Adrienne Garro *Editor*

Early Childhood Assessment in School and Clinical Child Psychology

Springer

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in Psychology
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ISBN 978-1-4939-6347-8 ISBN 978-1-4939-6349-2 (eBook)
DOI 10.1007/978-1-4939-6349-2

Library of Congress Control Number: 2016940890

Printed on acid-free paper

This Springer imprint is published by Springer Nature
The registered company is Springer Science+Business Media LLC New York

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Chapter 1
Early Childhood Assessment: An Integrative Framework

Adrienne Garro

Abstract Early childhood assessment is a valuable prevention-based area of practice for school and clinical psychologists. The purpose of this chapter is to provide a thorough and practical foundation and framework for assessment of infants, toddlers, and young children for a variety of purposes. This framework integrates several key principles that guide best practices in early childhood assessment. Effective assessment of this population calls for a comprehensive approach involving the collection of information across multiple developmental domains and from parents, teachers, and other caregivers. Clinicians conducting early childhood assessments need to be comfortable and skilled in utilizing a variety of methods including interviews, observations, and standardized testing. They must also be competent in applying and integrating naturalistic approaches that involve collection of data in everyday contexts. In addition to expanding upon basic tenets that lead to sound assessment practices, this chapter discusses relevant legal standards as well as classification systems that might apply to children in the 0–6 population.

Keywords Early childhood assessment · Early intervention · Part C of IDEA · DC:0-3R · ICF-CY · Developmental milestones · Integrated assessment

Introduction

For school and child clinical psychologists, solid training in evidence-based assessment practices remains a cornerstone of quality training. Under the wide umbrella of best assessment practices, standardized norm-referenced instruments continue to occupy a primary role, but, at the same time, the use of interviews,

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A. Garro (ed.), *Early Childhood Assessment in School and Clinical Child Psychology*, DOI 10.1007/978-1-4939-6349-2_1

observations, and other techniques must be integrated into a comprehensive, well-rounded assessment framework. With respect to young children, the fields of both school and clinical psychology continue to highlight the importance of prevention-based measures to reduce the prevalence of psychological problems in later childhood and promote positive mental health. Despite this emphasis, assessment of young children, particularly children aged five years and younger, remains challenging and complicated in many ways. Ten years ago in a commentary for *School Psychology Review*, Bagnato (2006) noted several of these challenges, including the need to apply more developmentally appropriate practices, such as authentic assessment, and to alter the concept of readiness such that schools are better suited to fit the needs of a diverse range of children when they enter the formal school years. In addition, Bagnato called for ongoing evolution in the role of school psychologists such that they become better "orchestrators" of assessment, develop enhanced systems of child outcome measurement, and push for greater emphasis on self-control and other social-emotional skills as prerequisites for learning early school success. For child clinical psychologists, there is less literature specifically focused on assessment in younger children. This is due, in part, to hesitancy to diagnose specific clinical problems or disorders in this age group. However, there are several researchers and practitioners who have developed an evidence base for assessment of certain clinical problems (e.g., depression, PTSD) in younger children. The work of Luby and colleagues (e.g., Luby, Belden, Pautsch, Si, & Spitznagel, 2009; Luby et al., 2006) and Scheering and colleagues (e.g., Scheeringa, Myers, Putnam, & Zeahnah, 2002) are solid examples of this work. In addition, clinical psychology has continued to promote research and clinical practice related to early assessment and intervention for parents and families at risk, including those experiencing substance abuse, child maltreatment, or high levels of child behavioral problems (Jones, Daley, Hutchings, Bywater, & Eames, 2008; Suchman et al., 2010).

Given the continuing value and significance of early childhood assessment in school and clinical psychology, this book aims to serve as a resource for clinicians who wish to specialize in this domain. To begin, this chapter is devoted to providing an integrative framework which can be applied for younger children who present with a variety of difficulties ranging from developmental delays to severe problems. This framework does not cover all developmental areas and mainly includes cognitive, language, and social-emotional development, with recognition that it is difficult to completely separate these domains from each other and from other domains such as motor skills, physical, and sensory development. As a basic example, a two-year-old girl who is delayed in language and can only say a few words may experience frustration in daycare when she cannot get her needs met, which results in episodes of aggression that interfere with interpersonal relationships (social-emotional domain).

Defining an Integrative Framework-Background and Literature Review

The idea of an integrative framework for assessment is not new. However, this concept continues to evolve, particularly with respect to early childhood assessment. Since his commentary in *School Psychology Review*, Bagnato and others have continued to research and highlight the need for authentic assessment approaches. For our purposes, in this chapter, authentic assessment will be defined as a set of data collection methods that take place in natural environments and emphasize the engagement of young children in meaningful, functional tasks. In a study of professionals' perceptions regarding early childhood assessment practices, Bagnato (2006) found that authentic strategies were rated more highly than conventional testing methods on a variety of quality indicators such as utility, acceptability, and sensitivity. Similarly, research by Ackerman and Coley (2012) found that most states prefer use of observation-based tools in prekindergarten assessment. Thus, the addition of authentic strategies is now regarded not only as valid but also necessary in the field of early childhood assessment.

Other recent research has focused on potential mismeasurement of young children due to incongruencies between purposes of assessment, types of measures chosen, and interpretation of results (Andersson, 2004; Hallam, Lyons, Pretti-Frontczak, & Grisham-Brown, 2014). For example, in examining the Assessment, Evaluation, and Programming System: Second Edition (AEPS:2), a criterion-referenced instrument, and the Battelle Developmental Inventory-Second Edition (BDI-2), a norm-referenced instrument, Hallam et al. noted that these measures showed some inconsistencies between each other in identifying young children as on-track or delayed in their development. Similarly, Macy, Bricker, and Squires (2005) found that the AEPS and the BDI demonstrated overlap, but also some differences, in identifying children who were eligible for early intervention services and those who were not.

Overall, this body of research highlights the necessity of examining and fitting together multiple factors in order to make valid decisions in the process of early childhood assessment. One such factor is to clearly delineate the purposes of assessment (e.g., screening, classification, etc.) and match these to appropriate tools. Such matching must involve close examination of validity and reliability properties of various tools. Validity and reliability, in turn, encompasses issues related to sensitivity (i.e., how well a tool detects actual problems and accurately rules out nonproblems) and specificity (how well a tool rules out negative cases and pinpoints actual cases of a problem). In addition, the work of Hallam et al. as well as Macy, Marks, and Towle (2014) indicates significant differences across states related to: early detection systems (e.g., different timelines and types of Child Find activities), eligibility criteria for programs and services, and organization and monitoring of these services. In response to these differences, Macy et al. emphasize the need for several system-level changes including: improved coordination and collaboration among services at the local and state levels; universal

implementation of developmental, behavioral and family health screenings, adoption of nationwide (rather than state-by-state) criteria for early intervention; and creation of streamlined referral paths to better engage families and reduce confusion and potential duplication of procedures.

Systems-level changes, such as those described above, are vital to consider in developing a more integrated early childhood assessment framework. Simultaneously, individual clinicians can take steps to implement a more assimilated approach to assessment. The following sections are devoted to practical and research information that is intended to help clinicians accomplish this purpose.

Principles/Tenets of Early Childhood Assessment

There are several key tenets that underlie the framework of assessment presented in this chapter. Following the presentation of these tenets, their practical implications and potential links to intervention will be discussed. First, while it is important for children, in general, to be evaluated in the context of environmental factors, this tenet is especially crucial for the early childhood period, defined here as ages 1–6 years, when children are more directly shaped by parent/family environments and variables. For young children who are in day care, preschool, or some other structured school setting, these contexts should also be incorporated as part of the assessment process. The emphasis on environmental context for young children implies that clinicians will be thorough in gaining input from parents/families, day cares, and schools about the nature of the child's difficulties as well as his/her strengths. It also implies that clinicians will consider transactional influences between children and their environments when conducting assessments. One example of such a transactional influence is a situation where a child with higher emotional reactivity is being raised by a parent with depression who has less tolerance and responds more irritably to the child's outbursts. Given this situation, over time, the parent's difficulties in responding calmly to the child's behavior may exacerbate the existing problems with emotional regulation and place the child at higher risk for depression or anxiety. Thus, this framework assumes that goodness of fit, in home as well as in school contexts, is a key, positive construct which can work in the child's favor serving a protective function.

Second, given the importance of environmental context in young children's lives, this framework posits that assessment is a collaborative process, which not only involves communication with families, other care providers, and school personnel, but should actively seek their input. This input should entail specific information about children's functioning in multiple settings and contexts; their interests and preferences, as well as problem areas. Families and day cares or schools often have differing perspectives about a child's functioning. They may disagree about whether a problem exists or about the nature, intensity, frequency, or duration of problem(s). These varying perspectives may reflect different beliefs and values about what the child should or should not be doing. In light of the reciprocal

transactions between children and their environments, it is also possible that a child shows true differences in their functioning between home and school/day care. Either of these possibilities warrants proactive efforts on the part of clinicians to gather data which will provide a more comprehensive picture of the child and inform sound decision-making. For example, interviewing and/or rating forms used with both parents and teachers will shed light on whether the same areas are viewed as problems. Observations, interviews, and/or other methods are likely to be useful in detecting actual differences in a child's functioning in different contexts.

Third, assessment is intended to be flexible, consisting of multiple methods and measures that can be adjusted based upon the needs and best interests of the child under consideration. Flexibility often entails openness to the use of techniques and strategies that are not norm-referenced. It is clear that many early childhood researchers and practitioners, including several authors in this text, advocate for the use of authentic measures when assessing adaptive behavior, communication abilities, cognitive skills, social skills, and other developmental domains. This author also strongly supports the employment of authentic assessment, particularly when the main purpose of an evaluation is to develop specific interventions to develop skills in natural settings. Thus, if an early intervention provider or preschool teacher is requesting assessment due to concerns about a three-year-old child who engages in repetitive play with a small number of toys, some form of authentic assessment is definitely warranted. Such assessment is likely to provide a sample of information that is more directly linked to the child's everyday functioning and to help the provider or teacher implement strategies that are practical and beneficial. School psychologists working in Head Start centers, early intervention sites, or preschool programs for children with disabilities may be directly responsible for assessing a toddler or preschooler's cognitive abilities, adaptive behavior levels, social skills, and/or other areas through standardized measures. Although psychologists may be asked and/or required to use a specific type of instrument or method in these evaluations, this does not detract from their ability or responsibility to be comprehensive and gather data that goes beyond the provision of a norm-referenced score. In line with the integrative framework proposed in this chapter, both quantitative and qualitative tools are deemed beneficial in understanding children's functioning, including strengths and weaknesses, and their interactions with environmental factors.

The importance and advantages of authentic assessment for young children are evident from a practical standpoint, and several research studies have examined the validity and/or reliability of these methods (e.g., O'Grady & Dusing, 2015). Qualitative research supporting the use of authentic approaches has also been conducted (Lee, 2013). In adopting a flexible and multifaceted approach, this author also proposes that there is a place for norm-referenced measures with younger children depending upon the purpose of assessment. For instance, if a young child appears to demonstrate language delays and his parents are seeking early intervention services, an evaluation using a norm-referenced measure is likely to be beneficial and, perhaps, even required, in order to obtain these services. While some advocates of authentic assessment have also pushed to end the required use of

norm-referenced instruments to qualify for early intervention or special education services, this introductory chapter is not arguing for an end to all testing. Thus, as part of an integrative framework, this author calls for sound decision-making to match the most appropriate and valid assessment methods and measures to the needs of the child and reasons for the assessment. Stated another way, the current status of early childhood assessment does not necessarily require an either/or stance when it comes to applying norm-referenced and authentic measures. Classification and use of diagnostic systems for young children will be further described below.

A fourth assumption of the framework is that, to the greatest extent feasible, early childhood assessment should be an ongoing process with multiple data points. In adhering to this principle, we recognize that evaluation of young children may be conducted for a variety of purposes including, but not limited to, classification/diagnosis (if necessary); individual progress monitoring, intervention/program development, and program evaluation. We also recognize that the purpose(s) of a given assessment often determines the timeframe as well as resources that can be devoted. Thus, assessment for progress monitoring, by definition, requires that information/data is collected over time, whereas assessment for classification may consist of a one-time evaluation. Even in the latter situation, however, this author advocates for collection of information that is wide in scope and covers as much of the child's history as possible. This can be accomplished by extending beyond use of standardized tests and conducting thorough intakes/interviews with family and/or teachers.

Typical and Atypical Development and Early Childhood Assessment

In order to inform best practices in early childhood assessment, it is essential to have solid understanding of what is considered typical developmental progression in young children. The concept of developmental milestones should be applied carefully with parents/caregivers so they do not become overly focused on their child's attainment or lack of attainment of a particular skill at a certain age. At the same time, practitioners from a variety of fields, including pediatrics, psychology, OT, and speech–language therapy, often utilize some framework of milestones to gauge a child's development and guide them in their communication with parents/families. The milestones provided in Appendix 1 are intended as guidelines for practitioners to help in the process of deciding if a child needs screening and/or more comprehensive assessment. For purposes of greater brevity, Appendix 1 begins with developmental milestones in the age range of 9–12 months. Although earlier milestones are not listed, these are considered just as integral to understanding a child's functioning. Attainment or difficulties related to these milestones have cascading effects which continue to influence development and reciprocal exchanges between the child and her/his environment.

Another caveat is that Appendix 1 mainly focuses on milestones in the cognitive, social-emotional, and communication domains. However, it is important to take into account the close interrelationships among different developmental domains, especially in the early years of life when development proceeds at a more rapid pace. When considering the need for referral and when communicating with parents/families, clinicians should look for patterns within the child's overall functioning and trajectories over time. For example, a child who has autism might have shown normal early language skills from birth through age two years (e.g., babbling, producing single words, and starting to put words together), but then regress in communication, and his parents may notice a lack of interest in playing with other children at age three. Another example is a child who demonstrates some delays in communication milestones, such as putting words and short sentences together at age three instead of two, does not start following two-step directions until close to age five, and has difficulty remembering parts of a story by this age. Given this pattern, the child would be considered at greater risk for early difficulties in reading acquisition. Such a child might not qualify for EI, but would probably benefit from prekindergarten or early kindergarten screening.

Risk, Prevention, and Intervention During the Early Childhood Period

During the first year of life, as rapid developmental changes are taking place, it is often difficult for clinicians to decide if a baby and her/his family need services. Many psychologists are not involved with children this young, and pediatricians may also adopt a wait-and-see approach. The latter is more likely to occur if the child is not born with any clear or definite disability/condition (Bailey, Skinner, Hatton, & Roberts, 2000). Some conditions or syndromes emerge gradually and are less apparent. To help facilitate appropriate referrals, it is vital that day care providers, pediatricians, and personnel from other disciplines maintain a collaborative system with families. There is some research indicating that families who come from low-income or minority backgrounds and those with less educated mothers are more likely to have negative experiences in obtaining early intervention services for their babies and young children (Bailey, Hebbeler, Scarborough, Spiker, & Mallik, 2004). Thus, more concentrated efforts should be aimed at families who present with these risk factors. In addition, Macy et al. (2014) note that young children who present with particular sets of risk factors characterized as biological (e.g., family history of specific conditions, prematurity, etc.) or environmental, which is further broken down into social history and parent–child interactions, require more concentrated early detection efforts. For psychologists, even if they are not directly involved with screening, assessment, or identification at this young age, they can provide psychoeducation and counseling to parents and/or other family members.

During infancy, it is also important to reconsider the concepts of risk and prevention. Children born with particular conditions (e.g., Down syndrome, exposure to alcohol) present with known risk factors. While strategies of primary/universal prevention are not applicable to these syndromes once a baby is born, secondary and tertiary prevention are imperative to reduce the negative effects that already exist and to promote optimal outcomes for affected children. At the family and community levels, prevention/intervention strategies may not only involve formal referral to the early intervention service loop, but also other activities such as helping to find respite care and appropriate care providers. When infants present with problems that are less visible or distinctive, clinicians, including psychologists, can still contribute even if they are not serving as direct service providers. For example, if a family comes for an intake either for the infant or another child member, clinicians may capture prenatal, perinatal, and/or family history that clarifies patterns of difficulty or helps to track the child's developmental trajectory. For psychologists in typical school settings, although their role will not involve direct evaluation of infants, they may still be in a position to support parents/families if they have an already existing relationship with a sibling. By providing a supportive climate in schools, they can assess potential stressors for families with an infant and guide them to resources, including early intervention if necessary. For some families, having a secure connection with any clinician may help them feel comfortable in seeking assistance if they have concerns about their infant.

Once past the infancy period, psychologists are more likely to encounter referrals for young children based upon concerns related to developmental delays, behavior difficulties, and/or social-emotional problems. These referrals may come from pediatricians, other professionals, child care centers, or parents/families themselves. As the toddler years progress into preschool, there are additional opportunities and challenges related to early childhood assessment. Parents may struggle in understanding what falls within the range of normal or typical, even if they already have older children. Teachers and day care providers may have varying levels of knowledge and experience when it comes to referring children for developmental or psychological services. The picture is also complicated by the fact that many young children do not attend formal day care centers or preschools. Although the percentage of children ages 3–6 years (not yet in kindergarten) who attend center-based early childhood programs rose from 2007 to 2012, about 40 % of children in this age range in 2012 were not enrolled in these types of programs (Rice et al., 2014). When percentages are more closely examined by age, fewer three-year-old children attend preschool/child care in comparison to four-year-old children (Barnett, 2008). Given these statistics, there are still substantial numbers of young children who do not have structured school-type experiences before kindergarten and, thus, might miss out on opportunities to enhance their readiness for formal schooling.

According to Barnett's (2008) review, meta-analyses provide extensive support for the positive short-term effects of preschool on children's development, including effects in the cognitive and social-emotional domains (Camilli, Vargas, Ryan, & Barnett, 2010; Gorey, 2001; Nelson, Westhues, & MacLeod, 2003). There is also

considerable support for the beneficial, long-term effects of preschool; these effects involve higher cognitive abilities, better high school graduation rates, lower rates of retention and special education placement, and more positive social outcomes (Aos, Lieb, Mayfield, Miller, & Pennucci, 2004; Camilli et al., 2010; Karoly, Kilburn, & Cannon, 2005). Although these effects do decline over time, the overall data suggest that preschool is associated with healthy outcomes for young children. Barnett's review not only addressed overall effects of preschool, but also delineated more specific outcomes based upon other variables. For example, type of preschool program is important to consider. Family day care homes tend to generate no significant positive effects on development, while more structured programs with specific quality indicators (e.g., Head Start) tend to produce the greatest benefits (Barnett, 2008).

The above data suggest several possible roles for psychologists. Based upon the fact that there are still a relatively high percentage of children, particularly children below age four, who do not attend preschool, psychologists can and should advocate for preschool programs as a resource and investment for the future, especially for children from low-income backgrounds. This can be framed as forms of primary and secondary prevention for many children who have one or more factors that place them at risk for low achievement, school dropout, and poor social-emotional adjustment. In addition, since children below age four are less likely to attend preschool, psychologists and other practitioners should focus greater attention on these younger children. This entails involvement in evidence–based practice and policy development and implementation. More specifically, psychologists should not only provide data and education to parents/families and other professionals regarding the effects of preschool; they should also be involved in advocacy to make preschool more available to young children. Moreover, since it is clear that certain quality indicators, such as smaller class size, higher education levels for preschool teachers, and more favorable staff–child ratios are linked to positive outcomes (Rothstein, 2008), psychologists have a responsibility to provide data regarding these indicators.

Aside from the general benefits of providing quality early childhood/preschool programs to young children, there is the issue of identifying younger children who may need special education or other types of intervention. This number is difficult to pinpoint. According to the University of New Hampshire's Institute on Disability (2014), there were a total of 735,890 children aged three to five years who received special education services under Part B of IDEA in 2012; these children represent 11.4 % of the total population of 6,429,431 ages 3–21 years who receive such services. The research of Rosenberg, Robinson, Shaw, and Ellison (2013) indicates that approximately 2.8 % of the nation's infants and toddlers receive early intervention services under Part C of IDEA. It is generally accepted, however, that there are many eligible young children who do not receive such services (Rice et al., 2014; Rosenberg, Zhang, & Robinson, 2008; Rosenberg et al., 2013). Approximately 19 % of preschool children experience some type of mental health problem (Egger & Angold, 2006), but this estimate does not take into account other types of problems, such as developmental delays related to communication,

cognition, etc. Based upon these continuing gaps during the preschool years, psychologists should carry out advocacy efforts. Advocacy can involve Child Find activities and consultation and training with teachers and families.

Classification and Diagnosis-Early Childhood Years

Classification for infants and young children remains a controversial topic, regardless of the reason behind the classification. Parents/families, as well as some clinicians, might be hesitant to apply a specific classification or diagnosis to a young child. This reluctance is likely to stem from concerns regarding stigmatization, including having a permanent label attached to a child; concerns regarding misdiagnosis; and lack of knowledge or understanding regarding the purposes or need for classification. Parents/families, and even some clinicians, may not be aware of the multiple diagnostic and classification systems that can apply to young children with special needs.

Part C of IDEA. One of the most wide-ranging and influential of these systems has developed through Part C of the Individuals with Disabilities Education Improvement Act (IDEIA). While it is not possible to comprehensively cover all aspects of these regulations, it is important for parents/families to know that Part C involves a long-standing federal grant program that enables states to establish and implement a network of early intervention (EI) services for eligible infants and toddlers with disabilities and/or developmental delays, ages birth to the three, and their families. States are not required to carry out Part C of IDEA, but all states of the US currently participate (Early Childhood Technical Assistance Center, 2015). Under Part C, states are not only required to make sure that eligible infants and toddlers and their families receive EI, but must also: (a) designate a head agency to receive and administer the grant program for EI; (b) designate an Interagency Coordinating Council (ICC) to provide advice and assistance to the lead agency; and (c) establish the basic mechanisms of the EI system to be implemented (Küpper, 2012). For clinicians, it is extremely important to find out the specific information regarding how Part C is carried out in each state, as there is tremendous variability from state to state in a number of areas (Küpper, 2012). For example, states have different criteria in defining "developmental delay" and how it will be measured. They are required to be specific and rigorous in their definitions, but it is potentially possible for a child to be eligible for EI in one state and not another. Many states define developmental delay based upon whether infants or toddlers are functioning below a certain level in one or more domains (e.g., language, motor skills, etc.). These levels are often described in terms of percentage delay (e.g., 25 % delay in one area) or by standard deviation (e.g., 1.5 SD below age level). Some states include adjustment for prematurity in considering the definition of developmental delay. Some states allow for informed clinical judgement or opinion to be used in determining if a child is eligible for EI. There is also variability with respect to whether states, under Part C, choose to serve young children who are deemed "at-risk." Their

possible conditions which may deem a child "at-risk" include low birthweight; genetic or congenital disorders; chromosomal abnormalities; severe attachment disorders; exposure to toxic substances, including fetal alcohol effects/syndrome; sensory impairments; and inborn errors of metabolism (Küpper, 2012). Lastly, as part of recent changes in Part C, states can now implement an extension option which allows them to provide EI past a child's third birthday.

DSM-5. With the recent publication of the DSM-5, there are a number of significant changes related to diagnosis and classification of children in general. Some of these specifically apply to young children and will be discussed in other chapters of this book. One of the most significant revisions to the DSM-5 involves removal of the section *Disorders Usually First Diagnosed in Infancy, Childhood or Adolescence*. Instead, the DSM-5 contains a section entitled *Neurodevelopmental Disorders* at the beginning of the text. As described by Wakefield (2013), this new section was included to reflect an overall shift to a life cycle orientation for disorders in the DSM-5. Thus, the disorders included in the Neurodevelopmental section often manifest early in an individual's life. Wakefield's article also noted that the disorders in this section are meant to reflect the expanding knowledge base of the role of brain development in research and treatment of child and adolescent psychological problems. Some of the disorders that were previously listed in the childhood section of the DSM-IV were moved to sections where they fit with disorders of the same type and etiology. For example, separation anxiety disorder is now grouped with other anxiety disorders. Another major change for the DSM-5 is the removal of the multiaxial system. While this change is considered controversial by some clinicians, others have argued its merits, including better alignment with the ICD system. Many of the problems that were previously coded on Axes III and IV of the DSM-IV can now be captured through use of the various ICD codes that are provided at the end of the DSM-5, including family and other environmental/contextual factors that can have a substantial impact on young children's functioning (American Psychiatric Association, 2013).

DC:0-3 system. Beyond EI classification under Part C of IDEA, there have been other systems that may be applied to younger children. The Diagnostic Classification of Mental Disorders of Infancy and Early Childhood, Revised Edition (DC:0-3R; ZERO TO THREE, 2005) and its predecessor, the DC:0-3, were developed by a task force from ZERO TO THREE in order to provide a classification system that is more developmentally appropriate for infants, toddlers, and young children by taking into account their rapid developmental changes and emphasizing the significant role of early relationships and the impact of environmental factors, particularly caregiving, on development.

Similar to the DSM-IV, the DC:0-3R, includes a multiaxial system. In the DC:0-3R, Axis I covers Clinical Disorders (e.g., PTSD; Deprivation/Maltreatment Disorder; Anxiety Disorders of Infancy and Early Childhood, Depression of Infancy and Early Childhood, etc.) (Emde et al., 2005). The DC:0-3R is also notable for incorporating disorders/problems related to regulation and/or sensory processing. Axis II of the DC:0-3R includes the Parent-Infant Relationship Global Assessment Scale (PIR-GAS) and the Relationship Problem Checklist. The former

is similar to the DSM-IV's Global Assessment of Functioning scale, which was part of the DSM-IV, except that, instead of capturing the overall functioning of an individual, it is used to rate the quality of the relationship between child and parent/caregiver. The Relationship Problem Checklist is used by clinicians to assess seven aspects/qualities of the relationship between child and parent/caregiver (e.g., anger and hostility). Axis IV consists of Psychosocial Stressors, which had congruity with Axis IV of the DSM-IV, and includes similar categories (e.g., difficulties within a child's primary support group, difficulties in educational/child care settings, etc.). According to Emde et al., Axis V, Emotional and Social Functioning, is based upon how the infant or young child organizes their experiences and interactions with others. For this Axis, the clinician is expected to observe play interactions between the child and parents/caregivers. Currently, the DC:0-3R is in the process of being updated to become DC:0-5. This revision will include disorders that can be applied to young children up to the age of five and will continue to incorporate a multiaxial classification system (Zeanah et al., 2015). According to Zeanah et al., the updated DC:0-5 will remove some diagnoses that were found in the DC:0-3R and will also include some new disorders (e.g., inhibition to novelty for children younger than two).

ICD system. A third major classification system which is applied to young children is the International Classification of Diseases, developed by the World Health Organization and currently in its tenth edition (ICD-10; World Health Organization (WHO), 2015) According to WHO, the ICD is a standard set of diagnostic criteria that are applied in health care/management, clinical domains, epidemiology, and other areas of public health. It enables physicians, nurses, other health care providers, researchers, health information personnel, policy-makers, insurance companies, and patient organizations to categorize diseases and other health problems, including mental health and behavioral disorders. The ICD has been translated into 43 languages and is used by many countries to collect data regarding morbidity and mortality in their populations. Therefore, it represents a common diagnostic tool and language that can be used by a variety of professionals. The ICD-10 is currently being updated to the ICD-11 to be released in 2017. Many of the mental health and psychological disorders found in ICD-10 parallel those that were found in the DSM-IV. Like the DSM-IV, the ICD-10 contains a section entitled *Behavioural and Emotional Disorders with Onset Usually Occurring in Childhood and Adolescence*. Also, similar to the DSM, it allows professionals to diagnose children with problems or disorders (e.g., GAD) outside this section if criteria are met. The ICD-10 does not contain any criteria that have been adapted for preschool-age or younger children. In a study comparing ICD-10 and DC:0-3R diagnoses in an outpatient clinic for infants, toddlers, and preschoolers, Equit, Paulus, Fuhrmann, Niemczyk, and von Gontard (2011) found overlap as well as distinction between the two classification systems. Their results indicated that the two showed good agreement for diagnoses of Feeding, Sleeping, Adjustment and Attachment Disorders. With respect to differences, Equit et al. noted that

Hyperkinetic Disorder, (often connected to a DSM diagnosis of ADHD) was a common diagnosis given from the ICD-10, but this disorder is not well represented in the DC:0-3R. This was also the case with Oppositional Defiant Disorder (ODD). Based upon the DC:0-3R, the researchers noted that almost 50 % of their sample could not be specifically coded, thus receiving a classification of "Other Disorder." Aside from this, the most common DC:0-3R diagnoses were Sleep Behavior Disorders, Feeding Behavior Disorder and Regulation Disorders.

