity and toys	
	Examiner leaves enough time for child to initiate and respond	
	Examiner uses prompts hierarchically	
	Movement up hierarchy is well paced	
	Examiner responds to child where appropriate	

Joint Interactive Play		***Time*:**
Rating		Comments
	Examiner transitions from Make Believe Play to Joint Interactive Play smoothly and clearly (1/5)	
	Examiner uses prompts hierarchically	
	Movement up hierarchy is well paced	
	Examiner leaves enough time for child to initiate and respond	
	Examiner shows changes in affect where appropriate	

Demonstration Task		***Time*:**
Rating		Comments
	Examiner introduces task clearly and appropriately	
	Examiner uses prompts hierarchically	
	Movement through hierarchy is well paced	

Description of a Picture		***Time*:**
Rating		Comments
	In the initial phase, examiner remembers not to model or ask specific questions about particular parts of the picture	
	Examiner uses prompts hierarchically	
	Examiner initiates appropriate conversational interaction	
	Movement through hierarchy is well paced	

Telling a Story From a Book		***Time*:**
Rating		Comments
	Examiner introduces task clearly	
	Examiner uses prompts hierarchically	
	Movement up hierarchy is well paced	
	Examiner responds positively to child telling story	

Cartoons		***Time*:**
Rating		Comments
	Examiner presents tasks clearly to ensure understanding	
	Examiner provides adequate opportunities to judge use of descriptive gesture with speech	
	Movement up hierarchy is well paced	

Conversation and Reporting		***Time*:**
Rating		Comments
	Examiner chooses appropriate context to administer Conversation and Reporting	
	Examiner structures conversation to facilitate back and forth communication	
	Examiner shows appropriate interest and involvement in conversation	
	Examiner provides opportunity for child to discuss topics outside of the immediate situation	
	Examiner provides opportunity for child to describe a non-routine event	
	Examiner leaves enough time for child to initiate and respond	

Emotions		***Time*:**
Rating		Comments
	Persists as needed to elicit responses from child	
	Examiner presents interview questions appropriately	
	Movement through interview is well paced	

Social Difficulties and Annoyance		***Time*:**
Rating		Comments
	Examiner presents interview questions appropriately	
	Examiner probes as needed to gain information	
	Movement through interview is well paced	

Break		***Time*:**
Rating		Comments
	Examiner initiates break appropriately	
	Examiner responds appropriately to child's bids for attention	
	Examiner re-initiates interaction appropriately	

Friends and Marriage		***Time*:**
Rating		Comments
	Examiner presents interview questions appropriately	
	Examiner probes as needed to gain information	
	Movement through interview is well paced	

Loneliness		***Time*:**
Rating		Comments
	Examiner presents interview questions appropriately	
	Examiner probes as needed to gain information	
	Movement through interview is well paced	

Creating a Story		***Time*:**
Rating		Comments
	Examiner uses prompts hierarchically	
	E gives appropriate introduction and administration of his/her model story	
	Movement up hierarchy is well paced	

Appendix P: ADOS Fidelity of Implementation Checklist Rating Scale

1	2	3	4	5
Examiner does not implement throughout assessment	**Examiner implements occasionally, but misses majority of opportunities**	**Examiner implements up to half of the time, but misses many opportunities**	**Examiner implements a majority of the time, but misses some opportunities**	**Examiner implements throughout the assessment**
No if yes/no item				**Yes if yes/no item**
Score NA if item is not applicable				

Appendix Q: ADOS Components Coding Module 1 Definitions

ADOS Components Coding Module 1 Definitions

Please note start-end time of each task identified and provide a brief description of E's behavior on the checklist.