ICF-CY system. Lastly, the WHO also publishes the International Classification of Functioning, Disability and Health-Children and Youth Version (ICF-CY; WHO, 2007). The ICF-CY is an international classification system that is "designed to record the characteristics of the developing child and the influence of its surrounding environment" (WHO). The overall system provides a conceptual and practical framework to identify and code a wide range of information about a child's health. Developers of the ICF-CY emphasize that the system is not about diagnosing an individual child. Instead, the ICF-CY describes each child's situation within several health-related domains. Because the ICF-CY is not intended specifically as a diagnostic resource or a source of diagnostic criteria, it can be utilized by practitioners from a variety of fields as well as researchers and policy-makers. Simeonsson (2009) described the ICF-CY as a new paradigm with universal language and concepts that apply for the health and functioning of all young children. When it comes to early childhood assessment and intervention, Simeonsson noted that the ICF-CY classifies children's **functioning**, which is framed as a product of their interactions with their environments. In addition, the ICF-CY enables classification of the situations/circumstances in which children are found.

The ICF-CY contains two main components. The first of these is *Functioning and Disability*. This component is differentiated into subcomponents, which, in turn, can be broken down further into more specific categories (WHO) (Figs. 1.1 and 1.2).

All subcomponents and categories can be described in positive or negative terms. This means that, when a clinician uses the ICF-CY, she or he can indicate bodily functions and structures where the child shows no impairment and others where the child does exhibit problems. Coding for many aspects of *Body Functions* and *Body Structures* ranges from "No problem or difficulty" to "Complete problem or difficulty" and also includes ratings of "not specified" and "not applicable." Under *Body Functions*, psychologists are most likely to code different types of *Mental Functions*; this category incorporates *Global Mental Functions* (e.g., Intellectual Functions and Temperament and Personality Functions, etc.) and *Specific Mental Functions* (e.g., Attention, Memory, etc.). Under *Body Structures*, the category of *Structures of the Nervous System* is likely to be most aligned with information that psychologists and psychiatrists obtain or contribute regarding a child's functioning. *Activities and Participation* is broken down into nine subareas, many of which overlap with adaptive behavior domains that are relevant to psychological assessment of young children.

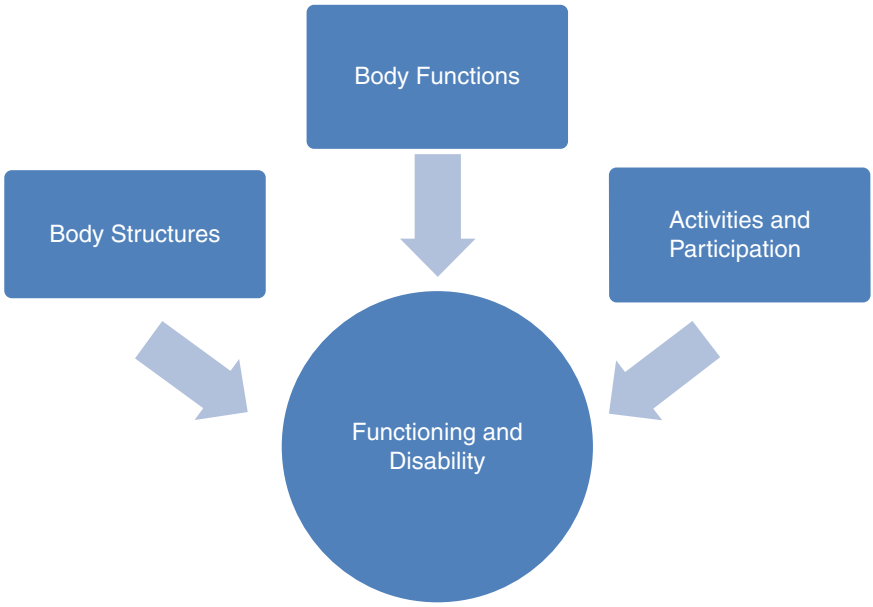


Fig. 1.1 Functioning and disability based upon description in the ICF-CY

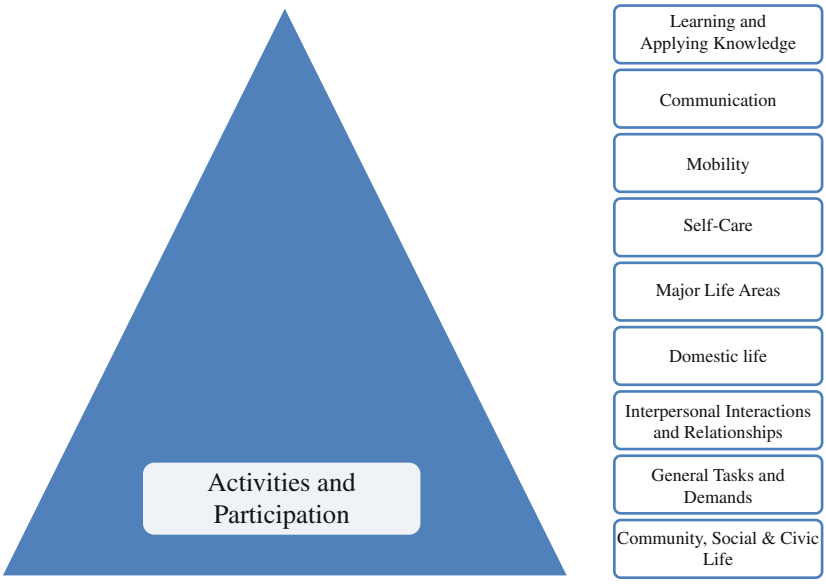
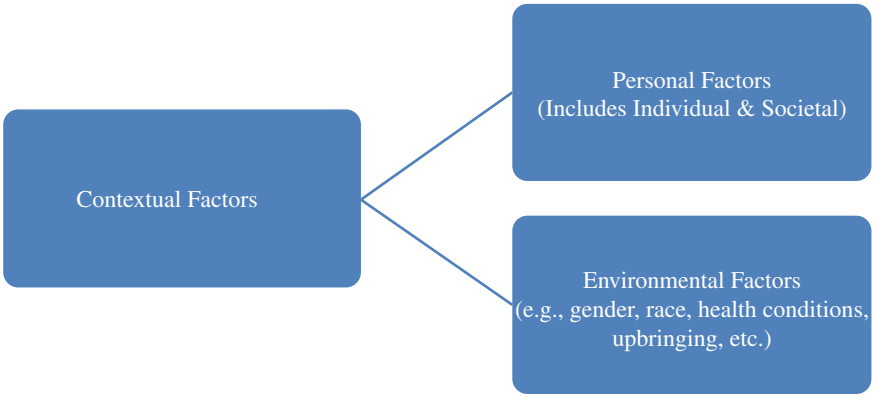


Fig. 1.2 Activities and participation based upon description in the ICF-CY

The differentiation of the *Contextual Factors* component is shown below



Environmental Factors is differentiated into five areas, one of which is *Support and Relationships*, which enables a practitioner to document a wide variety of connections and supportive resources (e.g., family, friends, pets, health professionals, etc.). The qualifiers for *Environmental Factors* can indicate whether these factors have positive effects, known as "facilitators," or negative effects, known as "barriers." The domain of *Personal Factors* is not further differentiated in the current version of the ICF-CY (WHO, 2007).

For psychologists who work in school and clinical settings and are accustomed to applying diagnoses and classifications as part of their job roles, the ICF-CY is less likely to be a familiar resource than the DSM. However, a review of research literature indicates that the ICF-CY is gaining exposure and increased use in the rehabilitation field. For example, Gan, Tung, Yeh, and Wang (2013) developed a questionnaire rooted in the ICF-CY to assess preschool children with autism. They found that this questionnaire showed good interrater reliability and was useful in assessing functional performance of these children. In a 2015 study focusing on studies of children with ADHD, de Schipper et al. (2015) examined key domains/areas of function and disability and linked them to codes and categories of the ICF-CY. They found that almost 70 ICF-CY categories from the areas of *Activities and Participation*, *Body Functions*, and *Environmental Factors* appeared to fit best with the concepts that were identified in ADHD literature. In addition, the ICF-CY has been applied in research with children who have cancer and motor skills problems (Darcy et al., 2015; Hwang, 2015).

In summary, although the use of classification and diagnostic systems with young children is still debated among researchers and clinicians, it is vital for practitioners in both school and clinical settings to establish familiarity with a variety of these systems. This is due, in part, to the fact that some disorders (e.g., autism) are being increasingly identified at younger ages. Secondly, even for clinicians who do not agree with classification for younger children, it is likely that

they will either need to apply specific diagnostic codes themselves or work with children who have them. Implementation of services might be contingent upon use of a specific diagnostic or classification scheme. Lastly, despite some differences across various diagnostic and classification systems, many of the problems and disorders that apply to young children use a common language of signs and symptoms that enables clinicians to communicate more effectively and conceptualize information in an organized framework.

Implications for Practice

Regardless of specific setting, school and clinical psychologists working with young children must be prepared to adopt an integrated, collaborative approach to assessment. Although this general principle applies to assessment with children of all ages, it is more imperative for younger age groups given the primary role of families in development. Legal and ethical standards provide key guidelines, though clinicians must also develop their own holistic framework which yields a cohesive picture of the child's functioning across as many domains as possible. Such a framework enables practitioners to gather meaningful information that is more likely to lead to effective interventions. The table below summarizes many of the general principles described in this chapter and describes corresponding assessment practices that help fulfill these principles.

Assessment principle	Specific assessment practices
Focus strongly on environmental context when assessing developmental and psychological problems in infants and young children	Interview and observe in child's natural environments as much as possible. Ask open-ended questions that give parents, day care providers, etc., opportunities to provide a variety of information about the child's functioning
Assessment should be viewed as a collaborative process involving active outreach to families as well as educational/day care providers	Clinicians are responsible for learning cultural, ethnic, and family values that influence communication, views on child-rearing, developmental expectations for children and other factors that are part of the child's environmental context Readers are referred to Lynch and Hanson (2011) for information regarding specific cultural groups Day cares and preschools should also be considered as entities with their own unique climates and cultures

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Assessment principle	Specific assessment practices
Multiple methods of assessment are the norm rather than the exception	Information from norm-referenced and standardized measures should be combined with authentic assessment methods to yield comprehensive and functional information about children's skills in real-life settings. Practitioners should use a structured approach when it comes to selecting, administering and interpreting norm-referenced measures (see Chap. 2 of this text). Specific qualitative observations should be obtained as part of norm-referenced assessments and used in combination with other sources of data
School and clinical psychologists need to be knowledgeable regarding federal and state laws that apply to classification and early intervention services for infants, toddlers and preschoolers	For information, regulations and training modules related to Part C, readers are directed to: http://www.parentcenterhub.org/repository/partc/ http://www.ectacenter.org/wamodules/moduleifsp.asp http://www.yellowpagesforkids.com/help/ptis.htm For more info. regarding eligibility for EI among different states, readers can access Rosenberg et al.'s article: http://pediatrics.aappublications.org/content/131/1/38.full.pdf+html
Assessment is an ongoing process	While screening and assessment serve different purposes, they should be regarded as ongoing sources of data regarding child and family functioning. As more medical and developmental information becomes consolidated through electronic databases, clinicians must balance family privacy and confidentiality with the ability to track and monitor children's developmental trajectories
Developmental milestones provide a framework for examining typical and atypical development for young children	School and clinical psychologists should be most knowledgeable about milestones related to cognition/problem-solving, language/communication, and social-emotional development, but recognize that young children might be eligible for services due to a variety of delays and conditions. For additional information regarding milestones, readers are directed to: http://www.cdc.gov/ncbddd/actearly/milestones/ and http://www.healthychildren.org/English/ages-stages/Pages/default.aspx

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Assessment principle	Specific assessment practices
Assessment of young children is more likely to be collaborative through involvement with other disciplines	School and clinical psychologists need to be well-informed regarding areas of distinction and overlap with speech-language therapists, occupational therapists, developmental/behavioral pediatricians, nurses, and other professions. For specific information regarding assessment in speech-language therapy and occupational therapy, readers are directed to: http://www.asha.org/SLP/Assessment-and-Evaluation-of-Speech-Language-Disorders-in-Schools/ http://mh4ot.com/resources/ot-assessment-index/ and Brown and Bourke-Taylor (2014)

Appendix 1

Age 9–12 months in infancy—Expected milestones:

Has favorite toys and people
Understands "no"
Makes a lot of different sounds, including consonant-vowel-consonant combinations
Copies sounds and gestures of other people
Plays peek-a-boo, patty-cake or similar games
Points to objects in environment
Repeats sounds or actions to elicit attention
Attempts to imitate words; toward the end of this period, says single words or word approximations on her/his own
Looks at pictures in book
Puts objects in and takes objects out of containers
Toward end of this period, explores objects and toys in different ways
Starts to use objects for their intended purposes (e.g., drinking from cup)
Looks correctly at a specific object or picture named by another person
Responds to simple spoken requests or directions (e.g., "Get the ball")
Shows fear in new or unusual situations
Toward end of this period, tests parent/caregiver responses to her or his behavior
Prefers mom/dad/caregiver to other people
Shows increasing shyness or nervousness with strangers
Uses simple, purposeful gestures (e.g., waves bye-bye)
Begins to finger-feed self

Attempts to imitate scribbles

Age 18 months–2 years (toddlerhood)—Expected milestones:

Able to use several single words independently and then begin to put 2 words together
Toward end of this period, uses short sentences (2–4 words)
Vocabulary expands between age 1 and 2 years
Names items in a picture book
Says "no" and shows refusal behavior when doesn't want to do something
Points or otherwise gestures to indicate desired objects or to elicit attention from others
Understands the purpose of ordinary items (e.g., hairbrush)
Points to a few body parts
Engages in simple pretend play with doll or other toy (e.g., feeding, putting to sleep)
Able to point to several items or pictures named by others
Repeats words and/or phrases spoken by others
Interested in and begins to play with other children at basic level
Follows one-step directions without gestures and then progresses to following two-step directions
Initiates social interaction and shows joint attention (e.g., points to objects to show them to others, brings toys/objects to people)
Explores environment independently, but with parent/caregiver nearby
Knows names of other people
Begins to sort shapes and colors
Plays simple make-believe games
May show tantrum behavior when frustrated or upset
Shows affection with familiar people; fear of strangers is not unusual
Drinks from a cup; eats with a spoon

Age 3 years—Expected Milestones:

Follows instructions involving two or three steps
Able to listen to and understand conversations, short stories, songs and poems
Copies behavior of adults and peers
Separates without difficulty from parents/caregivers
Shows concern for friends who are upset
May get frustrated or distressed by changes in routine
Demonstrates a range of emotions (e.g., happiness, frustration, anger, surprise)
Understands a variety of basic concepts (e.g., "same" and "different") and prepositions (e.g., "in," "under," "behind," etc.)
Uses pronouns such as "I," "we," and "you"
Shows significant improvements in pronunciation of words
Understands possessives such as "mine" and "yours"
Begins to notice print in their environment and understand uses for writing

Can carry on conversations using several sentences
Shows clear interest in playing with other children
Takes turns in games and other activities
Can state name, age, and gender
Can copy circle and square
Successfully manipulates toys with levers, buttons, etc.
Labels several basic colors
Plays make-believe and engages in fantasy play
Can complete puzzles with several pieces
Builds towers with blocks and can manipulate large-size Lego/Duplo blocks
Dresses and undresses self by pulling on/off clothing
Able to count out loud up to five or ten
Able to eat on own using kid utensils such as fork and spoon
Fears imaginary creatures, objects, etc. (e.g., monsters)
Starts to show decreases in separation anxiety (also depends upon other variables such as exposure to school)
Gender identity emerging

Age 4 years—Expected Milestones:

Talks about interests, experiences, likes and dislikes
Speaks in sentences consisting of 5–6 words and uses compound sentences
Understands some basic rules of grammar, such as use of past tense
Shows increased ability to initiate and sustain conversations
Can state first and last name
Prefers to play with other children rather than by self
Understands the concepts of "same" and "different"
Play is more complex, imaginative, and can be carried out for longer periods of time
Engages in more extensive fantasy play
Cooperates with other children
Recalls and may start to retell parts of a story
Can carry out three-step instructions
Understands the concept of counting and can count between one and five objects using one-to-one correspondence
Shows basic ability to plan in carrying out tasks
More independent in daily activities (e.g., dressing, undressing)
Begins to discuss solutions to conflicts and shows sympathy toward others
Thinks that many unfamiliar images may be "monsters"
Considers self as a whole person with body, mind, and feelings
Still has difficulty differentiating between fantasy and reality
Starts to understand time
Draws a person with several body parts
Uses child scissors

Plays basic board or card games
Able to distinguish between two objects based on size and weight
Can recognize and write several letters
Able to recite songs, nursery rhymes, poems from memory
Can recognize and describe some emotions in other people

Age 5 years—Expected Milestones:

Speaks clearly and uses both compound and complex sentences
Regularly uses sentences consisting of 5–6 words
Uses and understand position words such as "under," "behind," etc.
Can tell basic story using full sentences
Can apply basic sequencing to a set of events, pictures, etc.
Uses future tense when speaking
Able to state full name and address
Able to distinguish between real and make-believe for most situations
Can draw basic geometric forms and shapes, such as straight lines, circle, and square, and can copy more complex ones
Ties own shoelaces
Shows improved skills with simple tools and utensils
Accurately names a wide variety of colors
Continues to engage in a lot of imaginative and fantasy play
Dramatic play is more sustained and complex
Becomes more analytical in solving problems, responding to challenges and asking questions
Able to count out loud up to 20
Recognizes numerals 0–10
Counts objects of ten or more using one-to-one correspondence
Begins identifying coins
Visually recognizes many letters of alphabet
Begins to read by sounding out words and/or recognizing "sight" words
Able to understand and identify gender roles
Responds to "why" questions
Has multiple friends
Shows desire to please friends and be like friends
Shows decrease in earlier childhood fears
Begins to accept validity of other points of view
Able to manage social situations more independently; begins to use skills like negotiation and compromise
Gender identity becomes more prominent

References

Ackerman, D. J., & Coley, R. J. (2012). State Pre-K assessment policies: Issues and status. *Policy Information Report of Education Testing Service*. Retrieved from https://www.ets.org/Media/Research/pdf/PIC-PRE-K.pdf

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

Andersson, L. L. (2004). Appropriate and inappropriate interpretation and use of test scores in early intervention. *Journal of Early Intervention*, *27*(1), 55–68.

Aos, S., Lieb, R., Mayfield, J., Miller, M., & Pennucci, A. (2004). *Benefits and costs of prevention and early intervention programs for youth*. Olympia, WA: Washington State Institute for Public Policy.

Bagnato, S. J. (2006). Of helping and measuring for early childhood intervention: Reflections on issues and school psychology's role. *School Psychology Review, 35*(4), 615–620.

Bailey, D. B., Hebbeler, K., Scarborough, A., Spiker, D., & Mallik, S. (2004). First experiences with early intervention: A national perspective. *Pediatrics, 113*, 887–896. doi:10.1542/peds.113.4.887

Bailey, D. B., Skinner, D., Hatton, D., & Roberts, J. (2000). Family experiences and factors associated with the diagnosis of fragile X syndrome. *Journal of Developmental and Behavioral Pediatrics, 21*, 315–321.

Barnett, W. S. (2008). *Preschool education and its lasting effects: Research and policy implications*. Boulder and Tempe: Education and the Public Interest Center & Education Policy Research Unit. Retrieved January 21, 2015 from http://greatlakescenter.org/docs/Policy_Briefs/Barnett_EarlyEd.pdf

Belfield, C. (2008). Unpublished analyses of enrollment in any type of center-based program for children who turned 4 (or 3) prior to September of the current school year using data from the National Household Survey of Education, 2005.

Brown, T., & Bourke-Taylor, H. (2014). Children and youth instrument development and testing articles published in the American journal of occupational therapy, 2009–2013: A content, methodology, and instrument design review. *The American Journal of Occupational Therapy, 68*(5), 154–216.

Camilli, G., Vargas, S., Ryan, S., & Barnett, W. S. (2010). Meta-analysis of the effects of early education interventions on cognitive and social development. *Teachers College Record, 112*(3), 579–620.

Darcy, L., Enskär, K., Granlund, M., Simeonsson, R. J., Peterson, C., & Björk, M. (2015). Health and functioning in the everyday lives of young children with cancer: Documenting with the international classification of functioning, disability and health–children and youth (ICF-CY). *Child: Care, Health and Development*, *41*(3), 475–482. doi:10.1111/cch.12191

De Schipper, E., et al. (2015). A comprehensive scoping review of ability and disability in ADHD using the international classification of functioning, disability and health-children and youth version (ICF-CY). *European Child and Adolescent Psychiatry*. Retrieved: http://link.springer.com/article/10.1007%2Fs00787-015-0727-z#page. doi:10.1007/s00787-015-0727-z

Early Childhood Technical Assistance Center. (2015). http://ectacenter.org/partc/statepolicies.asp

Egger, H. L., & Angold, A. (2006). Common emotional and behavioral disorders in preschool children: Presentation, nosology and epidemiology. *Journal of Child Psychology and Psychiatry*, *47*(3/4), 313–337.

Emde, R. N., Egger, H., Fenichel, E., Guedeney, A., Wise, B. K., & Wright, H. H. (2005). Introducing DC:0-3R. *ZERO TO THREE, 26*(1), 35–41.

Equit, M., Paulus, F., Fuhrmann, P., Niemczyk, J., & von Gontard, A. (2011). Comparison of ICD-10 and DC:0-3R diagnoses in infants, toddlers, and preschoolers. *Child Psychiatry and Human Development 42*(6), 623–633. doi:10.1007/s10578-011-0237-2

Gan, S. M., Tung, L. C., Yeh, C. Y., & Wang, C. H. (2013). ICF-CY based assessment tool for children with autism. *Disability and Rehabilitation*, *35*(8): 678–685. doi:10.3109/09638288.2012.705946

Gorey, K. M. (2001). Early childhood education: A meta-analytic affirmation of the short- and long-term benefits of educational opportunity. *School Psychology Quarterly, 16*(1), 9–30.

Hallam, R., Lyons, A., Pretti-Frontczak, K., & Grisham-Brown, J. (2014). Comparing apples and oranges: The mismeasurement of young children through the mismatch of assessment purpose and the interpretation of results. *Topics in Early Childhood Special Education*, *34*(2), 106–115.

Hwang, A. W. (2015). Linkage of ICF-CY codes with environmental factors in studies of developmental outcomes of infants and toddlers with or at risk for motor delays. *Disability and Rehabilitation, 36*(2), 89–104. doi:10.3109/09638288.2013.777805

Jones, K., Daley, D., Hutchings, J., Bywater, T., & Eames, C. (2008). Efficacy of the incredible years program as an early intervention for children with conduct problems and ADHD: Long-term follow-up. *Child: Care, Health and Development, 34*(3), 380–390.

Karoly, L. A., Kilburn, M. R., & Cannon, J. S. (2005). *Early childhood interventions: Proven results, future promise*. MG-341. Santa Monica, CA: The RAND Corporation.

Küpper, L. (Ed.). (2012). The basics of early intervention (Module 1). *Building the legacy for our youngest children with disabilities: A training curriculum on Part C of IDEA 2004*. Washington, DC: National Dissemination Center for Children with Disabilities.

Lee, S. W. F. (2013). Adapting cognitive task analysis to explore young children's thinking competence. *Journal of Research in Child Education*, *27*, 208–223.

Luby, J. L., Belden, A. C., Pautsch, J., Si, X., & Spitznagel, E. (2009). The clinical significance of preschool depression: Impairment in functioning and clinical markers of the disorder. *Journal of Affective Disorders*, *112*, 111–119. doi:10.1016/j.jad.2008.03.026

Luby, J. L., Sullivan, J., Belden, A., Stalets, M., Blankenship, S., & Spitznagel, E. (2006). An observational analysis of behavior in depressed preschoolers: Further validation of early-onset depression. *Journal of American Academy of Child and Adolescent Psychiatry, 45*(2), 203–212.

Lynch, E. W., & Hanson, M. J. (2011). *Developing cross cultural competence-fourth edition: A guide for working with children and their families*. Baltimore: Paul H. Brookes.

Macy, M., Bricker, D., & Squires, J. (2005). An examination of the validity and reliability of a curriculum-based assessment approach used to determine eligibility for Part C early intervention services. *Journal of Early Intervention, 28*, 295–310.

Macy, M., Marks, K., & Towle, A. (2014). Missed, misused, or mismanaged: Improving early detection systems to optimize child outcomes. *Topics in Early Childhood Special Education*, *34*(2), 94–105.

Nelson, G., Westhues, A., & MacLeod, J. (2003). A meta-analysis of longitudinal research on preschool prevention programs for children. *Prevention and Treatment, 6*, 1–34.

New Hampshire's Institute on Disability. (2014). Rehabilitation Research and Training Center on Disability Statistics and Demographics A NIDRR-Funded Center. Annual Disability Statistics Compendium: 2014. Section 11, Special Education.

O'Grady, M. G., & Dusing, S. C. (2015). Reliability and validity of play-based assessments of motor and cognitive skills for infants and young children: A systematic review. *Physical Therapy, 95*(1), 25–38.

Rice, C. E., et al. (2014). Screening for developmental delays among young children—National Survey of Children's Health, United States, 2007. *Centers for Disease Control and Prevention—Morbidity and Mortality Weekly Report Supplement, 63*(2), 27–35.

Rosenberg, S. A., Robinson, C. C., Shaw, E. F., & Ellison, M. C. (2013). Part C early intervention for infants and toddlers: Percentage eligible versus served. *Pediatrics*, *131*(1), 38–46. doi:10.1542/peds.2012-1662

Rosenberg, S. A., Zhang, D., & Robinson, C. C. (2008). Prevalence of developmental delays and participation in early intervention services for young children. *Pediatrics, 121*(6), 1503–1509. doi:10.1542/peds.2007-1680

Rothstein, J. (2008). *Teacher quality in educational production: Tracking, decay, and student achievement.* Unpublished manuscript. Princeton University, New Jersey.

Scheeringa, M., Myers, L., Putnam, F. W., & Zeahnah, C. H. (2002). *Research Diagnostic Criteria—Preschool Age (RDC–PA)*. Retrieved June 25, 2014 from http://www.infantinstitute.org/WebRDC-PA.pdf

Simeonsson, R. J. (2009). ICF-CY: A universal tool for documentation of disability. *Journal of Policy and Practice in Intellectual Disabilities*, *6*, 70–72.

Suchman, N. E., DeCoste, C., Castiglioni, N., McMahon, T. J., Rounsaville, B., & Mayes, L. (2010). The Mothers and Toddlers Program, an attachment-based parenting program for substance-using women: Post-treatment results from a randomized clinical pilot. *Attachment and Human Development*, *12*(5), 483–504.

Wakefield, J. C. (2013). DSM-5: An overview of changes and controversies. *Clinical Social Work Journal, 41*, 139–154. doi:10.1007/s10615-013-0445-2

World Health Organization. (2007). *International Classification of Functioning, Disability and Health- Children and Youth Version*. Retrieved from http://apps.who.int/iris/bitstream/10665/43737/1/9789241547321_eng.pdf

World Health Organization. (2015). *The ICD-10 classification of mental and behavioural disorders: Clinical descriptions and diagnostic guidelines*. Retrieved June 12, 2015 from http://www.who.int/classifications/icd/en/bluebook.pdf

Zeanah, C. H., et al. (2015). DC:0-3 to DC:0-3R to DC:0-5: A new edition. *Zero to Three*, 63–66. Retrieved from http://connection.ebscohost.com/c/opinions/101350204/dc-0-3-dc-0-3r-dc-0-5-new-edition

Chapter 2
Standardized Assessment of Cognitive Development: Instruments and Issues

Kirsten M. Ellingsen

Abstract A standardized measure of cognitive functioning is often a primary component of a comprehensive early childhood psychological evaluation. Children's performance on cognitive assessments can have significant immediate and long-term implications. Treatment decisions and access to services or resources may be predicated on the information gained from a particular measure. This chapter will describe the applications of standardized instruments commonly used to measure cognitive development in infants, toddlers, and young children. It begins with a discussion of cognitive development theory to provide a foundation of the background and structure of these instruments. Second, factors associated with appropriate instrument selection are presented, including consideration of psychometric properties, norms, and limitations. The chapter also provides a framework for conducting and interpreting an assessment using these measures, including a practical checklist for clinicians. Finally, the chapter provides specific descriptions of standardized cognitive measures that are commonly used with infants, toddlers, and young children.

Keywords Early childhood cognitive assessment · Early childhood cognitive development · Bayley Scales of Infant and Toddler Development · DIAL-4 · Battelle Developmental Inventory (BDI-2) · Differential Ability Scales (DAS-II) · WPPSI-IV · Kaufman Assessment Battery for Children (KABC-II)

Introduction

A standardized measure of cognitive functioning is often a primary component of a comprehensive early childhood psychological evaluation. A child's performance during the cognitive assessment can have significant immediate and long-term

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A. Garro (ed.), *Early Childhood Assessment in School and Clinical Child Psychology*, DOI 10.1007/978-1-4939-6349-2_2

implications. Access to resources or treatment decisions may be predicated on the information gained from a particular measure. Scores may be used to make a diagnosis, determine eligibility for support services, or to examine the effectiveness of an intervention, plan treatment, or document consequences of disease, trauma, chronic conditions, and medical procedures. Therefore, it is essential to obtain reliable, valid, and meaningful assessment results and to interpret performance appropriately within the context of all other evaluation information.

For psychologists, successfully obtaining reliable, valid, and meaningful cognitive assessment results requires effective planning, appropriate training, and sufficient background knowledge about child development. It begins with carefully selecting an instrument based on the technical qualities and intended use and limitations of potential measures given the assessment purpose, referral concerns, and characteristics of a child. Practiced administration and accurate scoring are necessary, but not sufficient. Maximizing performance on standardized measures and accurate interpretation of results also depends upon comprehensive knowledge of child development and recognizing typical behavior for infants, toddlers, and preschoolers. Further, instrument selection, administration, and results interpretation should be grounded in developmental theory and informed by a general understanding about potential functional consequences of impairment, disability, and health conditions.

Assessment of early childhood cognitive ability is challenging for many reasons. Developmental change occurs most rapidly during the first five years of life and may be uneven across domains. Behavior can be variable and more susceptible to environmental and situational factors. The manifestation of different skills and abilities varies in infancy and "the rapid and often sporadic development of the CNS associated with the first year of life frequently results in dramatic changes in cognitive ability over a very short time" (Smith, Pretzel, & Landry, 2001, p. 188). Accurate assessment of concerns about cognitive functioning is also difficult due to the limited number of instruments available for young children and variability of child behavior within different contexts.

Literature Review

A cognitive assessment is conducted for different purposes including diagnostic, screening, research, program evaluation, and intervention planning. The method used to assess children's development and functioning reflects a particular theoretical framework. Identifying the theory and underlying assumptions behind evaluation decisions promotes responsible, informed, and purposeful practice. Before determining the method or instrument that will be used for the cognitive component of an early childhood assessment, it is also important to examine recommended practice in early childhood assessment and understand strengths and limitations of an identified approach.

Theories of Cognitive Development and Intelligence

It is important to recognize how theories are specifically related to understanding of cognitive development and definitions of intelligence. Discussions about cognitive ability constructs that are measured by intelligence measures for young children often take a developmental perspective, with research in this area using Piagetian and Information Processing Theories (Tusing & Ford, 2004). While an extensive discussion of theory is outside the scope of this chapter, select major contributions to present day understanding of cognitive assessment are presented below to ground discussion of evaluation methods and instrumentation.

Intelligence is a construct that is presumed to represent aptitude or effective application of cognitive functioning. Definitions of intelligence often refer to capacity or ability to learn, reason or understand, and apply knowledge (e.g., www.merriam-webster.com/dictionary, www.dictionary.com). During the past century, psychologists have proposed various theories about how mental processes can be observed, measured, and documented to be combined in a quantifiable way to reflect a general cognitive ability or "intelligence". While there is still no agreement about the definition of intelligence, particularly in early childhood, several commonly used tests of intelligence generally reflect the theory that there is a general factor (*g* factor) and specific factors or dimensions of intelligence building on the work of Alfred Binet, William Stern, Charles Spearman, and Louis Thurston. Intelligence is often assumed to be measurable and quantifiable in a total sum score and identified by different primary mental abilities (e.g., reasoning, verbal comprehension). However, the applicability of this construct to infants and toddler is questionable given their rapidly evolving cognitive development. The Cattell-Horn-Carroll (CHC) theory (Carroll, 1993; Horn & Cattell, 1966) has been applied in the design and interpretation of preschool measures of cognitive functioning. CHC posits that the general construct of *g* is comprised of a combination of *crystallized intelligence* (*Gc*), which represents knowledge acquired from experience and *fluid intelligence* (*Gf*), which is considered to be independent of acquired knowledge and reflect the ability to think logically, problem solve, and reason in novel situations.

Information Processing Theory has offered a leading strategy to study cognitive development (Meece, 2002). This approach focuses on developmental change of abilities in attention, memory, and problem solving. It represents cognitive development as a continuous process using a computer analogy with inputs, throughputs, and outputs to represent how the mind operates during memory, attention, and problem-solving activities (Puckett & Black, 2005). Changes in cognitive functioning for young children are considered to be the result of increases in memory, association, and use of cognitive strategies to process information (e.g., attending, rehearsing, coding information, forming mental images, or representational images). Cognitive development during early childhood includes a focus on salient features of objects in attention processes; memory scripts, which are mental representations of frequently repeated daily events; and simple strategies to remember experiences, with an ability to only keep a small amount of information in working memory at one

time (Meece, 2002). Early misperceptions and incomplete concepts are thought to be the result of a short attention span, unsystematic attending abilities, and limited memory (Puckett & Black, 2005). Many available intelligence tests and comprehensive evaluations of cognitive functioning emphasize these skills.

Vygotsky's theory has been helpful to frame learning and educational recommendations from cognitive assessments. One component of this theory that is reflected in recommended early childhood practice and assessment is emphasis on children's culture and history of experiences for understanding cognitive development (Meece, 2002). Ongoing criticism of intelligence testing with minority populations can be traced back to Vygotsky's work and the idea that different intellectual skills are developed according to what is needed in different societies. In addition, his ideas about the zone of proximal development, scaffolding, and the social context of learning can be used to address problems associated with use of standardized scores to determine "school readiness" for young children.

Piaget's theory of cognitive development emphasizes that children progress through a predictable pattern of four qualitatively different developmental stages (i.e., Sensorimotor, Pre-Operational, Concrete Operational, and Formal Operational) that reflect increasingly sophisticated and purposeful cognitive processes during infancy through adulthood. Changes in cognitive processes occur within an expected sequence of demonstrated skills and are reflected in different reasoning processes. Piaget viewed children as active in their own development, having their own logic and different methods of reasoning that they use to make sense of the world (Meece, 2002). His research and observation of childhood behavior are reflected in the design and content of popular standardized measures of cognitive development for infants and young children (e.g., the Bayley Scales of Infant and Toddler Development) as well as expectations of skills in qualitative assessments and developmental checklists.

Piaget proposed that "mental development during the first eight months of life is particularly important, for it is during this time that the child constructs all the cognitive substructures that will serve as a point of departure for his later perceptive and intellectual development" (Piaget & Inhelder, 1969, p. 1). It is toward the end of an infant's first year that children were expected to engage in "acts of practical intelligence" or show behavior that represents seeking different ways to reach an end goal or understanding relationships between actions (Piaget & Inhelder, 1969). Piaget focused on individual and general stage differences in quality of thinking and reasoning processes of children in assessment rather than an emphasis on a score or quantifiable score to represent an internal trait (e.g., intelligence).

Measuring Cognitive Development and Intelligence in Early Childhood

Direct individual assessment using a standardized measure is one method of collecting information for diagnostic purposes and intervention planning and monitoring. When measures demonstrate discriminant validity, the results "may be used for the early

identification of children at risk for difficulties, to describe a child's skill acquisition compared to peers, to determine eligibility for services, and to assess a child's specific needs for intervention" (Mazer, Majnemer, Dahan-Oliel, & Sebestyen, 2012, p. 249). However, "the younger the child, the more difficult it is to obtain reliable and valid assessment data" and it is particularly difficult to accurately assess children's cognitive abilities before six years of age (Shepard, Kagan, & Wurtz, 1998, p. 5).

Standardized Measures of Cognitive Assessment

Standard assessment of any construct begins with a definition and identification of observable or measureable indicators. Advantages of standardized measures include well-written and tested items, established standard conditions of administration and scoring, and inclusion of norm tables (Black & Powell, 2004). Standardized instruments of cognitive functioning should be based on theory and have empirical support that their tasks and activities are relevant, adequately representative, and discriminating. Standardized, norm-referenced measures require an examiner to follow specific administration and scoring rules in an attempt to create a similar testing experience for all children. "Standardized developmental tests are often viewed as the gold standard for outcome assessment, providing an objective, valid and reliable evaluation of a child's development in comparison to the norm, and typically provides standardized scores that can be used to classify developmental level. Through the use of standardized administration and scoring criteria, measurement error is reduced, providing an objective, accurate evaluation of a child's abilities in various developmental domains (Mazer et al., 2012, p. 249)." While standardized measures of cognitive functioning for children younger than three years of age are not considered to yield a score of intelligence, preschool measures often refer to an intelligence quotient (IQ) or overall composite score that is used to represent general cognitive ability.

Issues, application, and limitations of standardized tests. Identified concerns about using standardized cognitive assessment and intelligence tests in early childhood include the low reliability and predictability of measures, challenges with trying to use standardized administration in young children, and poor utility of assessment data for intervention planning. These concerns have been particularly true for children with developmental delays or disabilities (Bagnato, 1992). However, these are precisely the children who are referred for diagnostic evaluations and developmental assessments to determine eligibility for early intervention. Bagnato and Neisworth (1994) have more specifically discussed the poor treatment and social validity of these measures. These forms of validity extend beyond psychometric properties of an instrument and focus on issues such as suitability/fit for children with functional limitations, practical use of measures to plan interventions that are applicable to children's everyday environments (i.e., ecological validity), and the feasibility of incorporating collaborative teamwork as part of assessment. Further, according to Smith et al. (2001) a limitation of standardized

individual assessment for infants is that the data represents "only a small sample of an infant's developmental repertoire" (p. 188) with these data "influenced greatly by current issues regarding the infant's motivation, mood, comfort, and responsiveness to the examiner and the evaluative process" (p. 188). Other concerns about the use of such measures with infants and toddlers include: (a) the inability of many measures to capture cognitive growth over brief intervals (McDermott et al., 2009); (b) variability in the way scores are obtained; (c) the absence of children with disabilities from norm groups; and (d) lack of an established unified definition of intelligence (Cornish, Sornberger, Dupasquier, & Wilding, 2012).

The aforementioned concerns have led to an ongoing debate about whether standardized, norm-referenced measures should ever be used with young children for diagnostic or eligibility decisions or if they should be used as part of a more comprehensive evaluation where the limitations of the measure are considered during the interpretation of results (Bradley-Johnson, 2001). Nevertheless, many psychologists report frequently using standardized tests of cognitive functioning and intelligence for early childhood evaluations; because of this, there is a need for training and awareness about the strengths and limitations of available measures for use with the early childhood population (Bagnato & Neisworth, 1994; Bradley-Johnson, 2001). The next section outlines important considerations for evaluating existing standardized measures and selecting an instrument.

Selecting and Evaluating Standardized Measures

Multiple issues are important for selecting a measure in early childhood assessments including purpose, conditions of testing, examiner's expertise, cost and the availability of materials (Grigorenko & Sternberg, 1999). Flanagan and Alfonso (1995) proposed the following criteria to consider for the selection of intelligence tests for preschoolers: size of normative sample; recency of normative data; match of demographic characteristics of the normative group to the US population; test internal reliability; test-retest reliability; subtest floors; validity evidence; and subtest item gradient violations. Subtest item gradient violations involve situations where a child's performance on a single or small number of items causes small changes in raw score points, which, in turn, generate disproportional effects on the child's standard scores and lead to reduced sensitivity of a test or part of a test (Bracken, Keith, & Walker, 1994; Campbell, 2005). Specific psychometric properties related to validity and reliability should be carefully evaluated as well as potential issues related to bias or limitations with specific populations. Qualitative characteristics should also play a role in selection of measures. These include cost of materials; time to administer, score, and interpret a measure; organization and ease of administration and scoring; attractiveness of materials for young children; and amount of training required to reliably administer a test/measure. The following sections will address factors related to assessment planning, including selection and evaluation of existing instruments.

Evaluating the Qualities of Early Childhood Cognitive Assessment Instruments

An examiner must understand how to select and evaluate instruments appropriate for an individual child based on assessment purpose, psychometric properties, and other factors. Although it is important to understand individual factors/circumstances surrounding an evaluation (e.g., reason for referral), it is equally important to understand how to generally evaluate a measure on psychometric properties and identified strengths and weaknesses. Such evaluation will ensure appropriate selection of a standardized measure for an individual child.

Purpose of the assessment. Selection of an appropriate instrument should initially be guided by identifying the purpose of the assessment. Purpose directs what should be measured and how it should be measured. It "determines the content of the assessment; methods of data collection; technical requirements of the assessment and, finally, the stakes or consequences of the assessment, which, in turn, determine the kinds of safeguards necessary to protect against potential harm from fallible assessment-based decisions" (Shepard et al., 1998, p. 6). This process begins with acquiring a basic understanding about a child's background, referral concerns, and intended use of scores. For example, determining eligibility for special education services, documenting level of specific cognitive functions for neurologically involved health conditions or determining effects of different medical conditions or procedures presents different data needs than program evaluations and documenting child outcomes for state IDEA accountability systems. Clinicians should examine the technical manual of an instrument to determine its intended purposes and look for evidence of validity connected to these purposes. If a test/measure is used outside its usual parameters, this factor needs to be considered when interpreting results.

Psychometric properties of the instruments. An examiner should have sufficient knowledge about technical adequacy and psychometric properties when selecting a standardized measure of cognitive functioning. Technical adequacy/qualities are considered strong when internal consistency and stability are at or above 0.90 for total test scores and 0.80 for subtest scores and composites (Lichtenberger, 2005). Instruments should be responsive to subtle and rapid changes in demonstrated ability; this includes investigating the sensitivity (e.g., adequate item gradients, floors) and stability of a measure.

Reliability and validity are generally lower in tests for infants than for tests designed for older children. This is due, in part, to the fast changes in cognitive and other developmental domains. Low test-retest reliability of infant and preschool measures has been identified as a major concern (Bradley-Johnson, 2001). In general, the younger the child, the less stable the scores in relation to later IQ or academic functioning. Regarding item gradients, criteria established by Bracken (1987) suggest that a one-unit increase in raw score points should generate a standard score change that is no greater than one third of a standard deviation (SD). There are different types of validity that can be examined in relation to early childhood cognitive measures. Predictive validity for such measures is often low

due to rapid and/or uneven development during this age range. Establishment of construct validity can also be challenging since individual test items might measure different constructs at different ages. With respect to construct validity, it is also important to keep in mind that infant measures of cognitive development tend to rely more on children's sensorimotor functioning, whereas preschool measures include many activities that require verbal responses and often reflect expressive and receptive language skills (Mazer et al., 2012). Inadequate numbers of ceiling or floor items can have significant negative effects on validity; the latter especially has implications for assessing children with developmental delays and/or disabilities.

Norming procedures. Standardized measures provide raw scores on scales that are compared to same age peers for norm-referenced interpretation. For most measures, the normal distribution has a mean of 100 and SD of 15. For many total, composite, and subtest scores of a given measure, percentiles are provided to explain a child's performance/score relative to the norm group of same age peers. Standardized measures should be reasonably representative of the general population and normed using data that is no more than a decade old. The comparison of scores to what falls in the norm table indicates if a child is functioning at the expected level for his or her age or if the child demonstrates a significant difference. Therefore, the sample that is used for the norm group should match the children who are given the test. As such, "it is always critical to examine the makeup of the normative sample in order to determine whether the norms are applicable to the population of interest" (Mazer et al., 2012, p. 250). Outdated norms might result in inflated standard scores and, consequently, prevent a child from meeting eligibility requirements to access early intervention services.

Bias. Diverse populations may perform differently on measures of cognitive/intellectual functioning. Selecting an appropriate measure includes examining how the instrument was normed and if the children used to obtain norms match the background of the child. As such, "when evaluating ethnically diverse preschool children, clinicians must be aware of the standardization procedures for the measure they decide to use, as well as its interpretive quality" (Dale, McIntosh, Rothlisberg, Ward, & Bradley, 2011, p. 485). Recognition of potential bias is necessary because test scores are often used as criteria to access resources. It is important to examine the appropriateness of instruments for children from different cultural and language backgrounds. If the scores do not represent the ability or current functioning of a child because of significant cultural, linguistic, or disability factors, validity can be significantly compromised. APA (2012) recommends that a psychologist read the test manual or contact the test's publisher for additional information to determine if a measure is appropriate for children with specific disabilities, including review of validation studies. APA's most recent Guidelines for Assessment of and Intervention with Persons with Disabilities includes the specific principle to "strive to apply the assessment approach that is most psychometrically sound, fair, comprehensive, and appropriate for clients with disabilities." When a measure does not have relevant disabilities in norm groups, the psychologist is advised to find instruments that "maximize the collection of valid information" (APA, 2012).

Implications for Practice

Conducting and Interpreting a Standardized Cognitive Assessment

Before administering a standardized cognitive test it is important to have background information about the child and presenting problems. Selecting an appropriate measure based on the assessment purpose, child background, and technical qualities is important. Several administrative factors can influence the validity of results. For example, knowledge about developmental milestones and the sequence of skill acquisition is necessary to engage young children, plan an appropriate evaluation strategy, schedule and arrange the environment to optimize child performance, and interpret individual performance. Understanding sequences of development and growth in the cognitive domain provides valuable information about test construction, the intended purpose of different types of assessment tasks and activities, and underlying skills or abilities that are being assessed with particular items. Early cognitive abilities include alertness, visual scanning, problem solving, reasoning, comprehension of directions, concept formation, object permanence, understanding of cause and effect and size and spatial relationships. "It is important to note that the various facets of development are often interdependent and therefore, to successfully complete items in a specific developmental domain may require additional skills in other domains" (Mazer et al., 2012, p. 250). Clinical judgment and interpretive skill is enhanced when an examiner knows generally what to expect and the order in which skills emerge.

Performance on standardized measures may be affected by several factors other than a child's ability, including an examiner's skill in engaging a child in different activities and maintaining proficiency in administering items with different manipulatives. Knowing the standardized administration and scoring procedures is essential, particularly during early childhood assessments when each item may have different materials, administrative procedures, and scoring criteria. The objectivity and validity of the results depend on strict adherence to the standardized procedures (Mazer et al., 2012). Standard administration procedures need to be rehearsed adequately for verbal instructions and the correct presentation of manipulatives to facilitate smooth transitions between objects or types of tasks, while observing behavior for accurate scoring decisions and maintaining child engagement. This often involves learning verbal instructions verbatim and adequately rehearsing the specific presentation and placement of a variety of test materials. Many standardized instruments include a variety of manipulatives and tasks to facilitate engagement in the testing process. Transitioning between these items or different tasks must occur in a manner to keep the child engaged while making accurate observations of the child's behavior and functioning to better interpret results from the assessment. While adhering to standardized procedures is important, examiners must also demonstrate flexibility due to the variable nature of young children's behavior. Such flexibility might require additional breaks from testing, neutral

praise, use of tangible reinforcers, and administering items on a caregiver's lap for infants and toddlers or on the floor or a child-sized table for preschoolers.

Performance on standardized cognitive measures may be significantly influenced by various child characteristics and conditions. Specific characteristics that can impact young children's performance on cognitive measures include high levels of activity and distractibility, low attention span, stranger anxiety, or temperament anxiety. Language differences must also be taken into account since assessment results, particularly in verbal areas, might be confounded for children who come from backgrounds with limited exposure to English. As with other evaluation components, matching the temperament of a child and facilitating a positive and comfortable environment will optimize performance and engage a child. A shy infant may need more time getting comfortable playing with toys while the examiner talks with a parent, while an active 24 month old might need to be administered items quickly and with enthusiasm.

When it comes to assessing young children with delays, health conditions, or disabilities, it is also crucial to understand how these factors might affect performance in one or more domains of a standardized measure. According to Simeonsson and Rosenthal (2001), comprehensive and accurate assessment of children with disabilities or chronic health conditions is important in order to: (a) facilitate diagnostic efforts; (b) ensure that a match is made between the needs of the child and appropriate intervention and (c) evaluate the impact of individualized treatments or interventions. While assessment of young children with already identified or suspected disabilities or health conditions can be challenging, there are some general guiding principles. For example, Hodapp (1998) notes that "on the basis of data from research on children with disabilities as well as cross-cultural research, it has been concluded that all children develop early cognitive or language skills in the same sequences" (p. 174). From a practical perspective, this means that young children with significant delays or disabilities might not be able to complete item sets at their chronological level, but can do better with item sequences at a lower level. This issue, in turn, speaks to the need to have adequate floor items for young children with delays or disabilities. According to Shultz and Chase–Carmichael (2001), chronic health conditions, in general, do not call for deviation from standardized procedures unless the child has additional impairments (i.e., sensory, motor, orthopedic). If a physical disability or delay is present, degree of severity is important to take into account; overall, a higher level of severity calls for more significant adaptations to assessment and greater caution in interpretation of results (Shultz & Chase–Carmichael, 2001). As a guideline, Schultz and Chase–Carmichael recommend that examiners note the effects of chronic health conditions and any concomitant impairment on the child's performance. Alternately, examiners can adapt assessment procedures to reduce the impact of the condition or impairment on the child's performance. When young children with disabilities do require adaptation for standardized procedures, examiners might provide accommodations or modifications. Modifications involve changes to a test's format or content that wind up altering the underlying construct(s) that are being measured. Thus, modifications affect the validity of an assessment. Examples might include

removing time requirements from subtests that are supposed to be timed, allowing examinees to point instead of using language on verbally-based tasks, or using multiple choice formats instead of having examinees describe/explain responses. Accommodations in assessment, on the other hand, involve changes in test format, content, or administration, which makes it more accessible to individuals who would otherwise not be able to complete the measure, including individuals with disabilities (APA, 2012). Accommodations are not expected to change the construct being measured. Accommodations might include moving test materials closer for a child with visual impairment, other physical rearrangements of the testing environment, allowing extra time for responses on non-speed-related tasks, and providing breaks between testing tasks/activities.

As is the case with administration of cognitive measures or intelligence tests, interpretation and reporting of results should be carried out carefully. Scores/results should be interpreted in light of the child's background, including family context/history, social history, and developmental/medical history, as well as other assessment information (e.g., other test results, observations, interviews/reports from parents, teachers, etc.). When interpreting scores, the child's behavior, including effort; mood; compliance; and levels of interest, attention, persistence, engagement, and motivation should be evaluated across different tasks, subtests, etc. In addition, Lichtenberger (2005) notes that a number of variables can contribute to performance differences across test domains. These variables include neuromuscular problems; language learning; or visual-motor deficits; and/or internal factors such as fatigue and inattention. When discussing results of cognitive assessment with parents/families or teachers, the aforementioned factors should be included as part of the discussion. In addition, it is vital for clinicians to seek input from parents/caregivers and teachers about whether the child's performance during the assessment and his/her test results are representative of what is seen in real-life situations. Finally, standardized assessment results should be interpreted in terms of inter-individual differences, meaning performance relative to the norm group of the instrument, and for intra-individual differences. The latter considers the range of skills and characteristics unique to a particular child, including strengths and weaknesses. This is especially important for younger children in light of the rapid changes in their cognitive and other domains of development.

The following table provides a checklist and guidelines for practitioners in selecting, administering, and interpreting early childhood cognitive assessments.

Checklist to Evaluate Early Childhood Cognitive Assessment

	Yes	No	Comments
Instrument selection			
Was the measure appropriate?			
Used for purpose intended			

(continued)

(continued)

	Yes	No	Comments
Documented use with children with particular characteristics (e.g., disabilities, different racial or ethnic groups, etc.)			
How comprehensive is measure?			
What are the psychometric properties?			
Adequate reliability			
Adequate content and construct validity			
Recent norms			
Normed on population with similar child characteristics (e.g., racial/ethnic/cultural/language background or disability status)			
Effective in discriminating among children with different diagnoses, characteristics, etc.			
Adequate floor and ceiling			
Test administration and scoring			
Was the measure administered using standard protocol?			
Were materials organized?			
Instructions read verbatim			
Prompts used correctly			
Accurate presentation of materials. Presentation of trials as required			
Were modifications or accommodations necessary? If so, were they documented?			
Did the examiner establish rapport and obtain best performance from child?			
Successfully keep child engaged in tasks (consider activity level, affect, eye contact, communication exchanges, responsivity to people and assessment environment, etc.)			
Make the assessment as enjoyable as possible			
Provide necessary breaks			
Minimize distractions			
Provide smooth transitions between materials and tasks			
Effectively and neutrally use praise and reinforcement			
Were parents/caregivers appropriately engaged in assessment? Did parents/caregivers interfere with assessment?			
Were items accurately scored?			
Recorded correctly			
Added correctly and checked for accuracy			
Correct scoring criteria applied			
Does the interpretation of results appropriately synthesize all data?			
Were scores examined across different scales and subtests?			
Do the patterns of scores appear to reflect child's functioning?			
Were there marked or unusual inconsistencies across different domains, scales, etc.?			

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	Yes	No	Comments
Was assessment performance influenced by factors such as shyness, anxiety, fatigue, etc.? Were these factors taken into account when interpreting results?			
Did child's health status, disability(ies), or impairment(s) limit the ability to respond to demands of the assessment and impact results?			
Were various aspects of child's behavior (e.g., response to examiner) recorded/noted and taken into account when examining and interpreting results?			
Were the results interpreted considering functioning and performance on other measures and in other settings? Using multiple measures and methods?			

Implications for Practice: Select Measures of Cognitive Functioning

Although there are limitations and challenges involved with the use of standardized norm-referenced instruments of cognitive functioning in young children, these measures continue to provide key data for a variety of purposes. This section summarizes the purpose, content, application, and critique of select early childhood cognitive assessments.