Free Play
E presents some toys for C to play with. E watches and comments on C's behaviors, offers toys to C, participates in C's activities. *Please note if E leaves time for C to explore on his own and if E responds to C when appropriate.*

Response to Name
E steps away from C and calls C's name to get his attention. *Please note how many times E calls C's name.*

Response to Joint Attention
E provides an opportunity for C to engage in joint attention by directing C's attention to a toy neither of them is touching. *Please note if E uses eye contact, pointing, or touches C to direct his attention.*

Bubble Play
E blows bubbles or initiates another activity with C that requires C to request parts of an activity. *Please note how many opportunities to request are provided by C.*

Anticipation of a Routine with Objects
E initiates an activity where she uses verbal cues such as "Ready, Set, Go" (e.g., 1,2,3, lift off), to create anticipation for the next step. *Please note how many times E goes through the routine.*

Responsive Social Smile
E ensures that C is facing her and tries to elicit a smile by smiling at C while making a positive statement or making a funny/silly face. *Please how many times E tries to elicit a smile.*

Anticipation of a Social Routine
E attempts to engage C in a social routine such as PAB, tickling, or swinging. *Please note social routines attempted and how many times E goes through each routine.*

Functional and Symbolic Imitation
E presents an activity that requires C to imitate her functionally and symbolically. *Please note how many presentations of each imitation task occurred.*

Birthday Party
E engages in a pretend play sequence with C such as a birthday party, picnic, etc. Pretend play should include a doll or character of some kind and have a clear sequence. *Please note what sequence was implemented.*

Snack
E provides C with opportunities to request snacks or juice. *Please note how many opportunities to request were provided.*

Appendix R: ADOS Components Coding Module 1 Checklist

Module 1		
Child Code		**OVERALL % TASKS**
PSYCH Code		
Video Clip Label		
Coder		**TOTAL HRS**
Total Clip Time		
	Begin-End TIME	**Description**
Free Play		
Response to Name		
Response to Joint Attention		
Bubble Play		
Anticipation of a Routine with Objects		
Responsive Social Smile		
Anticipation of a Social Routine		
Functional and Symbolic Imitation		
Birthday Party		
Snack		
TOTAL tasks		

Appendix S: ADOS Components Coding Module 2 Definitions

ADOS Components Coding Module 2 Definitions

Please note start-end time of each task identified and provide a brief description of E's behavior on the checklist.

Construction Task
E presents a task/activity (not a snack) and withholds part(s) of the task/activity to provide C with opportunities to request. *Please note how many opportunities to request were offered.*

Response to Name
E steps away from C and calls C's name to get his attention. *Please note how many times E calls C's name.*

Make-believe play
E presents C with toys appropriate for make-believe play (e.g., family of dolls, characters, cars, etc.) and allows C to play with the toys. If the C does not play immediately, E encourages C to play.

Joint Interactive play
E initiates joint interactive play with C by doing something that requires C to respond (e.g., picks up a doll and has it give something to C's doll). *Please note how many times E initiates joint interactive play.*

Conversation & Reporting
E provides opportunities for C to engage in conversation. *Please note if E provides opportunities for C to discuss topics outside of the immediate situation and/or a non-routine event.*

Response to Joint Attention
E provides an opportunity for C to engage in joint attention by directing C's attention to a toy neither of them is touching. *Please note if E uses eye contact, pointing, or touches C to direct his attention.*

Demonstration Task
E asks C to act out a demonstration of a routine/activity (e.g., E says "show me and tell me how you eat your breakfast in the morning" or "show and tell me what happened at recess yesterday").

Description of a Picture
E presents a picture to C and asks him to tell her about it.

Telling a Story from a Book
E presents a book to C and asks him to tell the story. *Please note if the book is a picture book or a book with words.*

Free Play
E presents some toys for C to play with. E watches and comments on C's behaviors, offers toys to C, participates in C's activities. *Please note if E leaves time for C to explore on his own and if E responds to C when appropriate.*

Birthday Party
E engages in a pretend play sequence with C such as a birthday party, picnic, etc. Pretend play should include a doll or character of some kind and have a clear sequence. *Please note what sequence was implemented.*

Snack
E provides C with opportunities to request snacks or juice. *Please note how many opportunities to request were provided.*

Anticipation of a Routine with Objects
E initiates an activity where she uses verbal cues such as "Ready, Set, Go" (e.g., 1,2,3, lift off), to create anticipation for the next step. *Please note how many times E goes through the routine.*

Bubble Play
E blows bubbles or initiates another activity with C that requires C to request parts of an activity. *Please note how many opportunities to request are provided by C.*