The Bayley Scales of Infant and Toddler Development™—Third Edition (Bayley-III; Bayley, 2006)

Description/Background. The Bayley-III provides a standardized assessment of the current developmental functioning of infants and young children from birth to 42 months. The first version of the Bayley Scales of Infant Development (BSID) was published in 1969 and revised in 1993 (BSID-II) (Black & Matula, 1999). The Bayley-III provides norm-referenced scores (i.e., scaled scores, composite scores, percentile ranks). It was designed to be consistent with current scholarship on child development and federal and professional standards and to be used to identify suspected developmental delay and plan treatment and intervention services (Weiss, Oakland, & Aylward, 2010). The Bayley-III contains three main scales: Cognitive, Language, and Motor. These take 30–90 min to administer, depending upon age of the child. Examiners can also administer the supplemental Social-Emotional and Adaptive Behavior Scales to caregivers. Tasks on the Cognitive, Language and Motor scales of the Bayley-III are completed in a standardized manner, using manufacturer-supplied testing toys, verbatim task instructions, and very specific

scoring criteria. The Cognitive scale includes items that assess sensorimotor development, exploration and manipulations, object relatedness, concept formation, memory, habituation, visual acuity, visual preference, cause and effect, problem solving, representational and pretend play, and object permanence. Early learning is also assessed such as early numeracy skills (e.g., one to one correspondence), matching colors, and discriminating patterns.

Raw scores are converted to scaled scores that range from 1 to 19 with a mean of 10 and SD of 3. Within each domain, (Cognitive, Language, and Motor), composite scores are also calculated. Composite scores have a mean of 100 and SD of 15 with a range from 40 to 160. Percentile ranks range from less than the first percentile to greater than the 99th percentile. Scores that fall two SDs or more below the mean are considered to reflect developmental delay. Composite scores ranging from 90 to 109 are considered average and within normal limits of functioning. A score at or below 70 is considered to represent a significant delay. Children do not typically qualify for early intervention services unless their scores are two SD below the mean. Descriptive classifications are also sometimes used to describe Composite scores from the Bayley-III using 10 point increments around the mean. These are as follows: 130 and up- "Very Superior"; 120–130- "Superior"; 110–120- "High Average"; 90–110- "Average"; 80–90- "Low Average"; 70–80- "Borderline/Low"; and Below 70- "Extremely Low." The Cognitive scale yields a composite score which allows for the comparison of a child's functioning to same age peers. Raw scores from children born full-term (i.e., 37 weeks gestation and above) are compared to chronological age peers. For children born prematurely (i.e., less than 37 weeks gestation), examiners first adjust for the child's weeks of prematurity and use this adjusted age to calculate standardized scores. Children who were born prematurely are compared to adjusted age peers until they are 24 months adjusted age and then compared to chronological age peers.

There are several practical considerations for clinicians who use the Bayley-III. During item administration, an infant may sit on a caregiver's lap, while toddlers and preschoolers may sit in a supported child-size chair. It is important to politely and respectfully discuss caregiver expectations and involvement before the administration of any items to prevent spoiling items and disruption of standardized procedures. Ask a parent or caregiver who is present (or holding a child) not to prompt, encourage, guide, or assist with any items. It is also imperative to practice the standardized administration for each item several times before attempting to use with a child. This includes rehearsing the exact language for instructions, proper placement of materials (e.g., handing the block to a child vs. putting it on the table in front of the child), and steps to present materials. It is important to organize the materials so that those that will be needed first are convenient and close, but out of view of the child to facilitate smooth transitions between items. Using a transition object may also be helpful to keep a child engaged between items if your pace is not yet quick, or if a child does not want to release a preferred object to avoid a child becoming upset. Knowing what materials are needed and having quick access to them will help with maintaining engagement and allow an examiner to watch subtle behaviors for accurate scoring. Keeping notes on the scoring protocol is also helpful.

Applications, Strengths and Limitations. The Bayley-III is generally considered the gold standard measure for infant and toddler development and is used in early childhood intervention evaluations, hospital developmental follow-up programs, community clinics, and as part of developmental outcome research protocols. It is often used to determine eligibility for early intervention services for children (birth to three) and preschool special education services within school districts. The Bayley-III has been described as an internationally recognized tool that is comprehensive in nature and is well suited for assessing the development of young children (Macow, 2008; Pinon, 2010). Because the measure includes three directly administered scales (i.e., cognitive, motor, and language), it is useful for multi/interdisciplinary early intervention assessments where a team of professionals administer the different components. For example, the Bayley-III might be used by a speech and language pathologist who administers the language scale, an occupational or physical therapist who administers the motor scale, and a psychologist who administers the cognitive scale. The Bayley-III has also been used clinically at hospitals. For example, multidisciplinary NICU clinics often conduct follow-up visits using the Bayley with children born prematurely and/or who have health conditions. In such clinics, a psychologist often administers all three components of the Bayley at set intervals and then refers to a physician, physical therapist, or speech/language pathologist for additional assessment or consultation for specific developmental concerns or for medically complicated children and atypical performance profiles. The Bayley has been used extensively in multiple educational, early intervention, and medical studies with a range of clinical populations, including premature infants and children with Down syndrome, cerebral palsy, language impairment, and/or suspected autism spectrum disorder. The Bayley-III has strong reliability and validity with extensive studies on validity with previous versions and standardized measures of language, adaptive behavior, and motor skills. The items are based on theory. The format is useful for multidisciplinary teams. Hand scoring is relatively quick and straightforward, as is determining ceiling or stopping points. Tasks are interactive and include a variety of materials to engage young children. The items are intended to be administered as fun and playful activities. Unlike the developmental screening and surveillance tools typically used in pediatric practices, which are not diagnostic and identify children only as "at risk," the Bayley-III can be used as part of a diagnostic assessment for developmental delay. The main limitation of the Bayley-III is that it is time intensive to learn. It requires both standard verbal instructions and specific steps to administer items; some items require timing or depend on performance on earlier items. Caregivers or parents may interfere and unintentionally spoil an item by prompting or guiding a child. Consistent with other measures, scores in infancy are not good predictors of later cognitive functioning unless very delayed. Scoring criteria for the Bayley sometimes make it difficult to determine whether skills are still emerging or have been mastered. Scoring might also be complicated when a child refuses an item or is not motivated to perform an activity. In these situations, the examiner might need to drop back to administer several additional items extending the time to complete the test.

The Developmental Indicators for the Assessment of Learning™, Fourth Edition (DIAL™-4 Mardell & Goldenberg, 2011)

Description/Background. The DIAL-4 is an individually administered screening test to identify children in need of interventions or further diagnostic assessment. The targeted age range of examinees for the DIAL-4 is 2–6 years through 5–11 years. Total administration time for the DIAL-4 is between 30 and 45 min. The DIAL-4 directly measures motor, conceptual, and language skill areas. Specifically, these include: (1) Gross Motor (e.g., catching, skipping) and Fine Motor (e.g., building with blocks, cutting, copying shapes) items, (2) Expressive (e.g., naming) and Receptive items (identifying objects) and (3) Concepts (e.g., naming or identifying colors, rote counting, sorting shapes). There are 21 subtests that comprise the three scales. There are two age ranges for items (i.e., 2 years 6 months–3 years 11 months and 4 years–5 years, 11 months). The DIAL-4 includes a variety of age-appropriate manipulatives and tasks for young children. It includes a total standard score with an accompanying percentile rank; standard scores and percentile ranks are also provided for the Motor, Concepts, and Language domains. Scores falling at or below the 16th percentile are considered to be indicative of a potential delay. In terms of procedures, the DIAL-4 involves direct assessment with an operator's handbook and bag of test materials for each domain/area. The handbooks include exact wording that an administrator should use in bold red type; instructions for when additional prompting can be used are also specified. An administrator records scores on record forms and takes a child's final response if more than one response is given for an item. Self-help Development, including personal care skills, and Social Development, (e.g., rule compliance, self-control, and empathy) can be assessed through caregiver report.

Applications, Strengths, and Limitations. The DIAL-4 is designed for use in preschools and kindergartens as well as early childhood education programs such as Head Start. According to the publishers, the DIAL-4 is an individually administered global screener for assessing large groups of children quickly and efficiently. Training for the DIAL-4 recommends setting up a room with a registration area, play table, and three separate tables for each of the direct assessment areas. There is a brief version of the DIAL (i.e., the Speed DIAL) that is advertised as appropriate for "quick screening in smaller settings such as departments of public health, pediatric offices, health fairs, homes, and classrooms." Strengths of the most updated version of the DIAL (DIAL-4) include new norms, a lowered floor of items (from 3 years to 2 years 6 months), additional items that are related to academic success, and improvements in the handbooks and record form for easier administration and scoring, including reformatting and simplified instructions and scoring rules. There is also a corresponding teacher questionnaire to obtain additional information about the child's functioning. The main limitation of the DIAL-4 is that it is not a diagnostic test or intelligence test. It should be applied as a screening instrument to identify if a child has a potential developmental delay.

Battelle Developmental Inventory, Second Edition (BDI-2; Newborg, 2005)

Description/Background. The BDI-2 is a measure used to screen and evaluate early childhood developmental milestones. It is a standardized assessment of a child's development that can be used from birth through age 7 years 11 months. According to the developer's manual, the four primary purposes of the instrument include: (a) assessing typically developing young children, including screening for school readiness; (b) assessing or identifying developmental delay or disability; (c) planning instruction and intervention; and (d) evaluating early childhood programs. In addition, the BDI was designed to align with Head Start and OSEP early childhood outcomes and many preschool curriculums. The BDI was designed to be a comprehensive test of development across five domains- Motor, Adaptive, Cognitive, Personal/Social, and Communication and is both norm-referenced and criterion-referenced. Domains can be administered separately. The BDI-2 (2005) is comprised of 450 items and involves multiple administration methods (e.g., structured play activities with scripted formats; observation of activities in natural environments; and interviews with parents/caregivers and teachers). Start points for items are determined by child age or estimated ability level. Data can be documented with a mobile data solution system. There is also a screening version, the BDI-2 ST that includes 100 total items, with 10 levels by age range. Scores for the BDI-2 include a total and domain scores; these can be provided as standard scores, percentile ranks, age equivalents, z scores, and T scores. The BDI-2 also offers change sensitive scores.

Applications, Strengths, and Limitations. The BDI-2 has been used as the uniform tool for collecting child outcome indicators across several states including Florida, Mississippi, New Jersey, and South Dakota (Elbaum, Gattamorta, & Penfield, 2010). While the BDI-2 may be used to describe developmental delay or typical development, it was not intended as an instrument to diagnose specific disabilities. The BDI-2 ST has also been found to have acceptable sensitivity, specificity, and accuracy in classifying developmental delay when compared to the complete BDI-2 (Elbaum et al., 2010). One of the strengths of the BDI-2 is its strong psychometric characteristics. It uses norms established by a standardization sample that had the same distribution of ethnicity reported in the US Census and was developed to be culturally sensitive and include accommodations for children with diverse disabilities (Elbaum et al., 2010). In fact, the BDI-2 meets or exceeds traditional standards for reliability at the domain and full test composite levels. The developers provide data on the sensitivity, specificity, and classification accuracy for different clinical samples for the BDI-2 and BDI-2 ST (Newborg, 2005). Administration of the BDI-2 does not require extensive training, although an examiner should have familiarity with child development, thorough understanding of the BDI-2, and adequate experience working with young children (Mazer et al., 2012). One limitation of the BDI-2 is that it was not normed for non-native English speakers and still needs to be validated with a larger, more diverse population of

children. It does have a Spanish language version. As of the date of this writing, norms for the BDI-2 are over ten years old and, thus, require updating. The BDI had problematic item gradients for children birth through 23 months, and the sample of items in the original test was too limited to inform intervention planning for the youngest children (Bradley-Johnson, 2001). The multiple administrative formats of the BDI can be problematic from a standardization perspective, but are regarded as a strength with respect to flexibility (Berls & McEwen, 1999).

The Differential Ability Scales: Second Edition (DAS-II, Elliott, 2007)

Description/Background. The DAS-II is a widely used measure used to evaluate cognitive development in preschool-age children. It was "developed to emphasize specific individual cognitive strengths and weaknesses, as well as general intelligence" (Keith, Low, Reynolds, Patel, & Ridley, 2010, p. 676). The DAS was originally designed from an eclectic theoretical orientation, although research has demonstrated that its factor structure is generally consistent with the CHC theory of intelligence (Keith et al., 2010; Lichtenberger, 2005). Practitioners are currently advised to interpret results for children aged 4 years and older applying CHC theory using the Verbal, Nonverbal, and Spatial clusters (Keith et al., 2010). The DAS can be used with children and youth ages 2 years 6 months through 17 years 11 months. Subtests are grouped into the Early Years and School-Age cognitive batteries with a few subtests that are common to both batteries. The Early Years core battery includes verbal, nonverbal, and spatial reasoning subtests appropriate for ages 2:6 through 6:11. This battery is further divided into two levels: one for children ages 2–6 through 3–5 and the other for children ages 3–6 through 6–11. Younger children are administered four core subtests to obtain a general ability composite score (GCA), while children ages 3–6 through 6–11 take six core subtests to acquire a GCA. The GCA is considered the general ability of a child to perform complex mental processing and is comprised of the following three domains: the Verbal Cluster, which measures acquired verbal concepts and knowledge, the Nonverbal Cluster, which represents complex nonverbal mental processing abilities, and the Spatial Cluster, which is a measure of complex visual-spatial processing. In addition to providing a GCA, the DAS-II yields standard scores for these clusters.

Applications, Strengths, and Limitations. The DAS–II is a useful tool for providing a profile analysis of children's cognitive strengths and weaknesses and yields reliable subtest and cluster scores (Reddy, Braunstein, & Dumont, 2008). One of the main advantages of the DAS-II is that it enables clinicians to conduct complete comparisons of test performance across time. Since both the Early Years and School Years batteries were standardized with children ages 5–0 through 8–11 and have overlapping norms for this age range, examiners can administer subtests that fit with child ability level. Scores for the DAS-II include age-based standard scores, percentile

ranks, age equivalents, and T scores for subtests. The DAS-II has a lower basal and higher ceiling range compared to the original DAS, which allows for standardized scores for children who may demonstrate very delayed development or advanced skills for their chronological age The DAS-II has supplementary diagnostic subtests that allow clinicians to obtain additional information about the child's skills in other areas (e.g., working memory and processing speed) (www.pearsonclinical.com). Another main strength of the DAS-II is that it includes clinical samples for a variety of disabilities and has been applied and studied with diverse groups of children, including those with learning disorders, language disorders, and ADHD. The psychometric properties of the instrument are considered sound, including good internal reliability and construct validity. The DAS-II has effectively differentiated children with learning disabilities and preschoolers at risk for LD from typically developing control groups (Reddy et al., 2008). Another advantage of the DAS-II is that it includes a Spanish translation and American Sign Language translation of the nonverbal subtest administration instructions. The main limitations of the DAS-II involve administration and scoring. Since the measure includes a range of manipulatives, complex organization of materials, various standardized directions, and required verbatim wording and queries, it is challenging to learn. In addition, the scoring and conversion system is more difficult and complex than that of other cognitive measures.

The Kaufman Assessment Battery for Children, Second Edition (KABC-II; Kaufman & Kaufman, 2004)

Description/Background. The KABC was designed as a measure of cognitive abilities and processing skills in children and adolescents. It was designed to be used with children and youth aged three through 18 years 11 months. The KABC-II is organized into three levels (i.e., for age 3, age 4–6 years, age 7–18 years). The basis of the KABC included two neuro-psychological theories characterized by a dual-processing approach: Sperry's 1968 cerebral specialization approach and the Luria-Das successive simultaneous processing dichotomy (Lichtenberger, 2005). The KABC-II test construction allows examiners to decide between two theoretical models: the CHC model and the Luria model. Before administering the KABC-II, the psychologist should decide which theoretical model to apply as "the theoretical model will influence the administration of subtests; different subtests are deemed "core" or "supplementary" depending on the model chosen, and the scoring of scales is also different between the CHC and Luria models." (Cornish et al., 2012, p. 50). For young children, the Age 3 battery yields one scale, which represents a global measure of ability using either five subtests (Mental Processing Index-MPI) or seven subtests (Fluid-Crystallized Index-FCI). The Age 4–6 battery organizes subtests into three scales (Luria model) or four scales (CHC model) (Lichtenberger, 2005). The four scales for the CHC model include Short Term Memory (Gsm), Visual Processing (Gv), Long-Term Storage

and Retrieval (Glr), and Crystallized Ability (Gc). According to Kaufman and Kaufman (2004), the CHC model is recommended for children with intellectual disabilities or disabilities in reading, written expression, or mathematics and for children with emotional, behavioral, or attentional problems. According to Cornish et al., the Luria model is recommended for children with autism and language disorders. The KABC-II generates a global score and subscale scores. Scores are provided as age-based standard scores, age equivalents, and percentile ranks.

Applications, Strengths, and Limitations. Test items of the KABC were designed to have little cultural content in order to provide a more fair assessment for children of diverse backgrounds. The measure has been translated and standardized in several different countries. According to several researchers (e.g., Dale et al., 2011; Kaufman & Lichtenberger, 2002; Kaufman, Lichtenberger, Fletcher-Janzen, & Kaufman, 2005), the KABC-II is more likely than other tests to show comparable performance between samples of African-American and White children, including preschoolers. Dale et al. (2011) praise the emphasis that KABC-II developers placed on diversity as part of the standardization process. Overall, the representative nature of the KABC-II's standardization sample and its foundation in CHC theory are considered to be strengths of this measure. The KABC-II also provides a Spanish language version. With respect to limitations, researchers (e.g., Dale et al.) have noted that the KABC-II is best interpreted at the composite level with an overall score that can provide a general view of performance. Analysis of strengths and weaknesses through subtest scores is not considered as valuable because these subtests were developed as a complementary aspect of the theoretical constructs represented at the composite level (Dale et al.). Finally, due to the age of the norms for the KABC-II (i.e., over ten years old), it requires updating in this area.

Wechsler Preschool and Primary Scale of Intelligence-Fourth Edition (WPPSI-IV; Wechsler, 2012)

Description/Background. The WPPSI was first published in 1967, with one of its primary applications as a method to evaluate Head Start programs. Since its original version, the WPPSI has been revised three times- in 1989, 2002, and 2012. Initial versions of the test reflect Wechsler's view that intelligence "is a global entity that is multidimensional and multifaceted, with each ability being equally important" (Gyurke, Marmor, & Melrose, 2004, p. 57).

The WPPSI-IV is an individually administered measure designed to assess overall cognitive functioning in children aged 2 years 6 months through 7 years 7 months. According to Pearson, publisher of the WPPSI-IV, primary purposes of the test include: (a) identifying and qualifying children with cognitive disabilities, developmental delays or learning disabilities for special services; (b) identifying cognitive problems and recommending interventions; and (c) determining the impact of TBI on cognitive functioning. Tasks administered are determined by the child's

age. For the younger age subset (aged 2–6 through 3–11), the FSIQ is derived from the Verbal Comprehension, Visual-Spatial, and Working Memory Indices. For the older age subset (aged 4–0 through 7–7), the FSIQ is also comprised of these three Indices along with the Fluid Reasoning and Processing Speed Indices. The FSIQ is considered the most representative estimate of global intellectual functioning. Performance of cognitive functioning is compared to same age peers. Thus, an average FSIQ is 100, at the 50th percentile. Standard scores on composite measures are based on the mean of 100 and a SD of 15, with average scores ranging from 90 to 109. A score at or below 70 is considered to represent a significant delay.

Applications, Strengths, and Limitations. Overall, the WPPSI is widely used and regarded as a measure of young children's intelligence. It has been applied in both research and clinical practice, and is frequently employed as a means to qualify young children for early intervention or special education services. It has been used with children with diverse disability diagnoses. The WPPSI-IV includes several revisions from the WPSSI-III. According to Pearson, the WPPSI-IV psychometric properties are improved with increased accuracy of measurement for extremes of ability. The WPPSI-IV has better coverage of the construct of Working Memory as compared to its predecessor, and its Processing Speed subtests are revised so that they are less reliant on a young child's fine motor skills. In addition, the subtests are intended to be more "game-like" for young children. There are improvements to administration procedures over previous editions, including more clear-cut instructions for examiners and examinees. According to Thorndike's review (2014), the WPPSI-IV has many good psychometric properties. Thorndike highlights the interpretative section of the test manual as another strength since it provides clear, step-by-step guidelines for interpreting and reporting scores. Canivez (2014) also reviewed the WPPSI-IV and cited many positive characteristics of the revision, including an excellent standardization sample and good evidence of score reliability. One of the limitations of the WPPSI-IV described by Canivez is that some key information is missing from its technical manual such as exploratory factor analyses, which should have been conducted due to the rather significant revisions in subtests from the previous version of the WPPSI. Secondly, Canivez notes that the interpretation system of the WPPSI-IV, as well as similar instruments, which relies on analysis of subtest strengths and weaknesses and profile analyses, is lacking in empirical support and, thus, detracts from the clinical utility of the instrument.

Summary of Practice Guidelines for Cognitive Assessment of Young Children

- Accurate developmental and functional assessment of infants and young children is an inherently complex process that requires considerable knowledge, skill and experience. There are many unique aspects of assessing younger

children including lower attention span, higher activity levels, as well as the potential for stranger anxiety.

- Clinicians need to examine data about child cognitive abilities relative to functioning across other developmental domains and within different contexts. More specifically, scores on standardized tests and performance across different test components can provide valuable information about aptitude, relative strengths and weaknesses, and behavior, but must always be considered in light of functioning in other developmental domains (e.g., language, social-emotional, motor) in order to develop diagnostic impressions.
- The responsibility of clinicians extends beyond learning a standard assessment protocol and reliable administration. It also includes understanding of major theories and updated research about cognition and development that have been used to inform assessment methods and the design of specific instruments.
- Cognitive assessment should be grounded within an ecological framework that considers the wide range of contextual factors that influence children's functioning (e.g., current and past health status, relationships with caregivers, cultural and linguistic background, among others). Use of such a framework supports meaningful and accurate interpretation of results for diagnostic decisions and treatment planning consistent with recommended practice in early childhood assessment.
- Performance on standardized measures of cognitive abilities should be regarded as a picture of current functioning and used to develop current early intervention plans and not long-term prognosis about intelligence.

Case Study

Peter is a 31 month male who was referred to a developmental assessment clinic for concerns about social interaction and language delay. Background information indicates that Peter was born at 34 weeks gestation and spent two weeks in the NICU due to respiratory distress and difficulties with feeding. According to Peter's parents and medical records, these difficulties resolved by the time he was one year old. However, as a baby and toddler, Peter experienced repeated episodes of otitis media and took multiple courses of antibiotics. At 26 months, Peter underwent surgery for placement of PE tubes (tympanostomy tube) and had his adenoids removed. Peter's parents reported that his motor milestones were attained on time with respect to sitting up, walking, running, and using his hands to manipulate toys and utensils. Peter has demonstrated some delays in language development. He began using single words at 18 months of age. Presently, he uses two-word combinations and these are limited to toys and people that are most familiar to him. Peter does not attend daycare or preschool. He has some contact with other children through play groups. According to Peter's mother, he tends to play by himself during these groups but shows interest when other kids bring over toys that he likes.

For Peter's assessment, he was administered the Bayley-III and received the following scores:

Bayley-III scale	Composite score	Percentile rank	Description
Cognitive	85	16th	Low average
Language	73	4th	Borderline/low
Motor	92	30th	Average

Peter primarily displayed neutral affect throughout the assessment. While he appeared to be generally content, he did not reciprocate social smiles or spontaneously seek interactions with the evaluator or his mother. Eye contact was minimal. Peter's response to his own name was variable.

Discussion Questions

1. Based upon the data that has been gathered thus far, what working hypotheses do you have regarding Peter's functioning and areas of need?
2. How have the results from the Bayley-III contributed to your understanding of Peter's functioning?
3. What other information would you like to acquire to better understand Peter's functioning? What other instruments/measures might be beneficial in measuring Peter's skills and development?

References

American Psychological Association. (2012). Guidelines for assessment of and intervention with persons with disabilities. *American Psychologist, 67*(1), 43–62.

Bagnato, S. (1992). The case against intelligence testing in early intervention. *Topics in Early Childhood Special Education, 12*, 1–20.

Bagnato, S. J., & Neisworth, J. J. (1994). A national study of the social and treatment "invalidity" of intelligence testing for early intervention. *School Psychology Quarterly, 9*(2), 81–102.

Bayley, N. (2006). *Bayley Scales of Infant and Toddler Development*, (3rd ed.). Administration manual. San Antonio, TX: Harcourt Assessment.

Berls, A. T., & McEwen, I. R. (1999). Battelle Developmental Inventory. *Physical Therapy, 79*, 776–783.

Black, M. M., & Matula, K. (1999). *Essentials of Bayley Scales of Infant Development II assessment.* New York City: Wiley Publishing.

Black, M. M., & Powell, D. (2004). *Commonly used assessments and screening instruments*. Tampa, FL: University of South Florida. Retrieved from http://floridahippy.fmhi.usf.edu/grant/Instruments_FinalRevision_206.doc

Bracken, B. A. (1987). Limitations of preschool instrumentations and standards for minimal levels of technical adequacy. *Journal of Psychoeducational Assessment*, *5*, 313–326.

Bracken, B. A., Keith, L. K., & Walker, K. C. (1994). Assessment of preschool behavior and social-emotional functioning: A review of thirteen third-party instruments. *Assessment in Rehabilitation and Exceptionality, 4*, 331–346.

Bradley-Johnson, S. (2001). Cognitive assessment for the youngest children: A critical review of tests. *Journal of Psychoeducational Assessment, 19*, 19–44.

Campbell, G. M. (2005). Diagnostic assessment of Asperger's disorder: A review of five third-party rating scales. *Journal of Autism and Developmental Disorders, 35*(1), 25–35.

Canivez, G. L. (2014). Test review of Wechsler Preschool and Primary Scale of Intelligence—Fourth edition. In J. F. Carlson, K. F. Geisinger, & J. L. Jonson (Eds.), *The nineteenth mental measurements yearbook*. Retrieved from http://marketplace.unl.edu/buros/

Carroll, J. B. (1993). *Human cognitive abilities: A survey of factor analytic studies*. New York: Cambridge University Press.

Cornish, K. M., Sornberger, M. J., Dupasquier, M., & Wilding, J. (2012). Global mental functions: Intellectual (B117). In A. Majnemer (Ed.), *Measures for children with developmental disabilities: An ICF-CY approach* (pp. 49–59). London, UK: MacKeith Press.

Dale, B. A., McIntosh, D. E., Rothlisberg, B. A., Ward, K. E., & Bradley, M. H. (2011). Profile analysis of the Kaufman Assessment Battery for Children, Second Edition, with African American and Caucasian preschool children. *Psychology in the Schools, 48*(5), 476–487.

Elbaum, B., Gattamorta, K. A., & Penfield, R. D. (2010). Evaluation of the Battelle Developmental Inventory, 2nd edition, screening test for use in states' child outcomes measurement systems under the Individuals with Disabilities Education Act. *Journal of Early Intervention, 32*(4), 255–273.

Elliott, C. D. (2007). *Differential Ability Scales* (2nd ed.). San Antonio, TX: Harcourt Assessment.

Flanagan, D. P., & Alfonso, A. C. (1995). A critical review of the technical characteristics of new and recently revised intelligence tests for preschool children. *Journal of Psychoeducational Assessment, 13*, 66–90.

Grigorenko, E. L., & Sternberg, R. J. (1999). Assessing cognitive development in early childhood. Great Britain: World Bank. Retrieved from http://files.eric.ed.gov/fulltext/ED453950.pdf

Gyurke, J. S., Marmor, D. S., & Melrose, S. E. (2004). Wechsler Preschool and Primary Scale of Intelligence—Revised. In B. A. Bracken (Ed.), *The psychoeducational assessment of preschool children*. Mahwah, NJ: Lawrence Erlbaum Associates.

Hodapp, R. M. (1998). *Development and disabilities: Intellectual, sensory and motor impairments*. Cambridge, UK: Cambridge University Press.

Horn, J. L., & Cattell, R. B. (1966). Refinement and test of the theory of fluid and crystallized intelligence. *Journal of Educational Psychology, 57*, 253–270.

Kaufman, A. S., & Kaufman, N. L. (2004). *Manual for Kaufman Assessment Battery for Children—Second edition (KABC-II)—Comprehensive form*. Circle Pines, MN: American Guidance Service.

Kaufman, A. S., & Lichenberger, E. O. (2002). *Assessing adolescent and adult achievement* (2nd ed.). Boston: Allyn & Bacon.

Kaufman, A. S., Lichtenberger, E. O., Fletcher-Janzen, E., & Kaufman, N. (2005). *Essentials of KABC-II assessment*. Hoboken, NJ: Wiley.

Keith, T. Z., Low, J. A., Reynolds, M. R., Patel, P. G., & Ridley, K. P. (2010). Higher-order factor structure of the Differential Ability Scales-II: Consistency across ages 4 to 17. *Psychology in the Schools, 47*, 676–697.

Lichtenberger, E. O. (2005). General measures of cognition for the preschool child. *Mental Retardation and Developmental Disabilities, 11*, 197–208.

Macow, G. (2008). *Bayley Scales of Infant and Toddler Development* (3rd ed.). Powerpoint slides. Retrieved November 15, 2015 from http://images.pearsonclinical.com/images/PDF/Bayley-III_Webinar.pdf

Mardell, C., & Goldenberg, D. S. (2011). *DIAL-4 training packet Co*. Bloomington, IL: NCS Pearson, Inc.

Mazer, B., Majnemer, A., Dahan-Oliel, N., & Sebestyen, I. (2012). Global developmental assessments. In A. Majnemer (Ed.), *Measures for children with developmental disabilities—An ICF-CY approach* (pp. 249–264). West Sussex, UK: MacKeith Press.

McDermott, P. A., Fantuzzo, J. W., Waterman, C., Angelo, L. E., Warley, H. P., Gadsden, V. L., et al. (2009). Measuring preschool cognitive growth while it's still happening: The learning express. *Journal of School Psychology, 47*, 337–366.

Meece, J. L. (2002). *Child and adolescent development for educators* (2nd ed.). New York, NY: McGraw-Hill.

Newborg, J. (2005). *Battelle Developmental Inventory* (2nd ed.). Itasca, IL: Riverside Publishing.

Piaget, J., & Inhelder, B. (1969). *The psychology of the child*. New York, NY: Basic Books.

Pinon, M. (2010). Theoretical background and structure of the Bayley Scales of Infant and Toddler Development. In L. G. Weiss, T. Oakland, & G. P. Aylward (Eds.), *Bayley III clinical use and interpretation* (3rd ed.). London: Elsevier.

Puckett, M. B., & Black, J. K. (2005). *The young child: Development from pre-birth through age eight* (4th ed.). Upper Saddle River, NJ: Prentice-Hall.

Reddy, L. A., Braunstein, D. J., & Dumont, R. (2008). Use of the Differential Ability Scales for children with attention-deficit/hyperactivity disorder. *School Psychology Quarterly, 23*(1), 139–148.

Shepard, L., Kagan, S. L., & Wurtz, E. (Eds.). (1998). Principles and recommendations for early childhood assessments. *The National Education Goals Panel*. Retrieved from http://govinfo.library.unt.edu/negp/reports/prinrec.pdf

Shultz, J., & Chase-Carmichael, C. (2001). Assessment of children with chronic illness. In R. Simeonsson & S. Rosenthal (Eds.), *Psychological and developmental assessment of special children* (p. 292).

Simeonsson, R. J., & Rosenthal, S. L. (Eds.). (2001). *Psychological and developmental assessment: Children with disabilities and chronic conditions*. New York, NY: Guilford Press.

Smith, T., Pretzel, R., & Landry, K. (2001). Infant assessment. In R. Simeonsson & S. Rosenthal (Eds.), *Psychological and developmental assessment of special children* (pp. 176–205).

Tusing, M. E., & Ford, L. (2004). Examining preschool cognitive abilities using a CHC framework. *International Journal of Testing, 4*(2), 91–114.

Wechsler, D. (2012). *Wechsler Preschool and Primary Scale of Intelligence* (4th ed.). San Antonio, TX: Pearson.

Weiss, L. G., Oakland, T., & Aylward, G. P. (2010). *Bayley III: Clinical use and interpretation*. Cambridge, UK: Academic Press-Elsevier.

Chapter 3
Defining and Measuring Early Academic Development to Promote Student Outcomes

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Abstract The purpose of this chapter is to discuss two domains of early learning that are central to school readiness from an early academic perspective. Specifically, this chapter focuses on early literacy and numeracy development. Both of these domains have a research base that supports their connection to later learning and achievement (e.g., Clements & Sarama, 2009; Snow et al., 1998). In addition, skills in these areas can be targeted and improved through strategic and intentional instruction (e.g., Clements & Sarama, 2008; Neumann & Dickinson, 2010). This chapter discusses specific skills that comprise the domains of early literacy and math. Finally, assessment tools are available in these domains that can be used in a problem-solving, data-based decision-making framework to promote student outcomes.

Keywords Early literacy development · Early numeracy development · Academic readiness · Get Ready to Read-Revised · Phonological Awareness Literacy Screening for Preschool · Preschool Early Literacy Indicators · IGDIs-EL · IGDIs-EN · STAR Early Literacy · Early Arithmetic and Reading Learning Indicators

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A. Garro (ed.), *Early Childhood Assessment in School and Clinical Child Psychology*, DOI 10.1007/978-1-4939-6349-2_3

Introduction

There are various perspectives of school readiness as a construct, methods of assessing it, and how information from such assessments should be used (Graue, 2006). Some research focuses on dimensions of social and emotional competence, such as peer interactions, and their contributions to school success (e.g., Bultosky-Shearer, Bell, Romero, & Carter, 2012; Fantuzzo, Bulotsky-Shearer, McDermott, & McWayne, 2007). Still other research examines the contributions of self-regulation and executive functioning skills (Blair & Razza, 2007; McClelland et al., 2007). Finally, research also has focused on early academic development in key domains such as early literacy and mathematics as precursors to later achievement (Duncan et al., 2007; La Paro & Pianta, 2000). Although there is general agreement that development in all domains is important, the purpose of this chapter is to discuss two domains of early learning that are central to school readiness from an early academic perspective. Specifically, this chapter focuses on early literacy and numeracy development. Both of these domains have a research base that supports their connection to later learning and achievement (e.g., Clements & Sarama, 2009; Snow, Burns, & Griffin, 1998) and there is evidence to suggest the two domains are related cognitively in some ways (e.g., McClelland et al., 2007; Purpura, Hume, Sims, & Lonigan, 2011; Sarama, Lange, Clements, & Wolfe, 2011). Further, skills in these areas can be targeted and improved through strategic and intentional instruction (e.g., Clements & Sarama, 2008; Starkey, Klein, & Wakeley, 2004; Neumann & Dickinson, 2010). Finally, assessment tools are available in these domains that can be used in a problem-solving, data-based decision-making framework to promote student outcomes.

Literature Review

Assessment Tools

To most effectively inform instruction and intervention efforts, assessment tools are needed that provide critical information about the skills and knowledge children bring to school as well as their growth over time. The use of assessment to guide instructional decision-making in early childhood has been recognized as a necessary component of high-quality early education programs (National Association for the Education of Young Children and National Association of Early Childhood Specialists in State Departments of Education, 2003), and ongoing assessment has been a long-standing practice in early childhood special education (McConnell, 2000). Further, the National Association of School Psychologists (NASP) advocates the use of assessment to enhance service delivery and promote quality early education through identification of children who may benefit from additional support, monitoring of children's progress, and data-based instructional decision-making (National Association of School Psychologists, 2008).

There are a number of available assessments to measure children's skill and knowledge in early literacy and numeracy; however, this chapter primarily focuses on assessments that can be used within a problem-solving, data-based decision-making model in early education. Specifically, we review assessments that facilitate screening and progress monitoring, given their utility in developing instructional support (Greenwood et al., 2011). We begin with a general discussion of considerations in the assessment of early academic development. We then review key concepts in each of the early academic domains followed by a discussion of available assessment tools to guide decision-making. Finally, a case study is presented to illustrate the use of early academic assessment data within a problem-solving, decision-making model to promote acquisition of essential skills in early education.

Literature Review

Considerations in Assessment

Development during early childhood can be rapid and uneven across domains, and children's strengths and areas of need may vary over short periods of time (Brassard & Boehm, 2007). In-depth knowledge of child development, including developmental trajectories in specific domains, such as early literacy and numeracy, is important to viewing child performance in a dynamic manner, with growth over time as a central focus. It is also essential to be aware of variability in development that might exist due to cultural, linguistic, or intra-individual characteristics of a child (Brassard & Boehm), and the context in which the child is operating (e.g., home versus school). Variability in a child's performance might be evident over time or even in day-to-day situations. For example, a child might differ in her performance in counting with one-to-one correspondence from one situation to the next. Variables such as comfort level, attention span, persistence, interest, motivation, and understanding of directions can influence performance as can other variables such as task demand, assessment materials, context of assessment, and approach of the assessor.

Given the multiple variables that might contribute to children's initial knowledge and to their growth over time (Hindman, Skibbe, Miller, & Zimmerman, 2010), assessments should use a multi-method (e.g., direct skills assessment, observation, and interview), multi-informant (e.g., parents, teachers and other staff, and child), and multi-trait approach (e.g., early numeracy and early literacy as operationalized "early academic" concepts). In addition, data should be collected on multiple occasions to gain a better sense of the child's developmental profile and to ensure more reliable, valid, and useful results. Brassard and Boehm (2007) pose a set of questions that can be used to guide the assessment process: (a) What is the purpose of the assessment? (b) How will the results be used? (c) What sources of information will be used? (d) How extensive/comprehensive will the assessment be, and (e) What is the technical adequacy of the instruments to be used? Extensive guidelines for early childhood assessment are also provided by the National Research Council (NRC, 2008) and echo some of the same emphases described above.

To increase the utility of assessment data, teachers and parents must be supported in understanding an assessment tool, the data generated, and the implications for instruction. Graphic display of data, a potential tool for communicating with various stakeholders, might present challenges for individuals who have had little experience in viewing tables, graphs, or figures (Hojnoski et al., 2009). Consequently, practitioners should consider using multiple depictions in presenting assessment data and carefully explaining all data presented. Additionally, the NRC (2008) recommends that all reporting of results includes material that will assist others with interpreting, such as description of the purpose of the assessment, the skills and knowledge assessed, sample items, and a description of performance levels. Finally, Strand and Cerna (2010) describe a data dissemination strategy to support the use of child performance data to improve teacher instruction and child outcomes.

As measurement in early childhood focuses increasingly on data-based decision-making, there is a need for tools for universal screening and progress monitoring (Snyder, Wixson, Talapatra, & Roach, 2008). Such tools promote formative assessment practices and have the potential to inform instruction for both individual and groups of children. Assessment for universal screening and progress monitoring are essential to response to intervention models in which assessment is used to identify children in need of additional support in specific domains and to monitor children's response to instruction or interventions.

There are a number of direct skill assessments in early literacy and numeracy that can be used in screening and progress monitoring in early education. Some tools are available commercially and others through their developers. They vary in format (e.g., computer versus paper) and theoretical underpinnings (e.g., curriculum-based measurement, developmental trajectory, adaptive assessment), but, in each domain, the tools sample similar skills and knowledge. In general, these tools demonstrate adequate psychometric properties of reliability and validity. They are intended to be efficient and easy to use, promoting their application with all children in screening efforts and increasing their use in a multi-method assessment approach for individual children. Moreover, they are intended to differentiate between children demonstrating adequate performance and those who might benefit from additional instruction, a critical component of assessment in a decision-making framework (Greenwood et al., 2011). Furthermore, they are designed to be sensitive to growth over short periods of time, facilitating more frequent assessment to more effectively inform instruction to meet children's changing needs. Finally, they generate graphic depictions of data that can be shared with various stakeholders in the early education process to evaluate child progress toward important developmental outcomes.

Early Literacy Development

In 2008, the National Early Literacy Panel (NELP) produced a seminal report synthesizing published research on the skills and abilities of young children birth to

age five that predict later literacy outcomes (e.g., reading, writing, spelling). Their findings were vast, but five early literacy variables specifically demonstrated medium to large predictive and enduring relationships with measures of reading over time. These five included: (1) *alphabet knowledge*; (2) *phonological awareness* (3) *rapid automatic naming* of letters, digits, or colors; (4) *writing* or writing name; and (5) *phonological memory,* or listening comprehension. Of these, phonological awareness and alphabet/print knowledge were found to be most robust in predicting later literacy achievement. The NELP report indicated that five additional variables were moderately related to early reading in kindergarten and first grade, but did not have lasting predictive relationships with later reading. These five included *concepts about print, print knowledge, reading readiness*, *oral language, and visual processing*. Of these variables, the first three are largely combinations of the primary five predictors of reading, and the latter two are most related to broader cognitive development. In sum, during the preschool years, it appears essential that children learn letter-sound correspondence and to distinguish between spoken sounds in the English language, demonstrating the ability to both blend and orally segment portions of words at three levels of sophistication—word level, syllable level, and phoneme level.

To date, Whitehurst and Lonigan (1998) articulated one of the clearest theoretical models of the relationship between language and early literacy. They described a model explaining that early (emergent) literacy development can be conceptualized in two ways: (a) a component of actual and inferential knowledge that supports the eventual development of reading comprehension skills in early elementary years (termed "outside-in" skills) and (b) a component of letter-sound awareness and correspondence that supports the eventual development of decoding skills in early elementary years (termed "inside-out" skills). These two components are comprised of essential early literacy skills and are bound by a third, equally important component—oral language—particularly vocabulary development. Although other researchers offer a different perspective of the relationships among oral language, phonological awareness, and early literacy, the general conclusion is that they *are* related to one another in complex ways (e.g., Dickinson, McCabe, Anastasopouos, Peisner-Feinberg, & Poe, 2003; NICHD Early Child Care Research Network, 2005).

Oral language. Research has affirmed that the number of words a child hears and speaks by age three produces differential outcomes based on family factors (Hart & Risley, 1995). Specifically, children at age three from low-income families hear 10 million words and speak 500 words, on average; children at age three from working-class families hear 20 million words and speak 700 words, on average; and children from professional families at age three hear 35 million words and speak 1100 words, on average (Hart & Risley, 1995, 2003). These experiences directly affect children's expressive and receptive language skills, both of which develop concomitantly and are necessary for using language competently. Moreover, group differences persist over time and are predictive of academic achievement in elementary school (Walker, Greenwood, Hart, & Carta, 1994).

Alphabet knowledge. Alphabet knowledge is knowledge of letter names and corresponding letter sounds, the latter of which is a gateway skill to decoding and,

ultimately, reading fluency (Adams, 1990; Ehri, 1998). To be on track for later reading, children need to enter kindergarten knowing about 10 letter-sound combinations (Fuchs & Fuchs, 2004). Furthermore, because English is an irregular language in that the same symbol can have more than one sound (e.g., the symbol "a" can be sounded as a short or long vowel; phonemes can be represented by more than one grapheme, "ay, ai"), children should learn common sounds first. Instruction (or explicit exposure) should begin using continuous-consonant sounds (e.g., s, v, z, f, m, n) before adding stop-consonant sounds, which are consonants where the vocal tract is blocked, stopping airflow (e.g., d, k, p, t), and, since both sounds and visuals are used, stop-consonants should be taught first at end of words and last introduced in initial position (Haager, Klingner, & Vaughn, 2007). Short vowel sounds are also developmentally easier to acquire than long-vowel sounds, and, as children learn to read printed letters, short-vowel sounds require less knowledge about written English irregularities (e.g., the addition of "e" to the end of "mad" makes the vowel say its name).

Phonological awareness. Phonological awareness is the ability to detect, blend, and segment spoken language with increasing difficulty at the word, syllable, onset-rime, and phoneme level. As with letter-sound correspondence, early phonological awareness skills lead to decoding and, ultimately, to reading fluency. In time, skilled decoding requires orchestration of phonological (sound) processing and orthographic (visual word) processing (Adams, 1990). Phonological awareness has four developmental levels: word, syllable, onset-rime, and phoneme (see Adams, 1990; NELP, 2008). Children start to approximate *individual spoken words* in isolation between 12 and 18 months of age. Around age three, evidence of additional word awareness is seen through *word play* with rhyming and nonsense words and children start to identify *syllables* as they clap or march to the "beat" of speech. Once children can identify, match, and generate words, they have developed *onset/rime* awareness (onset proceeds the vowel; rime includes the vowel and any part after). Examples include detecting common onsets of words as children learn alliteration (e.g., "r" in red, rat, rod) or common rime units as children learn rhyme ("at" in bat, cat, mat). *Phoneme* awareness is most sophisticated as it includes abilities to blend and segment phonemes. Children learn to combine syllables and onset-rimes to make words (e.g., "cow-boy" as cowboy; "sp-ot" as spot; "b-e-d" as bed); manipulate (delete, add, reverse) phonemes in a word (e.g., replace the onset in a word family: bread, tread, read; plead); and count the number of syllables or sounds in a word.

Assessing Oral Language and Early Literacy

Given the strong theoretical and practical link between vocabulary and literacy and early group differences in vocabulary and literacy development based on access to resources and life experience (e.g., West, Denton, & Reaney, 2000), knowledge and application of appropriate screening and progress monitoring tools is essential. Further, the link between vocabulary at school entry and both early and later

literacy outcomes underscores the need for assessment in this area as a complement to assessment of key early literacy skills.

Get Ready to Read!—Revised. Get Ready to Read!—Revised (GRTR-R; Whitehurst & Lonigan, 2009) is a screening tool comprised of 25 visual and auditory multiple-choice questions about print and book knowledge, phonological awareness, and phonics for children from 36 to 71 months of age. The tool is available in both English and Spanish and can be administered with minimal training in 10–15 min. Scores are reported as norm-referenced standard scores (M = 100; SD = 15) and percentile ranks, and developers report the measure can be used to monitor growth and development over time. Developed for the National Center for Learning Disabilities, evidence of technical adequacy includes moderate to high inter-item correlations (r = 0.40 to 0.81) and moderate to high correlations of concurrent validity (r = 0.39 to 0.76) with the Test of Preschool Early Literacy (TOPEL; Lonigan, Wagner, Torgeson, & Rashotte, 2007; Lonigan & Wilson, 2008).

Phonological Awareness Literacy Screening for Preschool. The Phonological Awareness Literacy Screening for Preschool (PALS-PreK; Invernizzi, Sullivan, Meier, & Swank, 2007) is designed to be administered to 4-year old preschoolers in the fall of PreK to guide instruction during the year and again in the spring to evaluate progress. Children are assessed on name writing, alphabet knowledge, beginning sound awareness, print and word awareness, rhyme awareness, and nursery rhyme awareness. Items are scored and summed into developmental ranges. Evidence of technical adequacy includes high estimates of internal consistency (alpha = 0.75 to 0.93), strong inter-rater reliability (r = 0.99), and strong concurrent validity (r = 0.67) with the Test of Early Reading Ability-3 (Read, Hresko, & Hammill, 2001).

Preschool Early Literacy Indicators. From the developers of the Dynamic Indicators of Basic Early Literacy Skills (DIBELS NEXT; Good & Kaminski, 2011), The Preschool Early Literacy Indicators (PELI; Dynamic Measurement Group, 2012) is currently only available to research partners. The PELI is for children between the ages of 3 and 6 and takes about 7 min to administer. Assessed skills/areas, including comprehension, alphabet knowledge, phonemic awareness, and vocabulary/oral language, are embedded within a storybook format across multiple forms. In a small study, the PELI total score correlated with the TOPEL (r = 0.43), with Get Ready to Read! (r = 0.59), with the Clinical Evaluation of Language Fundamentals (CELF; Semel, Wiig, & Secord, 2003) (r = 0.77), and with the Peabody Picture Vocabulary Test (PPVT; Dunn & Dunn, 2007) (r = 0.62). Correlations were also investigated with the Rhyming Individual Growth and Development Indicator (IGDI; r = 0.49), Alliteration IGDI (r = 0.25), and Picture Naming IGDI (r = 0.62). According to Kaminski, Abbott, Aguayo, Latimer, and Good (2014), several studies have examined the concurrent and predictive validity of various parts of the PELI with other subtests/measures assessing early childhood literacy skills. Overall, results indicate that the skills/areas measured by the PELI, particularly Vocabulary/Oral Language, Comprehension and Phonemic Awareness show solid validity when compared with the CELF, TOPEL, IGDIs, PPVT, and DIBELS Letter-Naming Fluency. Similarly, inter-rater reliability for the PELI is also strong (r = 0.99) (Kaminski, Good, Abbott, Powell-Smith, & Wheeler, 2012).

Individual Growth and Development Indicators of Early Literacy (IGDIs-EL). The IGDIs-EL-Second Edition (2013) are collectively a suite of five measures: (a) Picture Naming, which requires the child to name familiar objects shown in pictures; (b) Rhyming, which requires the child to name or point to a pair of pictures that rhyme; (c) Sound Identification, which requires the child to indicate which letter, from a series presented on a card, generates the target sound spoken by the examiner; (d) "Which One Doesn't Belong?," an indicator of comprehension, which requires the child to look at a set of pictures and indicate which one, conceptually, does not fit with the others and (e) Alliteration, which requires the child to look at two pictures and indicate which one begins with the same sound as the target sound produced by the examiner (McConnell & Greenwood, 2013).

The first edition of the IGDIs-EL was evaluated extensively and showed moderate to strong evidence of internal consistency and concurrent and predictive validity with a range of populations (Cadigan & Missall, 2007; McConnell & Missall, 2008; Missall & McConnell, 2010). PN, in particular, demonstrated sensitivity and specificity among 4 year olds in predicting proficient first-grade oral reading (Missall, Reschly, Betts, & McConnel, 2007). For additional information regarding the IGDIs-EL, readers are directed to http://www.myigdis.com/preschool-assessments/early-literacy-assessments/.

STAR Early Literacy. Star Early Literacy (Star-EL; Renaissance Learning 2012) is a computer-adaptive test of two key domains: word knowledge and skills (including alphabetic principle, concept of word, visual discrimination, phonemic awareness, phonics, structural analysis, and vocabulary) and comprehension. Children complete up to 27 questions in 10–15 min. Results are available within 10 min and outline a child's proficient skills and where intervention might be needed. The software will produce a number of reports, as the tool is useful for screening and monitoring progress over time. STAR Early Literacy received the highest ratings as a screener available from the National Center for Response to Intervention (see http://www.rti4success.org) and among the highest ratings as a progress monitoring tool. Evidence of technical adequacy includes reliability estimates of split-half and test–retest coefficients from 0.86 to 0.92, and high levels of concurrent, predictive, and construct validity.

Early Number Sense Development

There is general consensus that development of number sense begins early in life and continues to expand during early childhood (Baroody, Lai, & Mix, 2006; Clements, Sarama, & DiBiase, 2004; Sarama & Clements, 2009). It is one of the most well researched mathematical domains and of primary importance in early development (Clements, 2004). Research indicates that there are several key skills and concepts that are related to later mathematical competence and can be developed through purposeful experiences designed to promote skill development (Jordan, Kaplan, Ramineni, & Locuniak, 2009; Wilson, Deahene, Dubois, & Fayol, 2009), and thus, are critical targets for assessment. These include subitizing, verbal

and object counting, and comparing and ordering. Finally, symbolic representation of quantity adds a complementary conceptual and cultural element to children's understanding of number.

Subitizing. Subitizing is the rapid verbal naming of the number of objects in a set without counting, known as numerosity, and it appears to be a keystone skill in early numeracy development, forming the foundation for general learning of number (Sarama & Clements, 2009). Research indicates there are two different types of subitizing—perceptual and conceptual (National Research Council, 2009). Perceptual subitizing is used with small collections of one to three in which the numerosity is recognized by abstracting the number of items in the set and matching it to a number word. Conceptual subitizing involves the ability to see patterns in a set and to decompose/compose a set into its corresponding numerosities. For example, a set of 5 objects may be composed into collections of 2 and 3 objects, or collections of 4 and 1, depending on how the collection is arranged and the pattern is abstracted. Perceptual subitizing appears to be most closely related to children's developing abilities to see units for counting and associating those units with number words, whereas conceptual subitzing is linked to addition and subtraction and the underlying constitution of number (Sarama and Clements).

Verbal and object counting. Accurate verbal and object counting that can be accomplished with little effort and applied strategically to meaningful situations is a critical component of early numerical competence. Verbal counting involves both an understanding of the conventional sequence of number words and the relationship between the number words. Verbal counting plays an important role in object counting and lays the groundwork for a more sophisticated understanding of number words (Fuson, 1992). Object counting is the ability to apply the conventional sequence of number words to objects, coordinating counting words with actions such as pointing. Important elements of object counting include the stable order principle, one-to-one principle, and cardinality. Cardinality, the knowledge that the last count indicates the number of objects in a given set, is the "capstone of early numerical knowledge, and the necessary building block for all further work with number and operations" (Clements, 2004, p. 19). Children with knowledge of cardinality have a deeper understanding of the relationship between set sizes and number words, or how number words are assigned to sets (Slusser & Sarnecka, 2011).

Comparing and ordering. An understanding of the ordinal relations between numbers is a central concept linked to verbal counting and cardinality (Brannon & Van de Walle, 2001). Research indicates young children have a basic understanding of "less than" and "greater than" before the end of their second year when small collections are used (Haith & Benson, 1998) and can accurately choose the larger of two quantities at age 2 (Brannon and Van de Walle). Further, at least one study indicates that both symbolic (printed numerals and number words) and nonsymbolic (collection of dots on page) comparison skills in kindergarten are related to calculation and number fact knowledge in first and second grade (Desoete, Ceulemans, De Weerdt, & Pieters, 2012). Ordering is the ability to sequence numbers in a particular way with attention to the relationship between numbers. Understanding ordinal relations is an important element of understanding the

organization of the number system, and it appears to be related to subitizing and can be used in comparing collections (Mix, Huttenlocher, & Levine, 2002).

Symbolic representation. The symbolic representation of quantity adds an element to children's understanding of number that is embedded in cultural practices and the language of mathematics. Young children begin to differentiate written numerals from letters and often have some knowledge of writing numerals in preschool (Bialystok & Codd, 2000). Research suggests conceptual understanding and notational abilities may interact to support development in each area (Brizuela, 2004). Further, symbolic representations of quantity are important to the functional use of numerals and can be considered a numerical form of literacy. Research showing that speed and accuracy in number naming at kindergarten accounts for considerable variance in basic numerical skills at the end of fourth grade (Krajewski & Schneider, 2009) highlights the importance of understanding the printed numeral during early childhood.

Assessing Early Number Sense

Given evidence supporting the link between early mathematical competency and later school success (e.g., Duncan et al., 2007) and research indicating early emergent differences in mathematical skills development (National Mathematics Advisory Panel, 2008), it is critical that children's early numeracy abilities be assessed in a timely manner. Although evidence of their technical adequacy and utility are currently limited, the following tools represent a promising direction in shifting frameworks for assessment to include attention to universal screening and progress monitoring (McConnell, 2000; Snyder et al., 2008).

Research-based Early Mathematics Assessment. The Research-based Early Mathematics Assessment (REMA; Clements, Sarama, & Liu, 2008) is based on learning trajectories derived from theoretical and empirical work. The REMA covers the domains of number sense and geometry and spatial skills and has strong psychometric properties (Clements et al.,). A short form more appropriate for screening and formative assessment has been examined, with promising results (Weiland et al., 2012). The short form consists of 19 items and assesses comparing and ordering, verbal counting, arithmetic, number recognition and subitizing, composing number, shape identification, shape composition, and patterning. Results indicated adequate fit to the Rasch model, and item reliability was described as adequate by the authors. In terms of concurrent validity, bivariate correlations with the full REMA were strong at the beginning and end of preschool ($r = 0.71$ and $r = 0.74$, respectively). Also, correlation with the Woodcock-Johnson Applied Problems subscale (Woodcock, McGrew, & Mather, 2001) was good ($r = 0.74$).