Appendix T: ADOS Components Coding Module 2 Checklist

Module 2		
Child Code		**OVERALL % TASKS**
PSYCH Code		
Video Clip Label		
Coder		**TOTAL HRS**
Total Clip Time		
	Begin-End TIME	**Description**
Construction Task		
Response to Name		
Make-Believe Play		
Joint Interactive Play		
Conversation		
Response to Joint Attention		
Demonstration Task		
Description of a Picture		
Telling a Story From a Book		
Free Play		
Birthday Party		
Snack		
Anticipation of a Routine with Objects		
Bubble Play		
TOTAL tasks		

Appendix U: ADOS Components Coding Module 3 Definitions

ADOS Components Coding Module 3 Definitions

Please note start-end time of each task identified and provide a brief description of E's behavior on the checklist. Please include questions asked that qualify under Emotions, Social Difficulties & Annoyance, Friends & Marriage, and Loneliness.

Construction Task
E presents a task/activity and withholds part(s) of the task/activity to provide C with opportunities to request. *Please note how many opportunities to request were offered.*

Make-believe play
E presents C with toys appropriate for make-believe play (e.g., family of dolls, characters, cars, etc.) and allows child to play with the toys. If the child does not play immediately, E encourages C to play.

Joint Interactive play
E initiates joint interactive play with C by doing something that requires C to respond (e.g., picks up a doll and has it give something to C's doll). *Please note how many times E initiates joint interactive play.*

Demonstration Task
E asks C to act out a demonstration of a routine/activity (e.g., E says "show me and tell me how you eat your breakfast in the morning" or "show and tell me what happened at recess yesterday").

Description of a Picture
E presents a picture to C and asks him to tell her about it.

Telling a Story from a Book
E presents a book to C and asks him to tell the story. *Please note if the book is a picture book or a book with words.*

Cartoons
E presents a story and asks C to retell the story from memory.

Conversation & Reporting
E provides opportunities for C to engage in conversation. *Please note if E provides opportunities for C to discuss topics outside of the immediate situation and/or a non-routine event.*

Emotions

E asks C questions similar to those below (does not have to be exactly). *Please note questions asked in the description column of the checklist.*

- What do you like doing that makes you feel happy and cheerful?
- What kinds of things make you feel this way? How *do* you feel when you're happy? Can you describe it?
- What about things that you're afraid of?
- What makes you feel frightened or anxious? How does it feel? What do you do?
- What about feeling angry?
- What kinds of things make you feel that way? How do you feel 'inside' when you're angry?
- Most people have times when they feel sad. What kinds of things make you feel that way?
- How *do* you feel when you're sad? What is it like when you're sad? Can you describe that?

Social Difficulties & Annoyance

E asks C questions similar to those below (does not have to be exactly). *Please note questions asked in the description column of the checklist.*

- Have you ever had problems getting along with people at school (or work)?
- Are there things that other people do that irritate or annoy you? What are they?
- Were you ever teased or bullied? Why do you think?
- What about things you do that annoy others?
- Did you ever try to change these things? Did you ever do anything so that others wouldn't tease you? Did it work?

Break

E gives C a break and allows C to play uninterrupted before joining him for play.

Friends and Marriage

E asks C questions similar to those below (does not have to be exactly). *Please note questions asked in the description column of the checklist.*

- Do you have some friends? Can you tell me about them?
- What do you like doing together? How did you get to know them? How often do you get together?
- What does being a friend mean to you?
- What is different about a friend than someone whom you just work with or go to school with?
- Do you have a girlfriend/boyfriend? What is her/his name? How old is she/he?
- When did you see her/him last?
- What is she/he like? What do you like to do together?
- How do you know she/he is your girlfriend/boyfriend?
- Do you ever think about having a long-term relationship or getting married (when you are older)?
- Why, do you think, do some people get married when they grow up?
- What would be nice about it? What might be difficult about being married?

Loneliness

E asks C questions similar to those below (does not have to be exactly). *Please note questions asked in the description column of the checklist.*

- Do you ever feel lonely?
- Do you think other (young) people in your circumstances ever feel lonely?
- Are there things that you do to help yourself feel better?

Creating a Story

E tells C a story and then asks C to create a story and tell it.