Curriculum-based Measurement of Early Mathematics Skills. VanDerHeyden and colleagues developed a set of curriculum-based measures that target number identification, counting, object discrimination, and shape identification and are intended to provide a measure of general mathematics performance to supplement other information such as parent and teacher reports of child skills (VanDerHeyden,

Broussard, & Cooley, 2006; VanDerHeyden et al., 2004). Alternate form reliability coefficients, with the exception of the shape task, were all above 0.70, and average inter-scorer agreement on all probes exceeded 94 %. Correlations with the Brigance Screens (Brigance, 1985) and the Test of Early Mathematics-Second Edition (TEMA-2; Ginsburg & Baroody, 1990) were low to moderate (0.06–0.57), and correspondence with teacher rankings of child performance was low to strong (0.26–0.91). Results of a discriminant functional analysis indicated the preschool measures were fairly accurate in predicting performance below or above cut-off scores on the Brigance Screens.

Individual Growth and Development Indicators—Early Numeracy (IGDIs-EN). The IGDIs-EN, also known as the Preschool Numeracy Indicators (PNI; Floyd, Hojnoski, & Key, 2006) consist of four tasks intended as indicators of number sense skill for preschoolers. These include: (a) Oral Counting, which requires the child to count out loud to the highest number he/she can reach in one minute; (b) Number Naming, which requires the child to name numbers 0–20, presented individually, in a one-minute session; (c) Quantity Comparison, which is also a timed task, requires the child to look at sets of circles presented in pictures, compare them, and indicate which one has more; and (d) 1:1 Correspondence Counting, which is a 30 s timed task, requires the child to point to and count out loud each circle in a set (maximum of 20 circles). Test–retest reliability coefficients for the PNIs/IGDIs-EN have ranged from 0.40 to 0.91 across a 2- to 4-week interval and from 0.82 to 0.96 across a 5- to 7-week interval. Alternate-form reliability coefficients for quantity comparison and number identification were 0.65 and 0.73 and 0.72 and 0.95, respectively across two studies. Correlations corrected for age between PNI and scores from the Bracken Basic Concept Scale-Revised (Bracken 1998), Woodcock-Johnson-III Applied Problems subtest (Woodcock et al., 2001), and Test of Early Mathematics Ability-Third Edition (Ginsburg & Baroody, 2003) ranged from 0.29 to 0.70 (Floyd et al.,). Sensitivity to growth over time has been examined with results indicating a significant linear growth component, supporting this dimension of the PNI (Hojnoski, Silberglitt, & Floyd, 2009).

Assessing Both Early Literacy and Numeracy

Early Arithmetic and Reading Learning Indicators. The Early Arithmetic and Reading Learning Indicators (EARLI; Reid, Morgan, DiPerna, & Lei, 2006) are intended to be brief, easy-to-use, and technically adequate measures of early academic skills that can be used for progress monitoring. Literacy probes target phonological awareness, vocabulary, print knowledge, and letter name and—sound knowledge. Mathematics probes address number identification, counting, and basic arithmetic skills. Initial item analysis of the literacy probes indicated adequate item and scale qualities for most of the probes, with alpha coefficients ranging from 0.73 to 0.98. Probes were sensitive to growth over time with 4-year-olds performing better than 3-year-olds. The mathematics probes also demonstrated adequate item and scale properties. In addition, item-discrimination indices were positive and

high, as reported by the authors. Concurrent validity with subtests of the Woodcock-Johnson III varied (0.28–0.89 for literacy probes and 0.30–0.88 for mathematic probes). Item selection methods for creating short forms of the numeracy measures to be used at different points in time were investigated, with results suggesting the short forms demonstrated adequate concurrent validity and promising sensitivity to growth, supporting their use in screening and progress monitoring (Lei, Wu, DiPerna, & Morgan, 2009).

Children's Progress of Academic Assessment. The Children's Progress of Academic Assessment (CPAA; Children's Progress, 2010) is a computer-adaptive, formative assessment for children prekindergarten through grade 2 that includes tests of early literacy and mathematics. The test can be used as often as desired, and the computer-based format allows for immediate scoring. Because questions are adapted to students' responses, each testing experience is unique. The assessment also revises wording of questions and offers hints to assess how children respond to instruction. The full assessment takes 15 min. to complete. Early literacy concepts include phonemic awareness, phonics and writing, reading, and reading mechanics while measurement, numeracy, operations, and patterns and functions comprise the mathematics content. Factor analyses provided evidence of the internal consistency of the tool. Reliability across three administration periods (i.e., fall, winter, spring) was 0.90 for both literacy and mathematics combined and 0.89 and 0.75 for the two domains separately. Reliability of the subtests ranged from 0.58 to 0.80. No validity information is provided for the prekindergarten assessment.

mCLASS: CIRCLE. mCLASS: CIRCLE (Wireless Generation, 2010) is a software platform for C-PALLS+, a progress monitoring system for early language, literacy, and mathematics that is available in Spanish and English for children ages 3–5. Flipbook images are embedded in the software and data are collected on any mobile or desktop Microsoft Windows operating system (see https://www.mclasshome.com/mobilelogin/owa_login?redirect=%2Fassessment%2F%23classeSelection). Immediate analysis delivers reports with the child's strengths, weaknesses, and suggestions for activities. Data collection is recommended tri-annually. Scores are reported as cut-scores, identifying whether a child's performance is in the developmentally appropriate range for his or her age. Scores below the cut-score indicate a need for additional instruction. The literacy component includes a 1-min letter naming subtest, a 1-min. vocabulary screener, and a 7-min. phonological awareness screener. The phonological awareness screener addresses listening, rhyming, alliteration, and phoneme segmentation. The Math Screener consists of 27 items that address verbal and object counting, number identification, operations, and shape identification.

Internal consistency, as indicated by Cronbach's alpha, is strong for the phonological awareness screener (0.93 for the total group; 0.91 for 3-year-olds and 4-year-olds = 0.91; and 0.92 for 5-year-olds). Test–retest correlations were reported for vocabulary, letters, and phonological awareness for fall-winter, winter-spring, and fall-spring by age. For all ages combined, correlations ranged from 0.59–0.83. Finally, intra-class coefficients, or the amount of variance attributed to time, for all ages combined were reported as 0.66 (Vocabulary and Phonological awareness)

and 0.74 (Letters). This suggests that the literacy component of C-PALLS+ has adequate reliability. Correlations among the three components were moderate for fall and spring, with values ranging from 0.42 to 0.58, suggesting the literacy components measure separate but related constructs. Concurrent, convergent, and discriminant validity were examined using several standardized tests of language and literacy. Correlations were stronger when tasks were more closely related; overall correlations varied, ranging from 0.17 to 0.79. Finally, a mixed models approach was used to examine growth over time in each of the literacy areas. In general, each of the areas demonstrated growth over time with no significant ceiling or floor effects. Although there is extensive technical data for the literacy component, there is little evidence reported for the Math Screener. According to the technical manual, the Math Screener was validated as part of a National Institute of Child Health and Development (NICHD) curriculum evaluation study. However, no specific reliability or validity data are provided in the manual. Further, the math screener is not recommended for children under 3–5 years. C-PALLS+ is not intended for children with disabilities, nor were children with disabilities included in the evaluation of the tool. Finally, although the technical manual reports cut scores for both English-and Spanish-speaking children based on child age, no information is provided about how the cut scores were derived and the cut-score for mathematics is the same for all age groups across all time points due to limitations of the validation study.

Implications for Practice

Although there continues to be debate regarding the primary goal of early education (i.e., development of social competence versus early learning skills), there is general agreement that certain early academic skills and knowledge are an essential component of classroom instruction and activities (Hojnoski & Missall, 2010). The need for an emphasis on language and early literacy is supported in the literature (e.g., Beauchat, Blamey, & Walpole, 2010; Justice & Vukelich, 2008; McKenna, Walpole, & Conradi, 2010), and there is increasing recognition of including quality early mathematics instruction as well (e.g., Ginsburg, Lee, & Boyd, 2008; National Research Council, 2009; Saracho & Spodek, 2008). Early education experiences offer an opportunity to build children's skills in the key areas described above.

Due to considerable variation in early academic skill development, with some children lacking vital foundational knowledge, effective assessment systems are needed to identify this population and to ensure that all children are making adequate progress. Tools that can be used for screening and progress monitoring are critical in efforts to promote children's early school success. The existing research on measures of vocabulary, early literacy, and early numeracy suggest promise in this direction. Additional research is needed to ensure that these systems of assessment demonstrate adequate predictive validity and diagnostic accuracy as well as intervention utility and social validity to ensure that they achieve the goal of improving outcomes for our youngest students (Fuchs, 2004).

With an increasing array of early academic tools to choose from, practitioners need to understand how to carry out assessments to match children's skill levels and rates of progress to appropriate interventions. Assessments should include tasks that yield information about key components of early math, numeracy, literacy, and language skills. Practitioners need to carefully evaluate evidence of technical adequacy and to determine how various tools meet both short and long-term assessment needs. Additionally, practitioners need to understand how best to use the information generated to promote positive student outcomes in a problem-solving, data-based decision-making framework. This includes making a variety of critical screening and progress monitoring decisions using academic skills data that have been gathered as part of the assessment process.

Case Study: Using Early Academic Data in a Problem Solving Model

Keaton participated in a variety of interventions and services over an 18-month-period in a large, inclusive preschool operated by a P—12 school district to develop essential early academic skills. The preschool uses a multi-step problem solving model (Chandler, Young, & Ulezi, 2011) which requires that data used to make various decisions, such as screening and progress monitoring, are matched to the decision type. The reader should assume that consideration was given to "Won't Do/Can't Do" (Witt & VanDerHeyden, 2007) throughout the process and that the scores reflect true skill deficits and not motivational deficits. For example, the child's attendance was excellent and interventions were implemented with high integrity, so these factors were ruled out as contributing to the child's difficulties. Also, "team" includes parent and classroom professional staff.

Phase I: Preschool screening (Child Find) and instructional planning. Keaton's mother requested a preschool screening for her son at age 3½. Although he passed initial screening, he met state-determined "at-risk" criteria, so he began attending an inclusive preschool class composed of tuition-paying students, children qualifying as "at-risk," and children with disabilities. Thus, Keaton changed from no preschool experience to 2.5 h daily, five days a week of core instruction using the Creative Curriculum (Dodge, Colker, & Heroman, 2002).

Phase II: Monitor progress in core curriculum for instruction and intervention planning. Keaton's progress in the core instruction was monitored for six months with monthly review of data. Several months after beginning the program, the team reviewed Keaton's performance levels and rate of progress. His performance on the four PNIs tasks was below the average levels of his classroom peers and below the school benchmark scores. Keaton's baseline score on the One-to-One Correspondence task of the PNI was 2. The district selected the twenty-fifth percentile as a benchmark for determining need for additional support. Additionally, his rate of progress was determined to be slower than that of the rest of the class.

Keaton's receptive language skills were found to be on par with those of his peers, but his expressive language skills were more limited, as evidenced by reduced sentence length, fewer attempts to use a variety of action words, and incorrect use of adjectives (colors). Additionally, Keaton's IGDIs Picture Naming Fluency (PNF) score decreased from the middle of the average range to the twenty-fifth percentile. Based on these data, the team decided to increase the intensity of instruction; specifically, he received 7–10 min daily of one-on-one instruction in color naming and counting objects to five with small manipulatives.

Phase III: Monitor progress, instruction and intervention planning; further assessment: When team members reconvened two months later, IGDI and PNI data indicated Keaton had experienced limited growth in terms of targeted vocabulary and math skills. Keaton's PNF score had not changed, and his weekly performance on color naming and 1:1 correspondence probes indicated inadequate gains in these discrete target skills. Based on these data, the team decided to move forward with a Case Study Evaluation (CSE) to determine if Keaton would meet criteria for a disability classification. They also decided to intensify and individualize supports and services consistent with Tier 3 in an RTI model. This involved: enhanced use of scaffolding; making small-group and one-to-one instruction more explicit; using a model-lead-test format (Archer & Hughes, 2011); and providing more functional opportunities to practice skills during inclusive activities with peers.

Phase IV: Monitor progress, eligibility determination, and instructional planning. Progress continued to be monitored during the comprehensive evaluation process, and the team reviewed all data at the conclusion of the process. Keaton's School Readiness subscale score on the Bracken Basic Concept Scale—Third Edition: Receptive (BBCS-3R; Bracken, 2006) was at the first percentile, and his score on the Early Academic subscale of the Teaching Strategies GOLD assessment (Teaching Strategies, 2010) dropped from that in the fall and was even more discrepant from his peers. Based on these data and information from other developmental domains, Keaton was determined to meet eligibility criteria. Several IEP goals were developed; one specifically addressed having him name the letters in his name and a second one targeted one-to-one correspondence to five. Keaton continued to be enrolled in the same inclusive classroom to provide continuity of curriculum, peers, and classroom team. Changes to his program included the addition of formal speech/language therapy, explicit one-to-one instruction across targeted skills in multiple domains, and enhanced refinement of curricular supports and strategies.

Phase V: Monitor progress, evaluate placement, and intervention planning. As Keaton neared the end of preschool, a team meeting was held with the elementary school team to share his progress and plan for kindergarten. Keaton could count with one-to-one correspondence with sets larger than 5 and demonstrated an emerging sense of cardinality, responding correctly to "how many." However, he was unable to produce a set of up to 5 objects accurately. Keaton's growth

continued in the early literacy domain, as shown by his PNF score increasing from 15 to 22, which fell in the "average" range. At the end of preschool, Keaton's IGDI Rhyming scores met local and national benchmarks. In terms of his IEP goal, Keaton was able to identify the letter "K" in his name, but not other letters. Based on the data available, the team recommended Keaton transition to the district's inclusive kindergarten program. Although it was clear that Keaton still needed additional support, he was making progress in some areas within an inclusive environment, participation in the general curriculum, and the delivery of related services and individualized supports and strategies (Figs. 3.1, 3.2, 3.3 and 3.4).

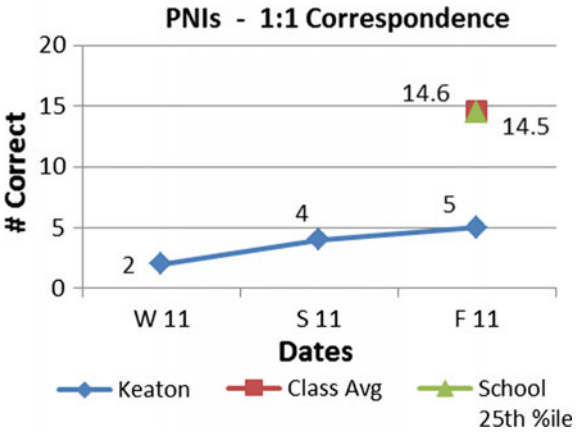

Fig. 3.1 Keaton's scores on the Preschool Numeracy Indicators (PNIs)—(1:1 correspondence)

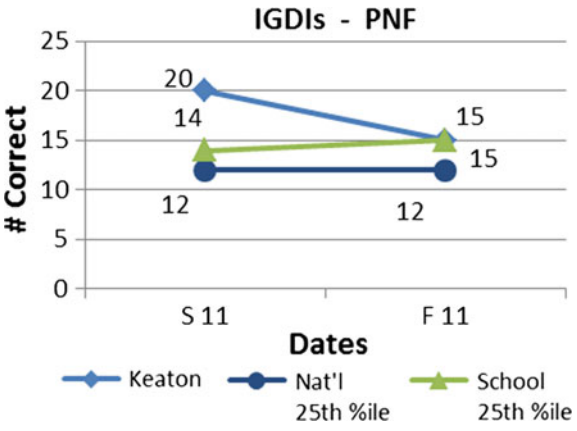

Fig. 3.2 Keaton's scores on the Individual Growth and Development Indicators (IGDIs)—picture naming fluency (PNF)

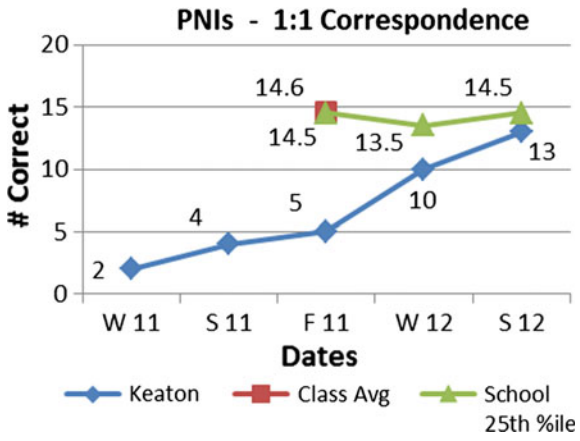

Fig. 3.3 Keaton's scores on the PNI—one-to-one correspondence

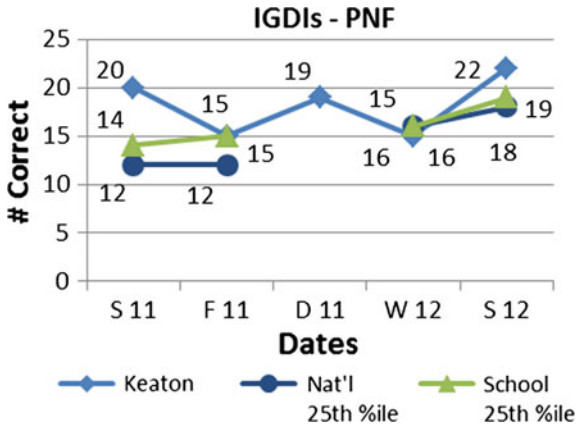

Fig. 3.4 Keaton's scores on IGDI—picture naming fluency (PNF)

Discussion Questions

1. Gathering Data: How did the findings from each type of data measure assist in the decision-making process? What were the limitations in the decision-making process based on the measures selected?
2. Selecting assessments: What are necessary features of assessment tools to be used for screening and monitoring related decisions? What tools would you select for early literacy and numeracy? Provide a rationale for your choices.
3. Types of Decisions: The case study illustrated the use of early academic development data to make many decisions related to screening (Child Find), intervention planning, special education eligibility, and IEP development. Which decisions did you agree or disagree with? If you disagreed with a decision, explain why.

References

Adams, M. (1990). *Beginning to read: Thinking and learning about print*. Cambridge, MA: Massachusetts Institute of Technology Press.

Archer, A. L., & Hughes, C. A. (2011). *Explicit instruction: Effective and efficient teaching*. New York, NY: Guilford.

Baroody, A. J., Lai, M. L., & Mix, K. S. (2006). The development of young children's number and operations sense and its implications for early childhood education. In B. Spodek & O. N. Saracho (Eds.), *Handbook of research on the education of young children* (pp. 187–221). Mahwah, NJ: Lawrence Erlbaum.

Beauchat, K. A., Blamey, K. L., & Walpole, S. (2010). *The building blocks of preschool success*. New York, NY: Guilford.

Bialystok, E., & Codd, J. (2000). Representing quantity beyond whole numbers: Some, none, and part. *Canadian Journal of Experimental Psychology, 54*, 117–128.

Blair, C., & Razza, R. P. (2007). Relating effortful control, executive function, and false belief understanding to emerging math and literacy ability in kindergarten. *Child Development, 78*, 647–663.

Bracken, B. A. (2006). *Bracken Basic Concept Scale-Third edition: Receptive*. San Antonio, TX: Harcourt.

Brannon, E. M., & Van de Walle, G. A. (2001). The development of ordinal numerical competence in young children. *Cognitive Psychology, 43*, 53–81.

Brassard, M. R., & Boehm, A. E. (2007). *Preschool assessment: Principles and practices*. New York, NY: Guilford.

Brigance, A. (1985). *Brigance Preschool Screen*. North Billerica, MA: Curriculum Associates.

Brizuela, B. M. (2004). *Mathematical development in young children: Exploring notations*. New York, NY: Teachers College Press.

Bultosky-Shearer, R. J., Bell, E. R., Romero, S. L., & Carter, T. M. (2012). Preschool interactive peer play mediates problem behavior and learning for low-income children. *Journal of Applied Developmental Psychology, 33*, 53–65.

Cadigan, K., & Missall, K. N. (2007). Measuring expressive language growth in young children with autism spectrum disorders. *Topics in Early Childhood Special Education, 27*, 110–118.

Chandler, L. K., Young, R. M., & Ulezi, C. N. (2011). Early childhood special education methods and practices for preschool-aged children and their families. In C. Groark, S. Eidelman, L. A. Kaczmarek, & S. P. Maude (Eds.), *Early childhood intervention: Shaping the future for children with special needs and their families* (Vols. 1–3, pp. 39–75). Santa Barbara, CA: Praeger.

Children's Progress. (2010). *Children's Progress of Academic Achievement.* New York, NY: author. Available at http://www.childrensprogress.com

Clements, D. H. (2004). Part one: Major themes and recommendations. In D. H. Clements, J. Sarama, & A. M. DiBiase (Eds.), *Engaging young children in mathematics education: Standards for early childhood mathematics education* (pp. 1–72). Mahwah, NJ: Erlbaum.

Clements, D. H., & Sarama, J. (2008). Experimental evaluation of the effects of a research-based preschool mathematics curriculum. *American Educational Research Journal, 45*, 443–494.

Clements, D. H., & Sarama, J. (2009). *Learning and teaching early math: The learning trajectories approach*. New York, NY: Routledge.

Clements, D. H., Sarama, J., & DiBiase, A. M. (Eds.). (2004). *Engaging young children in mathematics education: Standards for early childhood mathematics education* (pp. 1–72). Mahwah, NJ: Erlbaum.

Clements, D. H., Sarama, J., & Liu, X. H. (2008). Development of a measure of early mathematics achievement using the Rasch model: The research-based early mathematics assessment. *Educational Psychology, 28*, 457–482.

Desoete, A., Ceulemans, A., De Weerdt, F., & Pieters, S. (2012). Can we predict mathematical learning disabilities from symbolic and no-symbolic comparison tasks in kindergarten? Findings from a longitudinal study. *British Journal of Educational Psychology, 82*, 64–81.

Dickinson, D. K., McCabe, A., Anastasopouos, L., Peisner-Feinberg, E. S., & Poe, M. D. (2003). The comprehensive language approach to early literacy: The interrelationships among vocabulary, phonological sensitivity, and print knowledge among preschool-aged children. *Journal of Educational Psychology, 95*, 465–481.

Dodge, D. T., Colker, L., & Heroman, C. (2002). *The Creative Curriculum for Preschool*. Washington, DC: Teaching Strategies, Inc.

Duncan, G. J., Dowsett, C. J., Claessens, A., Magnuson, K., Huston, A. C., Klebanov, P., … Sexton, H. (2007). School readiness and later achievement. *Developmental Psychology, 43*, 1428–1446.

Dunn, D. M., & Dunn, L. M. (2007). *Peabody Picture Vocabulary Test: Manual*. Upper Saddle River, NJ: Pearson.

Dynamic Measurement Group. (2012). *Preschool Early Literacy Indicators*. Eugene, OR: Author.

Ehri, L. C. (1998). Grapheme-phoneme knowledge is essential for learning to read words in English. In J. L. Metsala & L. C. Ehri (Eds.), *Word recognition in beginning literacy* (pp. 3–20). Mahwah, NJ: Erlbaum.

Fantuzzo, J., Bulotsky-Shearer, R., McDermott, P. A., & McWayne, C. (2007). Investigation of dimensions of social-emotional classroom behavior and school readiness for low-income urban preschool children. *School Psychology Review, 36*, 44–62.

Floyd, R. G., Hojnoski, R., & Key, J. (2006). Preliminary evidence for the technical adequacy of the Preschool Numeracy Indicators. *School Psychology Review, 35*, 627–644.

Fuchs, L. S. (2004). The past, present, and future of curriculum-based measurement research. *School Psychology Review, 33*, 188–192.

Fuchs, L. S., & Fuchs, D. (2004). Determining adequate yearly progress from kindergarten through grade 6 with curriculum-based measurement. *Assessment for Effective Intervention, 29*, 25–37.

Fuson, K. C. (1992). Relationships between counting and cardinality from age 2 to 8. In J. Bideaud, C. Meljac, & J. P. Fisher (Eds.), *Pathways to number: Children's developing numerical abilities* (pp. 127–149). Hillside, NJ: Lawrence Erlbaum.

Ginsburg, H. P., & Baroody, A. J. (1990). *Test of Early Mathematics Ability-Second Edition*. Austin, TX: Pro-Ed.

Ginsburg, H. P., & Baroody, A. J. (2003). *Test of Early Mathematics Ability-Third Edition* (3rd ed.). Austin, TX: Pro-ed.

Ginsburg, H. P., Lee, J. S., & Boyd, J. S. (2008). Mathematics education for young children: What it is and how to promote it. *Social policy report: Giving child and youth development knowledge away* (Vol. 23, No. 1). Society for Research in Child Development.

Good, R. H., & Kaminski, R. A. (2011). *DIBELS Next assessment manual*. Eugene, OR: Dynamic Measurement Group.

Graue, E. (2006). The answer is school readiness: Now what's the question? *Early Education and Development, 17*, 43–56.

Greenwood, C. R., Bradfield, T., Kaminski, R., Linas, M., Carta, J. J., & Nylande, D. (2011). The response to intervention (RTI) approach in early childhood. *Focus on Exceptional Children, 43*, 1–22.

Haager, D., Klingner, J., & Vaughn, S. (Eds.). (2007). *Evidence-based reading practices for response to intervention*. Baltimore, MD: Brookes Publishing.

Haith, M. M., & Benson, J. B. (1998). Infant cognition. In W. Damon (Ed.), *Handbook of child psychology: Volume 2. Cognition, perception, and language* (pp. 199–254). Hoboken, NJ: Wiley.

Hart, B., & Risley, T. R. (1995). *Meaningful differences in the everyday experience of young American children*. Baltimore, MD: Brookes.

Hart, B., & Risley, T. R. (2003). The early catastrophe: The 30 million word gap by age 3. *American Educator*, *27*, 4–9.

Hindman, A. H., Skibbe, L. E., Miller, A., & Zimmerman, M. (2010). Ecological contexts and early learning: Contributions of child, family, and classroom factors during Head Start, to literacy and mathematics growth through first grade. *Early Childhood Research Quarterly, 25*, 235–250.

Hojnoski, R. L., Caskie, G. I., Gischlar, K. L., Key, J. M., Barry, A., & Hughes, C. L. (2009). Data display: Preference, acceptability, and accuracy among urban Head Start teachers. *Journal of Early Intervention, 32*, 38–53.

Hojnoski, R. L., & Missall, K. N. (2010). Social development in preschool classrooms: Promoting engagement, competence, and school readiness. In M. R. Shinn & H. M. Walker (Eds.), *Interventions for achievement and behavior problems in a threetier model including RTI* (pp. 703–728). Bethesda, MD: National Association of School Psychologists.

Hojnoski, R. L., Silberglitt, B., & Floyd, R. G. (2009). Sensitivity to growth over time of the Preschool Numeracy Indicators with a sample of preschoolers in Head Start. *School Psychology Review, 38*, 402–418.

Invernizzi, M., Sullivan, A., Meier, J., & Swank, L. (2007). *Phonological Awareness Literacy Screening for preschool.* Charlottesville, VA: Virginia Department of Education and University of Virginia Curry School of Education.

Jordan, N. C., Kaplan, D., Ramineni, C., & Locuniak, M. N. (2009). Early math matters: Kindergarten number competence and later mathematics outcomes. *Developmental Psychology, 45*, 850–867.

Justice, L. M., & Vukelich, C. (Eds.). (2008). *Achieving excellence in preschool literacy instruction*. New York: Guilford.

Kaminski, R. A., Abbott, M., Aguayo, K. B., Latimer, R., & Good, R. H. (2014). The Preschool Early Literacy Indicators validity and benchmark goals. *Topics in Early Childhood Special Education, 34*(2), 71–82.

Kaminski, R., Good, R., Abbott, M., Powell-Smith, K., & Wheeler, C. (February, 2012). *DIBELS outlook: What's next after Next*? Paper presentation at the DIBELS Summit, Albuquerque, NM. https://dibels.org/PELI_Summit_2013_Handout.pdf

Krajewski, K., & Schneider, W. (2009). Early development of quantity to number-word linkage as a precursor of mathematical school achievement and mathematical difficulties: Findings from a four-year longitudinal study. *Learning and Instruction, 19*, 513–526.

La Paro, K. M., & Pianta, R. C. (2000). Predicting children's competence in the early school years: A meta-analytic review. *Review of Educational Research, 70*, 443–484.

Lei, P. W., Wu, Q., DiPerna, J. C., & Morgan, P. L. (2009). Developing short forms of the EARLI numeracy measures: Comparison of item selection methods. *Educational and Psychological Measurement, 69*, 825–842.

Lonigan, C. J., Wagner, R. K., Torgeson, J. K., & Rashotte, C. (2007). *Test of Preschool Early Literacy*. Austin, TX: ProEd.

Lonigan, C. J., & Wilson, S. B. (2008). *Report on the revised Get Ready to Read! screening tool: Psychometrics and normative information*. Available at http://www.getreadytoread.org/screening-tools/research-a-reports.

McClelland, M. M., Cameron, C. E., Connor, C. M., Farris, C. L., Jewkes, A. M., & Morrison, F. J. (2007). Links between behavioral regulation and preschoolers' literacy, vocabulary, and math skills. *Developmental Psychology, 43*, 947–959.

McConnell, S. R. (2000). Assessment in early intervention and early childhood special education: Building on the past to project into our future. *Topics in Early Childhood Special Education, 20*, 43–48.

McConnell, S. R., & Greenwood, C. R. (2013). General outcome measures in early childhood and the Individual Growth and Development Indicators. In V. Buysse & E. Peisner-Feinberg (Eds.), *Handbook of response to intervention in early childhood* (pp. 143–154). Baltimore, MD: Brookes.

McConnell, S. R., & Missall, K. N. (2008). Best practices in assessment of children ages three to five. In A. Thomas & J. Grimes (Eds.), *Best practices in school psychology V* (pp. 561–574). Bethesda, MD: National Association of School Psychologists.

McKenna, M. C., Walpole, S., & Conradi, K. (Eds.). (2010). *Promoting early reading: Research, resources, and best practices*. New York, NY: Guilford.

Missall, K., Reschly, A., Betts, J., & McConnel, S. (2007). Examination of the predictive validity of preschool early literacy skills. *School Psychology Review, 26*, 433–452.

Missall, K. N., & McConnell, S. R. (2010). Early literacy and language IGDIs for preschool-aged children. In J. J. Carta & C. Greenwood (Eds.), *Individual growth and development indicators: Tools for monitoring progress and measuring growth in very young children* (pp. 181–201). Baltimore, MD: Brookes.

Mix, K. S., Huttenlocher, J., & Levine, S. C. (2002). *Quantitative development in infancy and early childhood*. New York, NY: Oxford University Press.

National Association for the Education of Young Children and National Association of Early Childhood Specialists in State Departments of Education. (2003). *Early childhood curriculum, assessment, and program evaluation*. Washington, DC: National Association for the Education of Young Children.

National Association of School Psychologists. (2008). *Early childhood services (Position Statement)*. Bethesda, MD: Author.

National Early Literacy Panel. (2008). *Developing early literacy: Report of the National Early Literacy Panel*. Washington, DC: National Institute for Literacy. Available at http://lincs.ed.gov/publications/pdf/NELPReport09.pdf

National Mathematics Advisory Panel. (2008). *Foundations for success: The final report of the National Mathematics Advisory Panel*. Washington, DC: US Department of Education.

National Research Council. (2008). *Early childhood assessment: Why, what, and how*. Washington, DC: National Academies.

National Research Council. (2009). *Mathematics learning in early childhood: Paths toward excellence and equity*. Washington, DC: National Academies.

Neumann, S. B., & Dickinson, D. K. (Eds.). (2010). *Handbook of early literacy research,* (Vol. 3). New York, NY: Guilford.

NICHD Early Childcare Research Network. (2005). Pathways to reading: The role of oral language in the transition to reading. *Developmental Psychology, 41*, 428–442.

Purpura, D. J., Hume, L. E., Sims, D. M., & Lonigan, C. J. (2011). Early literacy and early numeracy: The value of including early literacy skills in the prediction of numeracy development. *Journal of Experimental Child Psychology, 110*, 647–658.

Read, K. D., Hresko, W. P., & Hammill, D. D. (2001). *Test of Early Reading Ability* (3rd ed.). Austin, TX: Pro-Ed.

Reid, E. R., Morgan, P. L., DiPerna, J. C., & Lei, P.-W. (2006). Development of measures to assess young children's early academic skills: Preliminary findings from a Head Start-University partnership. *Insights on Learning Disabilities, 3*, 25–38.

Renaissance Learning. (2010). *STAR Early Literacy.* Wisconsin Rapids, WI: Author. Available at http://www.renaissance.com/products/assessment/star-360/star-early-literacy-skills/

Saracho, O. N., & Spodek, B. (Eds.). (2008). *Contemporary perspectives on mathematics in early childhood education*. Charlotte, NC: Information Age Publishing.

Sarama, J., & Clements, D. H. (2009). *Early childhood mathematics education research: Learning trajectories for young children*. New York, NY: Routledge.

Sarama, J., Lange, A. A., Clements, D. H., & Wolfe, C. (2011). The impacts of an early mathematics curriculum on oral language and literacy. *Early Childhood Research Quarterly.*

Semel, E., Wiig, E. H., & Secord, W. A. (2003). *Clinical Evaluation of Language Fundamentals—Fourth Edition* (4th ed.). San Antonio, TX: Pearson.

Slusser, E. B., & Sarnecka, B. W. (2011). Find the picture of eight turtles: A link between children's counting and their knowledge of number word semantics. *Journal of Experimental Child Psychology, 110*, 38–51.

Snow, C. E., Burns, M. S., & Griffin, P. (Eds.). (1998). *Preventing reading difficulties in young children*. Washington DC: National Academy Press.

Snyder, P. A., Wixson, C. S., Talapatra, D., & Roach, A. T. (2008). Assessment in early childhood: Instruction focused strategies to support response-to-intervention frameworks. *Assessment for Effective Intervention, 34*, 25–34.

Starkey, P., Klein, A., & Wakeley, A. (2004). Enhancing young children's mathematical knowledge through a pre-kindergarten mathematics intervention. *Early Childhood Research Quarterly, 19*, 99–120.

Strand, P. S., & Cerna, S. (2010). The effects of a data dissemination strategy on the letter naming and object counting skills of preschoolers attending Head Start. *Journal of Behavioral Education, 19*, 289–305.

Teaching Strategies, Inc. (2010). *GOLD assessment system.* Bethesda, MD: Author.

VanDerHeyden, A. M., Broussard, C., & Cooley, A. (2006). Further development of measures of early math performance for preschoolers. *Journal of School Psychology, 44*, 533–553.

VanDerHeyden, A. M., Broussard, C., Fabre, M., Stanley, J., Legendre, J., & Creppell, R. (2004). Development and validation of curriculum-based measures of math performance for preschool children. *Journal of Early Intervention, 27*, 27–41.

Walker, D., Greenwood, C., Hart, B., & Carta, J. (1994). Prediction of school outcomes based on early language production and socioeconomic factors. *Child Development, 65*, 606–621.

Weiland, C., Wolfe, C. B., Hurwitz, M. D., Clements, D. H., Sarama, J. H., & Yoshikawa, H. (2012). Early mathematics assessment: Validation of the short form of a prekindergarten and kindergarten mathematics measure. *Educational Psychology, 32*, 311–333.

West, J., Denton, K., & Reaney, L. M. (2000). *The kindergarten year: Findings from the early childhood longitudinal study, kindergarten class of 1998–99.* Washington, DC: National Center for Educational Statistics, US Department of Education, Office of Educational Research and Improvement.

Whitehurst, G. J., & Lonigan, C. J. (1998). Child development and emergent literacy. *Child Development, 3*, 848–872.

Whitehurst, G. J., & Lonigan, C. J. (2009). *Get Ready to Read!—Revised*. San Antonio, TX: Pearson.

Wilson, A. J., Deahene, S., Dubois, O., & Fayol, M. (2009). Effects of an adaptive game intervention on accessing number sense in low-socioeconomic-status kindergarten children. *Mind, Brain, and Education, 3*, 224–234.

Wireless Generation (2010). mCLASS:CIRCLE early childhood assessment. Brooklyn, NY: Author.

Witt, J. C., & VanDerHeyden, A. M. (2007). The system to enhance educational performance (STEEP): Using science to improve achievement. In S. R. Jimerson, M. K. Burns, & A. M. VanDerHeyden (Eds.), *Handbook of response to intervention: The science and practice of assessment and intervention* (pp. 343–353). New York, NY: Springer.

Woodcock, R. W., McGrew, K. S., & Mather, N. (2001). *Woodcock-Johnson III Tests of Achievement*. Itasca, IL: Riverside.

Chapter 4
The Use of Response to Intervention in Early Childhood

Maura Wechsler Linas and Gabriela Guerrero

Abstract This chapter provides a discussion of the use of response to intervention (RTI) frameworks during the early childhood period. It describes the components of tiered intervention, including specific information regarding each tier of the model. Practical information regarding screening, progress monitoring, and types of supports is also provided to guide the reader in understanding and conducting RTI with young children. In addition, the chapter includes discussion of specific models that are applied in preschool and other early childhood settings. Research and practical considerations for these models are covered. The chapter concludes with a description of practice guidelines for professionals who wish to implement RTI and the provision of additional resources that can be used to guide the application of RTI models.

Keywords Early childhood response to intervention (RTI) · Exemplary Model of Early Reading Growth and Excellence (EMERGE) · Multi-tiered systems of support · Universal screening and progress monitoring · Building Blocks model · The Teaching Pyramid · The *Center for Response to Intervention in Early Childhood* (CRTIEC) · Targeted social-emotional support

Introduction

What Is Response to Intervention?

Response to Intervention (RTI) is one of a number of Multi-tiered Systems of Support (MTSS) currently being implemented or under consideration in multiple

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A. Garro (ed.), *Early Childhood Assessment in School and Clinical Child Psychology*, DOI 10.1007/978-1-4939-6349-2_4

states. A systematic, problem-solving process used to identify children with academic or behavioral needs, RTI provides a vehicle for providing them with immediate supplementary support. RTI assumes the following components: (a) evidence-based curriculum and high-quality instruction; (b) universal screening to identify children at risk; (c) frequent progress monitoring, especially for children receiving additional support; (d) flexible and fluid system that allows children to move across tiers as dictated by their academic or social progress and individual needs; and (e) evidence-based interventions to respond to individual children's needs (Ball & Trammell, 2011; Division for Early Childhood of the Council for Exceptional Children [DEC], National Association for the Education of Young Children [NAEYC], and National Head Start Association [NHSA], 2013; Gresham, 2007).

The RTI framework presumes that an evidence-based curriculum and high quality, effective instruction are provided to all children in general education settings. Each child's ability to meet expectations through exposure to the general education curriculum determines whether he or she may be in need of additional support (Fuchs, Fuchs, & Stecker, 2010). It is important to note, however, that even with adoption of an evidence-based curriculum, there may be little or no monitoring of adherence to curricular concepts or standards, and no method of determining the extent to which delivery of presumed high quality, effective, instructional practices take place.

Using results from universal screening and progress monitoring measures to identify children who are meeting expectations and those in need of additional support, the RTI framework incorporates methods of determining the type of support appropriate for individual children, and the extent to which it is needed (Jackson, Pretti-Frontczak, Harjusola-Webb, Grisham-Brown, & Romani, 2009). A salient characteristic of RTI is the potential for early detection of problems and/or delays and the provision of needed services promptly and proactively. The Center for RTI in Early Childhood further describes RTI as "Provide[ing] a data-based method for evaluating the effectiveness of instructional approaches and changing/improving them" (http://www.crtiec.dept.ku.edu/).

Tiered Intervention—How Does It Work?

As shown in Figs. 4.1 and 4.2, a RTI framework is commonly portrayed as a three-tiered pyramid where each tier represents a different level of support; the higher the level, the more intense the support. The arrows on the side of the pyramid illustrate the fluidity of the system. Support provided to children intensifies (moves to a higher level of the pyramid) as their needs increase and can also drop to a lower level of the pyramid as their needs decrease. The bottom level, referred to as Tier 1, represents the general education classroom where all children are expected to receive high-quality instruction through the use of evidence-based curriculum. According to the model, most children (80–85 % of the population) achieve academic and social success with this general level of support. Following initial exposure to Tier 1

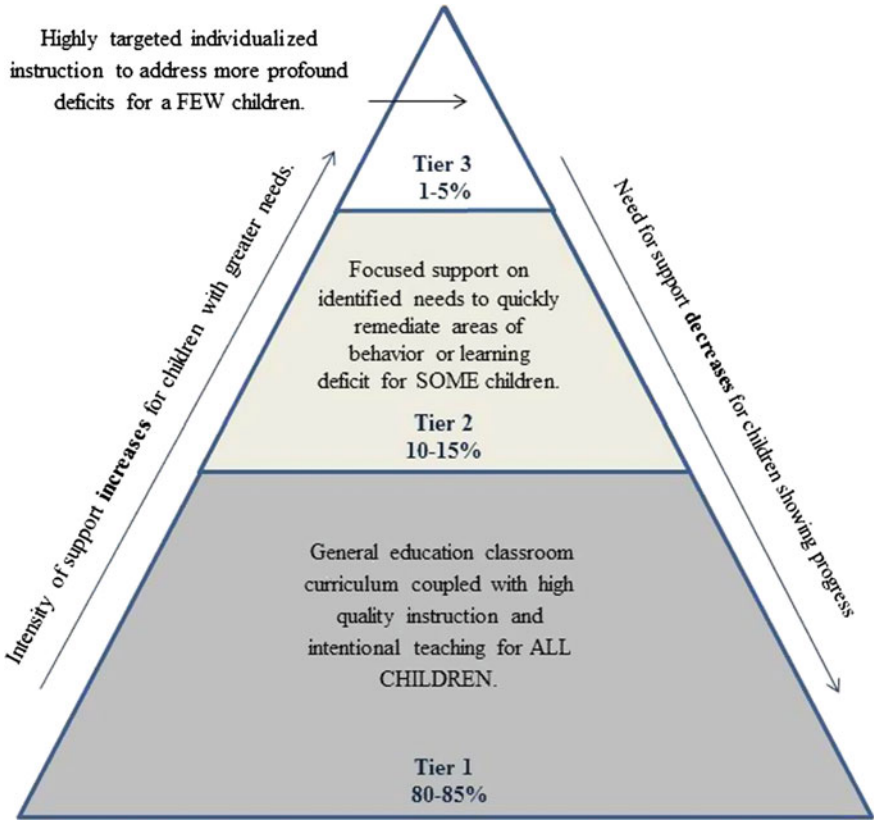


Fig. 4.1 RTI framework illustration

instruction, universal screening and progress monitoring measures are used to obtain baseline and growth information. For most children, these measures will confirm that the general curriculum is sufficient for them to make adequate gains; for others, these results will indicate that they could benefit from additional support (Greenwood et al., 2011).

Tier 2 support is anticipated to benefit between 10 and 15 % of all children, specifically those identified through universal screening as needing more support than is provided in Tier 1. Typically delivered in a small-group setting, Tier 2 interventions vary in purpose and mode of implementation. Comprised of evidence-based strategies that provide focused instruction to support areas of need, intervention in Tier 2 is expected to produce rapid results while requiring little, if any, individualization. Tier 2 intervention is supplemental in that children are exposed to Tier 2 instruction in addition to the Tier 1 curriculum (Buysse & Peisner-Feinberg, 2010; Coleman, Roth, & West, 2009).

Finally, Tier 3 interventions are expected to benefit 1–5 % of the population. Evidence-based strategies employed as Tier 3 support are targeted to meet the

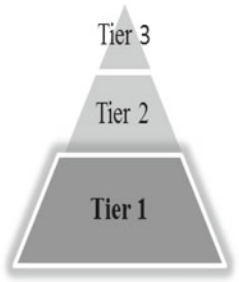
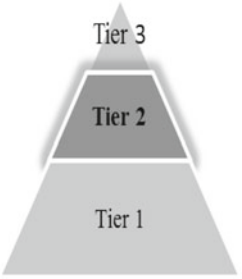
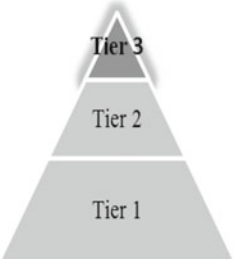
	Screening	Progress Monitoring	Level of support	Support characteristics
 80% of all children	Universal screening of all children early in the school year.	Conducted at predetermined times during the year (early, middle, late) with a focus on child growth to meet benchmarks.	All children are included in all classroom activities, participate in the adopted curriculum, & receive high-quality instruction.	All students exposed to a core curriculum. All children receive high-quality and intentional early education.
 10-15% of children		Conducted regularly (end of unit, every 2 weeks) to evaluate child progress & growth in meeting benchmarks & goals.	Tier 1 support + additional instruction & practice focused on areas of identified academic or social need.	Small groups of children with adult facilitator, does not require specialized teacher knowledge.
 1-5% of children		Conducted very frequently (daily, 2-3 times weekly, end of every session) to evaluate child progress & growth in meeting benchmarks & goals.	Tier 1 support + targeted instruction & practice individualized to specific areas of identified academic or social need.	One-on-one support highly targeted and individualized instruction provided by a trained professional.

Fig. 4.2 Three-tiered pyramid description

specific needs of children who have not demonstrated sufficient growth with less intense levels of support. Tier 3 support is most often designed for children with insufficient growth in less intensive levels of intervention. At this level, interventions are targeted, and often individualized to fit each child's unique needs (Kaminski, 2012). Tier 3 interventions are typically the most intensive, differing

from Tier 2 in that they are (a) conducted more frequently; (b) potentially of a longer duration; (c) delivered either individually, or to very small groups of children; and (d) provided by individuals with considerable expertise (Fuchs & Fuchs, 2006). At this level of support, children are assessed even more frequently to evaluate their progress. Like Tier 2 intervention, Tier 3 support is supplemental to children's participation in the Tier 1 curriculum.

Universal screening and progress monitoring measures are primary methods of identifying children's needs, assessing their progress, and evaluating their success (see Fig. 4.3). In Tier 1, all children are assessed early in the year using universal screening measures. Data collected from these brief assessments are used within a decision-making framework to (a) develop a baseline measurement of children's academic and social skills, (b) determine which children are meeting expected benchmarks, and (c) ascertain which have skills that differ substantially from expected norms so additional support may be provided. Additional planned periodic measurement, progress monitoring for all children, is completed at several predetermined times throughout the school year (e.g., early, middle, late) to ensure that children are benefitting appropriately from Tier 1 curriculum, instruction, and learning opportunities. This measurement of growth between predetermined data collection points provides a trajectory of social and academic progress and offers rationale for future decision-making concerning children's needed level of support (DEC, NAEYC, & NHSA, 2013).

For children participating in Tier 2 or Tier 3 interventions, progress monitoring is completed frequently at regular intervals using measures specific to the interventions being employed, curricular benchmarks, or a child's learning goals. This level of assessment is necessary to aid in the decision-making process (Fuchs & Fuchs, 2007). For example, based on progress monitoring results, children demonstrating sufficient progress will no longer need Tier 2 support and will participate only in Tier 1 curriculum and instruction. Those whose growth is less rapid may continue to receive support in Tier 2; others who do not demonstrate expected growth, may receive a more intensive level of intervention in Tier 3 (Greenwood et al., 2011;

	Universal Screening & Progress Monitoring	**Progress Monitoring**
Who	All children	Small groups or individual children
What	Identify academic, social, and/or behavioral levels or needs	Identify change and growth in specific academic, social, or behavioral skill
When	Predetermined times of year (e.g. early, middle, late)	Regular time periods (e.g. weekly, every 2 weeks, monthly).
Why	Assess level of attainment of meeting benchmarks or readiness	Assess growth toward meeting specific learning goal
How	Brief measures easily administered by trained personnel	Measures related to intervention and targeted need administered by teachers or support personnel

Fig. 4.3 Applications for measurement tools

Koutsoftas, Harmon, & Gray, 2009). This flexible, data-driven system helps decision-making teams determine how to best provide needed support for children.

While most children find success in Tier 1 in all areas, it is not uncommon to find young children whose skills vary across domains. For example, universal screening results for a child who exhibits high level social-emotional skills and rarely demonstrates behavior problems in Tier 1 may indicate that she would benefit from additional Tier 2 or Tier 3 support in early literacy. Similarly, a child with strong early literacy skills who is successful in Tier 1, may struggle behaviorally, and require upper Tier support in that area.

In preschool settings, RTI emphasizes early identification and intervention to prevent children from falling too far behind their peers. The expectation is that early intervention will prevent delays from becoming disabilities (Greenwood et al., 2013). In this way, RTI serves as a form of selective prevention by targeting subgroups of children who show some risk for learning/academic problems or disabilities. RTI promotes the use of high-quality instruction that incorporates evidence-based methodology, a validated curriculum, and additional support as needed, further reinforcing proactive support as prevention of failure. By implementing RTI components, children without disabilities reach levels of academic proficiency similar to peers, whereas children who do not progress can be further evaluated for a potentially disabling condition.

The Historical Foundation of RTI

RTI garnered large-scale national attention with the 2004 reauthorization of the Individuals with Disabilities Education Improvement Act of 2004 (IDEA, 2004) where it was described as an alternative or supplemental method of identifying children with specific learning disabilities (SLDs). Prior to this legislation, identification of a SLD was often limited to the use of the IQ-discrepancy model which requires children to show a substantial difference between their ability and academic achievement. In this model, evaluation of assessment data required that comparison of standardized, norm-referenced instruments document a significant difference between a child's intellectual ability (e.g., Wechsler Intelligence Scale for Children, Wechsler, 2012) and his performance, usually documented through achievement tests (e.g., Woodcock-Johnson Tests of Achievement or the Wechsler Individual Achievement Test) (Woodcock, McGrew, & Mather, 2007). The introduction of the RTI alternative reframed the existing model that required children to fail prior to becoming eligible to receive support to one where some support could be provided prior to failure. While initially framed as a K-12 initiative, RTI is gaining increasing support in the area of early childhood education (Greenwood et al., 2011; DEC et al., 2013).

View from the Field: Literature Review

"The foundational principles of RTI provide educators with guidance on how to match the needs of children with appropriate levels of support to ensure that instructional opportunities are effective and foster continued progress" (Jackson et al., 2009, p. 9). To date, a majority of the preschool RTI literature can be categorized into distinct, yet not discrete foci on RTI approaches and models (Barnett, VanDerHeyden, & Witt, 2007; Berkeley, Bender, Peaster, & Saunders, 2009). The most prominent of these approaches and models include the components essential to the RTI framework (DEC et al., 2013), the development of RTI programs applicable to early childhood education settings (Barnett et al., 2007), developmental and academic skills where an RTI framework could benefit children (Fox, Carta, Strain, Dunlap, & Hemmeter, 2010; Greenwood et al., 2013), and the evaluation of specific RTI components either already developed or in development (Ball & Trammell, 2011; Buysse, Peisner-Feinberg, & Burchinal, 2012; Gettinger & Stoiber, 2008). Our intent in this brief review of the literature is to provide an overview of the preschool RTI literature, not to recommend any particular model or methodology.

RTI Components

While a number of early childhood RTI frameworks have been developed, several features common to most include: (a) MTSS; (b) high- quality curriculum; (c) universal screening and continuous progress monitoring; and (d) collaborative problem solving among school officials, teachers and parents (DEC et al., 2013).

Multi-tiered systems of support. The dynamic hierarchy of the RTI framework has been identified as a critical feature of the RTI framework (Carlis & Lesiak, 2011; Carta & Buysse, 2008; Greenwood et al., 2011). The incorporation of multiple tiers provides varying levels of instructional intensity, thus affording individual children the necessary amount of support each requires (Jackson et al., 2009) and is key "to support the diverse needs of individual and groups of young children" (DEC et al., 2013).

High-quality curriculum. According to DEC (2007), a high- quality curriculum incorporates "coordinated systems that connect curriculum, assessment, and program evaluation" through the employment of "educationally and developmentally significant goals as guides in [their] design and implementation." (p. 2). The National Association for the Education of Young Children (NAEYC) in collaboration with the National Association of Early Childhood Specialists in State Departments of Education (NAECS/SDE) identify a high-quality curriculum for young children as one that is "thoughtfully planned, challenging, engaging, developmentally appropriate, culturally and linguistically responsive, comprehensive, and likely to promote positive outcomes for all young children" (2009, p. 1).

Further, a high-quality curriculum is evidence-based, ensuring that the instructional practices recommended are tested and validated (What Works Clearinghouse, 2009), can be implemented with flexibility, and incorporate a continuum of practices and strategies designed to meet children's diverse needs (DEC, 2007; NAEYC & NEACS/SDE, 2009). It is widely agreed that a high-quality curriculum is a critical component for successful implementation in any program implementing RTI for young children (Coleman et al., 2009; DEC et al., 2013).

Universal screening and progress monitoring. These are critical components of any RTI framework. Universal screening is part of a decision-making process to determine which students are at risk for failure and which students are not (Ikeda, Neessen & Witt, 2008). Using a universal screening instrument or a curriculum-based assessment appropriate for this purpose with all children at key points throughout the school year serves to identify and follow children's progress in meeting expected academic and/or social benchmarks. "The performance of all students is evaluated systematically to identify those who are (a) making adequate progress, (b) at *some* risk of failure if not provided extra assistance, or (c) at *high* risk of failure if not provided specialized supports (Fox et al., 2010, p. 4). In contrast, progress monitoring is focused on measuring a child's progress in mastering the specific skills being addressed in supplemental instructional support provided as Tier 2 or Tier 3 intervention. Conducted frequently, this measurement is used to determine not only a child's responsiveness to intervention support, but the extent to which the intervention itself is successful in teaching the needed skills (Gersten et al., 2008; Gettinger & Stoiber, 2008; Jackson et al., 2009).

Collaborative problem solving. This feature "offers a process by which teachers, parents, specialists, and others can work together to plan various levels of instructional supports and assess how well children respond to them." (Buysse & Peisner-Feinberg, 2010, p. 2) Within these partnerships, results from screening and progress monitoring assessments are used to identify interventions, supports, and future directions. Barnett et al. (2007) identify specific roles in which all problem-solving team members can participate across the RTI spectrum.

RTI Development in Preschool: Emerging RTI Models

While much of the research literature related to RTI has focused on school-age children, there has been a steady upsurge in studies involving preschool children. According to Bayat, Mindes, and Covitt (2010), RTI during the early childhood years can serve prevention-based functions. These functions include amelioration of factors that place children at risk for learning/academic problems and addressing early behavioral or emotional problems before they evolve into psychological disorders. Bayat et al. note that the general characteristics of RTI, including RTI teams, are similar between elementary and preschool. However, parents/caregivers and other family members should be integrally involved as part of the problem-solving process at the preschool level.