Appendix V: ADOS Components Coding Module 3 Checklist

Module 3		
Child Code		**OVERALL % TASKS**
PSYCH Code		
Video Clip Label		
Coder		**TOTAL HRS**
Total Clip Time		
	Begin-End TIME	**Description**
Construction Task		
Make-believe play		
Joint Interactive play		
Demonstration Task		
Description of a Picture		
Telling a Story from a Book		
Cartoons		
Conversation & Reporting		
Emotions		
Social Difficulties & Annoyance		
Break		
Friends and Marriage		
Loneliness		
Creating a Story		
TOTAL tasks		

Appendix W: ASD-Specific Behavior Checklist
Adapted from CDC MADDAP Coding Criteria, 2008

GENERAL INFORMATION	
Child Code	
Psych Code	
Report Rater	
Date of Rating	
Date of Evaluation	
School	
Child Age	
Purpose of Evaluation	
Evaluation ASD Dx	
Evaluation Non-ASD Dx	
Previous Dx	
Medical Conditions	
Family History of ASD	
Child's Primary Language	

1. QUALITATIVE IMPAIRMENTS IN RECIPROCAL SOCIAL INTERACTION	**Non-ASD Behaviors**	**ASD Behaviors**	RR	PSYCH	PARENT	TEACH	CHILD
(1a) Marked impairment in use of multiple nonverbal behaviors to regulate social interaction							
(1b) Failure to develop peer relationships appropriate to developmental level							
(1c) Lack of spontaneous seeking to share enjoyment, interests, achievements with others							
(1d) Lack of social or emotional reciprocity							
(1e) Social Interaction Impairment- NOS							
RCI TOTAL							

2. QUALITATIVE IMPAIRMENTS IN COMMUNICATION	**Non-ASD Behaviors**	**ASD Behaviors**	RR	PSYCH	PARENT	TEACH	CHILD
(2a) Delay in, or total lack of, the development of spoken language							
(2b) In individuals with adequate speech, marked impairment in the ability to initiate or sustain conversation							
(2c) Stereotyped & repetitive use of language or idiosyncratic language							

(2d) Lack of varied, spontaneous make-believe play or social imitative play appropriate to developmental level							
(2e) Communication Impairment NOS							
COM TOTAL							

3. RESTRICTED, REPETITIVE & STEREOTYPED PATTERNS OF BEHAVIOR, INTERESTS & ACTIVITIES	**Non-ASD Behaviors**	**ASD Behaviors**	RR	PSYCH	PARENT	TEACH	CHILD
(3a) Encompassing preoccupation with one or more stereotyped patterns of interest that is abnormal either in intensity or focus							
(3b) Apparently inflexible adherence to specific, nonfunctional routines or rituals							
(3c) Stereotyped and repetitive motor mannerisms							
(3d) Persistent preoccupation with parts of objects							
(3e) Restricted Behavior NOS							
RRB TOTAL							

Associated Features	**Non-ASD Behaviors**	**ASD Behaviors**	RR	PSYCH	PARENT	TEACH	CHILD
Abnormalities in eating/drinking							
Abnormalities in sleeping							
Abnormalities in mood/affect							
Abnormalities in the development of cognitive skills							
Unusual savant skills							
Presence of "Learning Disability"							
Aggression							
Argumentative, oppositional, defiant, destructive							
Delayed motor milestones/ motor clumsiness							
Hyperactivity, short attention span, impulsivity							
Lack of fear in response to real dangers, or excessive fearfulness in response to harmless objects/events							
Odd responses to sensory stimuli							
Atypical focus on sensory input							

Self-injurious behavior							
Staring spells/ seizure-like activity							
Temper tantrums							
AF TOTAL							

Other Behaviors as Autism Discriminators	**Non-ASD Behaviors**	**ASD Behaviors**	RR	PSYCH	PARENT	TEACH	CHILD
General Development Concerns < 3y (specify age)							
Social Interaction Delay/ Abnormal Development Concerns < 3y (specify age)							
Language Delay/ Abnormal Development Concerns < 3y (specify age)							
Play Delay/ Abnormal Development Concerns < 3y (specify age)							
Regression/ loss of skills in either the social/ communication/ play/ motor domains (specify age)							
Developmental Plateau (specify age)							
AD TOTAL							

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