Building Blocks. One of the earliest models, Building Blocks (Sandall, Schwartz, & Joseph, 2001; Sandall & Schwartz, 2002, 2008), is well aligned with the RTI framework, but does not self-identify specifically as a preschool RTI model. Building Blocks has a strong theoretical foundation, but the model as a whole has not been extensively evaluated through research studies. It was developed to provide a methodology for including young children with disabilities in preschool classrooms. Building Blocks contains a quality early childhood program at its foundation. For students who require more than this foundation, curricular modifications, and adaptations are carried out. According to Sandall and Lawrence, the most useful types of modifications and adaptations include: (a) special equipment, which are special devices or materials that enable a child to participate or increase levels of participation; (b) simplification of activities or tasks by either reducing the number of components or breaking them down into smaller, more distinct steps or parts; (c) environmental supports, which can entail a variety of changes to the physical or social aspects of an activity or routine or changes to its timing, sequence, etc.; (d) peer support, which involves engaging peers to help target children learn key skills or attain specific objectives; (e) adult support, where an adult engages with the child or activity to enhance participation or learning; (f) material adaptation, which involves altering a material to maximize a child's participation and independence in completing an activity; (e.g., use of larger manipulative in fine motor activities, attaching Velcro so items will stay in place, etc.); (g) child preferences, which includes incorporation of the child's interests and preferences into activities; and (h) invisible support, which involves intentionally establishing natural events/routines within an activity to enhance learning.

Following modifications and adaptations, the next more intensive level of Building Blocks, is embedded learning opportunities (ELOs). ELOs are instructional strategies or teaching incidents that are built into regular classroom activities/routines and focus on the child's attainment of a specific learning objective. ELO's are frequently arranged as learning trials that incorporate an antecedent-behavior-consequence (A-B-C) model. According to Sandall and Lawrence, ELOs are intended to be more individualized in addressing a child's needs and provide opportunities to acquire, practice, master, generalize and/or maintain key skills in meaningful situations. Finally, Child-focused Instructional Strategies (CFIS) are at the top of the Building Blocks curriculum pyramid. CFISs are implemented for children with special needs for whom the lower levels of the pyramid are not effective enough. These strategies are used to reach a specific or specialized learning objective for a child. They involve more methodical and/or intensive instructional periods, including A-B-C trials, more frequent progress monitoring, and use of prompting and fading strategies (Sandall and Lawrence).

The Teaching Pyramid. The Teaching Pyramid (Fox, Dunlap, Hemmeter, Joseph, & Strain, 2003, Fox et al., 2010; Hemmeter, Ostrosky, & Fox, 2006; Fox, 2012) is a widely disseminated, multi-tiered model that focuses on the development of positive behavioral and social-emotional skills in preschool children. It can be applied to young children with a diverse range of needs, including those with more challenging behavioral and/or emotional problems. The foundation of the Pyramid

Model is Universal Promotion, which in many ways is aligned with the concept of primary prevention. Universal Promotion incorporates two types of practices: Nurturing and Responsive Caregiving Relationships, which refers to close ties between young children and their caregivers at home and in school, and High Quality Supportive Environments, which encompass home, early childhood programs and/or other environments that are structured and provide developmentally appropriate experiences (Hurley, Saini, Warren, & Carberry, 2013). The next tier, Targeted Social-Emotional Supports, is considered a form of secondary prevention and involves specific, direct practices, such as explicit teaching of social and emotional skills and/or use of social skills curricula. This tier is targeted toward young children who have difficulty acquiring satisfactory social-emotional competencies from Universal Promotion. Targeted Social-Emotional Supports are intended to reduce/replace challenging behaviors and develop positive social-emotional skills such as handling frustration and anger, problem solving in social situations, and initiating social interactions (Hurley et al.; Snyder, Hemmeter, Fox, Bishop, & Miller, 2013). The top of the Teaching Pyramid, Tier 3, consists of Intensive Interventions. Children at this level require tertiary intervention, meaning that they have more significant behavioral and/or social-emotional challenges which have not responded to the lower tiers of the model. Intensive interventions are comprised of positive behavioral support plans which are individualized and based upon functional assessments (Snyder et al.). Such assessments, which are covered in Chap. 6 of this text, look at the nature and function of problem behaviors and/or social-emotional deficits.

As reported by Hurley et al. (2013), the Teaching Pyramid has been adopted by multiple states and is disseminated by the Center on the Social Emotional Foundations for Early Learning (see http://csefel.vanderbilt.edu/). In addition to providing tiers of prevention and intervention, the Teaching Pyramid incorporates professional development training, including performance-based coaching. Expert coaches provide follow-up in teachers' classrooms after their program, site or agency attends training workshops on the Teaching Pyramid. In addition, the model uses a Teaching Pyramid Observation Tool (TPOT-P; Fox, Hemmenter, & Synder, 2008), which was designed to evaluate the extent to which a teacher or caregiver is implementing high-quality practices with fidelity. The TPOT-P is a multi-method tool that applies observer ratings in three areas: (a) environmental arrangements, (b) key practice subcomponents, and (c) red flags. Environmental arrangements focus on different physical and material aspects of classrooms (e.g., how the classroom is set up, type and variety of learning centers, etc.) (Snyder et al., 2013). Key practice subcomponents are factors considered integral to program quality, and many of them involve teaching or otherwise promoting positive social-emotional skills or addressing challenging behaviors. Red flags are procedures, routines, or other teaching or classroom factors that are inconsistent with or discordant from the Teaching Pyramid. In addition to serving as a fidelity tool, the TPOT-P is utilized as a feedback mechanism to guide teachers and provide ongoing support to help them implement quality practices that are aligned with the Teaching Pyramid (Fox et al., 2010).

Exemplary Model of Early Reading Growth and Excellence (EMERGE). Project EMERGE (Gettinger & Stoiber, 2008) is an RTI model intended for preschool programs. Incorporating all critical components of RTI, Project EMERGE consists of (a) empirical classroom practices and high-quality classroom environments; (b) curriculum provided at different levels of intensity through a multi-tiered structure; (c) quality professional development, including literacy coaching; and (d) universal testing and progress monitoring to guide instruction and identify children who might need additional support. EMERGE was developed to help ensure that children who come from lower SES backgrounds start kindergarten with the essential early skills needed for successful reading. It fosters the development of these early skills including sound awareness; oral language skills (e.g., listening comprehension, vocabulary, etc.); alphabet knowledge; and print awareness. According to Gettinger and Stoiber, EMERGE consists of three tiers. Tier 1 consists of the Scholastic Early Childhood Program, a pre-K curriculum; shared book reading; a literacy-rich environment; and SOAP activities, with SOAP standing for sound awareness, oral language skills, alphabet knowledge, and print awareness. Tier 2 involves daily small-group instruction. Both of these tiers are implemented by children's classroom teachers who receive consistent professional development and coaching sessions. Children who require Tier 3 interventions receive intensive, explicit instruction in literacy skills that is adapted to their specific needs and is provided by specialized literacy tutors. Gettinger and Stoiber note that children in all three tiers are exposed to the same curriculum sequence. In addition, they emphasize that there is flexibility and fluidity in terms of movement among the tiers. Thus, even though EMERGE is an RTI model, it is not lock-step when it comes to moving children between tiers.

Gettinger and Stoiber (2008) conducted a preliminary evaluation of EMERGE with 15 classrooms serving low-income families. In addition to the Tier 1 instruction received by all students, supplemental Tier 2 instruction was delivered in small, teacher led groups. Tier 3 instruction was provided to 20 % of children who scored in lowest levels for early literacy skills. Tier 3 consisted of individual tutoring provided by graduate students and volunteers. Preliminary results showed significant improvements in the quality of the classrooms' environment, scores went from a mean of 47.18 (SD = 7.47) at the beginning of the school year to 63.44 (SD = 4.11) at the end of the school year. Children participating in EMERGE outperformed peers in control classrooms with effect sizes ranging from 0.13 to 0.45.

Recognition and Response. Recognition and Response (R & R; Buysse & Peisner-Feinberg, 2010; Coleman, Buysse, & Neitzel, 2006) is a model that focuses specifically on early academic skills development, including literacy, language, and numeracy skills, for 3–5-year-old children. Like other RTI models, R & R incorporates universal screening at Tier 1, progress monitoring, research-based interventions provided in three tiers, and collaborative problem solving (Buysse and Peisner-Feinberg). The foundation of R & R is twofold, recognition followed by response. According to Coleman et al. (2009), *Recognition* occurs through the process of universal screening of all children and frequent progress monitoring of

children identified as being in need of additional support. *Response* is accomplished by providing high-quality instruction and targeted interventions to those who were recognized as needing it. In addition to utilizing screening and an evidence-based core curriculum, Tier 1 includes a *response* component consisting of specific, focused teaching of core skills (e.g., vocabulary, understanding story concepts, etc.). The *response* component of Tier 2 includes explicit instruction that is supplemented with embedded learning activities, which are additional opportunities for children to practice key skills. Tier 3, which is intended for approximately 5 % of children, continues to provide explicit instruction and embedded learning for the *response* component. *Response* for this tier also includes scaffolding interventions, which are individualized strategies that build upon the other forms of instruction and give more support and opportunities to learn early academic skills (Buysse and Peisner-Feinberg). Specific examples of scaffolding are modeling answers to questions from books, incorporating peers into learning games/activities, and use of out-loud talking through steps of problem solving. Buysse et al. (2012) conducted a study of the R & R program in community-based preschools. Results indicated that targeted language and literacy skills of children who participated in the intervention grew significantly faster than those in the comparison group, with effect sizes ranging from 0.34 to 0.74. An evaluation of the feasibility of the program indicated that the majority of participating teachers were able to implement interventions with fidelity.

Additional Resources for Early Childhood RTI

Linking directly to RTI practices, the *Curriculum Framework* (Grisham-Brown & Pretti-Frontczak, 2013; Jackson et al., 2009) focuses on curricula structures as the bedrock of any high-quality early childhood learning experience. It individualizes and adapts practices based on children's assessment data, provides opportunities for learning through daily routines and promotes collaboration among school personnel and parents. Some of the key features of this program are its direct tie to evidence-based practices (Grisham-Brown, 2005, 2012), flexibility to allow application across a variety of early learning programs (Division for Early Childhood, 2007), and focus on collaboration between families and professionals (Pretti-Frontczak et al., 2007).

The *Center for RTI in Early Childhood* (CRTIEC) is an organization center devoted to carrying out research and providing resources that support the use of RTI in early childhood education centers. It is charged with the development and improvement of RTI components and implementation related to language and literacy in preschool settings. A consortium of the Juniper Garden Children's Project at the University of Kansans, the Center for Early Education and Measurement at the University of Minnesota, the Schoenbaum Family Center at the Ohio State University, and the Dynamic Measurement Group in Eugene, OR, CRTIEC has completed an extensive descriptive study of the current status of Tier 1 in Pre-K classrooms (Greenwood et al., 2013). It has also developed and tested: (a) screening

and progress monitoring tools, such as the early literacy version of the Individualized Growth Development Indicators (IGDIs; McConnell, Bradfield, Wackerle-Hollman, & Rodriguez, 2013); (b) vocabulary, comprehension, and early literacy Tier 2 listening center interventions (Spencer et al., 2013); and (c) Tier 3 early literacy and language interventions for children who require this level of support and are significantly behind their peers (Kaminski, 2012). All CRTIEC-developed early childhood RTI materials are assessed in authentic contexts, across multiple program types, and in diverse geographic settings with promising outcomes.

An example of a Tier 2 intervention developed by CRTIEC is storybook listening with embedded lessons. This intervention provides explicit instruction and gives children plenty of opportunities to respond (Spencer et al., 2013). Tier 3 interventions are empirically-driven, brief, and flexible enough to accommodate individual needs. These interventions focus on a few priority skills to provide intensive and engaging activities through the use of games and storybooks (Kaminski, 2012). Research based upon these interventions has generated a growing body of evidence. For example, Kelley and Goldstein (2015) describe the long-term process of developing, refining, and researching the Tier 2 intervention known as Story Friends, which involves embedded instruction of vocabulary and comprehension in storybooks. In their five year development and review process, they found that Story Friends yielded improvements for a number of preschoolers from a variety of settings. Similarly, after a multi-year development and review process, Kaminski, Powell-Smith, Hommel, McMahon, and Aguayo (2015) found moderate to strong effect sizes for a CRTIEC Tier 3 intervention designed for preschoolers who initially showed very low early literacy skills. This intervention consisted of a specific structure and sequence of literacy-based activities and games that were integrated into center time or small-group instruction for one or two children.

RTI Framework Growth

Linas, Greenwood, and Carta (2012) conducted a national study assessing the current state of RTI, in which they surveyed IDEA-Part B directors, state Pre-K directors, and Head Start State National Collaboration Office directors. When asked in which domains and skill sets RTI is most commonly focused in their states, respondents indicated early literacy and social/behavioral outcomes. Of the 45 US states and territories responding to this question, 33 indicated early literacy; 31 pinpointed social-emotional skills; 19 included numeracy abilities; and 16 identified language skills. Fourteen states indicated only one domain where RTI or MTSS methods were currently being considered or implemented. These findings are well supported by interventions, measurement tools, and models of application currently being designed and evaluated by researchers, states, districts, and classrooms across the country. These initial evaluations of emerging programs using RTI-based systems show constructive results and suggest that these systems warrant more

extensive implementation in the future. However, while the RTI framework shows considerable promise for application in early childhood education, additional empirical research demonstrating effects of specific interventions within this framework is needed.

Implications for Practice

Empirical Support: A Cautionary Tale

Models of RTI/MTSS in early childhood education have expanded, but continue to evolve. Although there is empirical support for RTI K-12 programs in some domains and evidence to support multiple components of RTI in early childhood settings (Buysse & Peisner-Feinberg, 2010; Fox et al., 2010; Gettinger & Stoiber, 2008; Spencer et al., 2013), additional empirical research of how early childhood RTI works as a whole is needed. According to Greenwood et al. (2011, 2013), because preschool RTI is relatively new, the empirical benefits of this system are still being established. Of the work that is been done in the past 4–6 years, a number of studies show promising results, however, much of the work is incomplete. In addition, the effects of specific interventions at various RTI tiers require further investigation.

Although there are a number of universal screening instruments currently being used in early childhood settings, many have not yet been validated for the purpose of determining what level of support any given child might need. Similarly, while there are instruments that have been specifically designed for progress monitoring, most are in testing stages and not yet published, the exception being the IGDIs in early literacy (IGDIs-EL) and IGDIs in early numeracy (IGDIs-EN; Hojnoski & Floyd, 2006). Both of these tools were developed to conduct universal screening and progress monitoring. They are brief to administer and can be administered frequently to monitor short-term growth. In addition, both were specifically designed to be used during the preschool period. Finally, Tier 2 and 3 interventions continue to be developed for both early academic and social-emotional skills. Some of these interventions have begun to gain empirical support, while others have not been thoroughly investigated.

Implications of RTI for Psychologists and Other Practitioners

- RTI is proving to be a promising practice that is highly compatible with the goals of early childhood education. It has potential benefits for young children, teachers, and parents.
- RTI provides a context in which to define quality curriculum and instruction (Jackson et al., 2009). School administrators can potentially evaluate the

effectiveness of their curricula and fidelity of implementation based on the number of children meeting benchmarks at multiple points in time throughout the year.

- Universal screening and progress monitoring provide teachers with continuous feedback about children's progress, which can be used to guide instruction and decision-making (Gerzel-Short & Wilkins, 2009). In contrast to waiting for a child to be diagnostically assessed, early screening and ongoing progress monitoring have the potential to provide early detection and timely intervention.
- RTI demands collaboration among early childhood professionals and requires parents and teachers to work together. This collaboration serves to improve communication across programs, and ultimately helps make better decisions about the most appropriate support for each child (DEC et al., 2013).
- Although still in early stages, emerging RTI models, programs, measurement tools, and interventions offer evidence of promise for MTSS in early childhood settings and suggest that further research of the efficacy and feasibility of this framework is worthy of consideration.

Case Studies

Case Study 1

Ethan is a 4-year-old child who attends a Title 1 half-day preschool program. Since the beginning of the school year, his teacher, Mrs. Kemp, noticed his struggle with a number of early literacy skills. For example, he often makes errors when identifying words that rhyme, and is consistently unable to identify beginning word sounds without adult assistance. Mrs. Kemp's concern is increasing because Ethan's skills in these areas appear to be lagging further and further behind his peers as the school year is progressing, and she worries that he will not have sufficient readiness when he begins kindergarten next year.

This year, Ethan's school has implemented an RTI framework in which all children are screened at the beginning, middle, and end of the school year. Two of the assessments that are used to evaluate all children are the Rhyming and Alliteration parts of the IGDIs-EL. The Rhyming IGDI is an individually administered task in which the examiner presents the child with sets of pictures, names all of them, and then asks the child to choose the two that rhyme (e.g., bees, cheese, cat). The Alliteration IGDI is an individually administered task in which the examiner presents the child with sets of pictures, naming them, and then says a word and asks the child to indicate which picture has the same initial sound as the target word. One point is awarded for each correct answer, with a possible maximum score of 25 for each task.

As suspected, Ethan's initial IGDI scores are very low on the Rhyming and Alliteration tasks. To gain further information, Ethan entered into a baseline phase

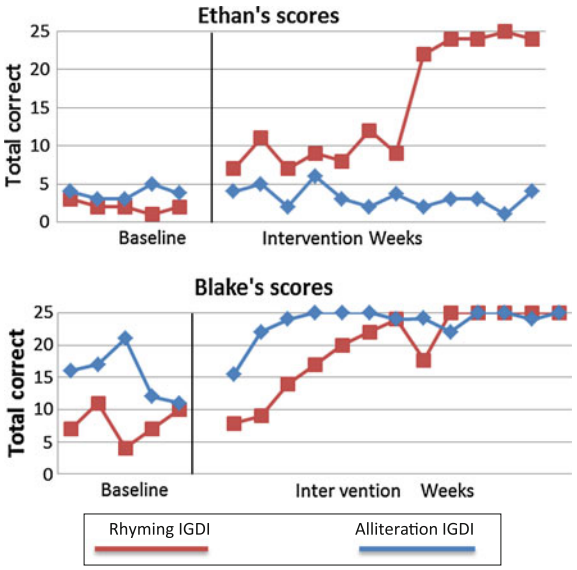


Fig. 4.4 Progress monitoring data for Ethan and comparison child

where he was tested using equivalent versions of Rhyming and Alliteration IGDIs 5 weeks in a row (see Fig. 4.4). In Ethan's school, children who are in need of additional support receive focused intervention consisting of curriculum-based activities 3 days a week, 15 min a day, for a 12 week period. This occurs during center time so participating children do not miss any of the literacy instruction provided to their classmates. Children's progress was monitored each week using Rhyming and Alliteration IGDI measures. Progress monitoring data for Ethan and another child in his group, Blake, is provided above.

Discussion Questions

1. What data were used to determine that Ethan and Blake should receive Tier 2 intervention in early literacy?
   a. Were the data sufficient to make that decision? Why or why not?
   b. Was the decision to provide intervention appropriate for both Ethan and Blake? Why or why not?
   c. If more information were necessary prior to making a decision, what would it be and how would it be obtained?
2. Compare Ethan's response to the Rhyming and Alliteration intervention to Blake's response. What characteristics, decisions, or events might explain the differences in their responses?
3. Recommend the next step for each child at the end of the 12 week intervention period.

Case Study 2

Guillermo, who is almost 5 years old, attends prekindergarten in a public school in the district where he lives with his parents and two older siblings. Although the primary language he hears at home and is most comfortable speaking is Spanish, Guillermo has picked up some English from his siblings. As part of a district-wide mandate to better understand children's language skills, most bilingual children are tested in both English and their home language. Guillermo and his Spanish-speaking classmates were assessed using the English and Spanish versions of the Preschool Language Assessment Scale (Pre-LAS; Duncan & De Avila 1988). Each version of the Pre-LAS assesses auditory comprehension, expressive labeling, sentence repetition and story retelling. In both the English and Spanish versions, a child's performance on the sub-tests leads to a composite score ranging from 1 to 5. The English version classifies children's performance into proficiency categories as follows: 1 = non-English speaker; 2 or 3 = limited English speaker; and 4 or 5 = fluent/proficient English speaker.

Guillermo's evaluation also included administration of the Peabody Picture Vocabulary Test-Fourth Edition (PPVT-IV; Dunn & Dunn, 2007), and the Comprehensive Evaluation of Language Fundamentals Preschool-Second Edition (CELF-P2; Wiig, Secord, & Semel, 2004) The PPVT is a measure of receptive vocabulary knowledge, in which children are asked to choose among four pictures to identify one that matches a prompt given by assessor. The Core Language Subscale of the CELF is a measure of expressive vocabulary, word structure, sentence structure, and core language skills. The mean standard score on both the PPVT and the CELF is 100 with a standard deviation (SD) of 15. Guillermo's PPVT scores fell three 3 SDs below the mean; his CELF Core Language Composite score of 68 fell more than 2 SDs below the mean. (see Table 4.2). In concordance with his Pre-LAS scores, which indicate that his language deficit is not simply due to his limited exposure to English, these results appear to indicate that Guillermo has a delay in both English and Spanish language skills.

School personnel met with Guillermo's parents, and with the help of an interpreter, it was decided that Guillermo would participate in one-on-one intervention with a teacher using storybooks and games designed to teach vocabulary. Following

Table 1 Scores for Guillermo and Comparison children

Child	English pre-LAS proficiency category	Spanish pre-LAS proficiency category	PPVT SS	CELF core language SS
Guillermo	1	2	65	68
Joseph	1	2	63	60
Yared	1	3	83	79

Note English pre-LAS = English Preschool Language Assessment Scale; Spanish pre-LAS = Spanish Preschool Language Assessment Scale; PPVT SS = Peabody Picture Vocabulary Test—Standard Score; CELF SS = Clinical Evaluation of Language Fundamentals—Core Language Standard Score

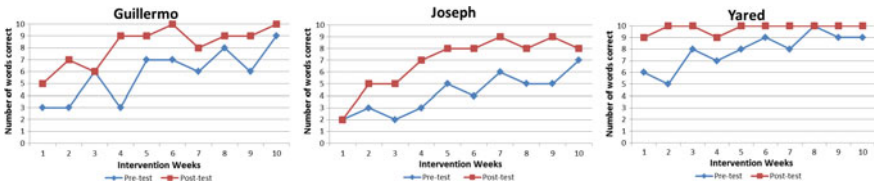


Fig. 4.5 Mastery monitoring data for guillermo and comparison children

an introductory period of two weeks, during which Guillermo would have opportunities to become familiar with the intervention teacher and the types of materials being used, intervention would take place a minimum of four times weekly for a period of 10 weeks. A mastery monitoring measure focused on the words intentionally taught would be used to evaluate Guillermo's progress.

Mastery monitoring assessments were administered once a week, both during the 2 week introductory phase (baseline) and throughout the 10 week/lesson intervention phase (Fig. 4.5). All data collected during the baseline phase was intended to evaluate the stability of the child's skills before the intervention took place, and was not included in the report of progress monitoring. Each intervention lesson included 10 target words to be learned during the week. The same 10 words were assessed before the lesson (pre-test) and again immediately after the lesson (post-test). Children were awarded one point for each word named correctly, for a possible total score of 10. The pre-test score was subtracted from the post-test score to obtain gain measures. Pre and post mastery monitor scores for Guillermo and two classmates also participating in this intervention are displayed in the figures.

Discussion Questions

1. Why was Guillermo recommended to participate in a Tier 3 intervention rather than (a) waiting until later in the school year to see his progress following a few months of instruction in English, (b) conducting a comprehensive evaluation to determine whether or not he was in need of and eligible for special education services, or (c) including him in Tier 2 intervention with other children in need of additional support?
2. Which child benefited most from participating in the intervention? Explain why.
3. After reviewing each child's progress in this intervention, use data-based decision-making to develop recommendations for each of them including: (a) the appropriate level of support needed, (b) specific additional assessments, if needed, and (c) plan for follow-up.

References

Ball, C. R., & Trammell, B. A. (2011). Response-to-intervention in high-risk preschools: Critical issues for implementation. *Psychology in the Schools, 48*(5)

Barnett, D. W., VanDerHeyden, A. M., & Witt, J. C. (2007). Achieving science-based practice through response to intervention: What it might look like in preschools. *Journal of Educational & Psychological Consultation, 17*(1), 31–54.

Bayat, M., Mindes, G., & Covitt, S. (2010). What does RTI (response to intervention) look like in preschool? *Early Childhood Education Journal, 37*, 493–500.

Berkeley, S., Bender, W. N., Peaster, L. G., & Saunders, L. (2009). Implementation of response to intervention: A snapshot of progress. *Journal of Learning Disabilities, 42*(1), 85–95.

Buysse, V., & Peisner-Feinberg, E. (2010). Recognition & Response: Response to intervention for Pre-K. *Young Exceptional Children, 13*(4), 2–13.

Buysse, V., Peisner-Feinberg, E., & Burchinal, M. (2012). *Recognition & Response: Developing and evaluating a model of RTI for Pre-K.* Poster presentation at the Fifth annual meeting of the Society for Research on Educational Effectiveness, Washington, D.C.

Carlis, L., & Lesiak, M. A. (2011, September). *Using RTI to improve outcomes across domains in Washington, DC preschools.* Third annual RTI early childhood summit, Kansas City, MO.

Carta, J. J., & Buysse, V. (2008, December). *What do we know and what does it look like? Response to intervention (RTI) in early childhood.* Presentation at the OSEP National Early Childhood Conference, Washington, DC.

Center for Response to Intervention in Early Childhood. (n.d.). What is RTI? Retrieved from http://www.crtiec.dept.ku.edu/

Coleman, M. R., Buysse, V., & Neitzel, J. (2006). *Recognition and response: An early intervening system for young children at risk for learning disabilities*. Full Report. Chapel Hill: The University of North Carolina at Chapel Hill, FPG Child Development Institute.

Coleman, M. R., Roth, F. P., & West, T. (2009). *RoadMap to PreK RTI: Applying response to intervention in preschool settings.* NY: National Center for Learning Disabilities.

DeAvila, E. A., & Duncan, S. E. (2000). *PreLAS 2000 technical manual, English forms C and D*. Monterey, CA: CTB/McGraw-Hill.

DeAvila, E. A., & Duncan, S. E. (2003). *Pre-school Language Assessment Scale 2000—Spanish.* Monterey, CA: CTB/McGraw-Hill.

Division for Early Childhood (DEC). (2007). *Promoting positive outcomes for children with disabilities: Recommendations for assessment, curriculum, and program evaluation.* Retrieved from http://www.decsped.org/uploads/docs/about_dec/position_concept_papers/Prmtg_Pos_Outcomes_Companion_Paper.pdf

Division for Early Childhood of the Council for Exceptional Children (DEC), National Association for the Education of Young Children (NAEYC), & National Head Start Association (NHSA). (2013). *Frameworks for response to intervention in early childhood: description and implications.* Retrieved from http://www.naeyc.org/files/naeyc/RTI%20in%20Early%20Childhood.pdf

Dunn, L. M., & Dunn, D. M. (2007). *Peabody Picture Vocabulary Test* (4th ed.). Bloomington, MN: Pearson Assessments.

Fox, L. (2012, September). *Scaling up the Implementation of an RtI for social emotional competence: The Pyramid Model*. RTI Early Childhood Summit, Santa Ana Pueblo, NM.

Fox, L., Carta, J., Strain, P. S., Dunlap, G., & Hemmeter, M. L. (2010). Response to intervention and the Pyramid Model. *Infants and Young Children, 23*(1), 3–13.

Fox, L., Dunlap, G., Hemmeter, M. L., Joseph, G. E., & Strain, P. S. (2003). The Teaching Pyramid: A model for supporting social competence and preventing challenging behavior. *Young Children, 58*(4), 48–52.

Fox, L., Hemmenter, M. L., & Synder, P. A. (2008). *Teaching Pyramid Observation Tool-Research Edition*. Baltimore, MD: Brookes.

Fuchs, D., & Fuchs, L. S. (2006). Introduction to response to intervention: What, why, and how valid is it? *Reading Research Quarterly, 41*(1), 93–99.

Fuchs, D., Fuchs, L. S., & Stecker, P. M. (2010). The "blurring" of special education in a new continuum of general education placements and services. *Exceptional Children, 76*(3), 301–323.

Fuchs, L. S., & Fuchs, D. (2007). The role of assessment in the three-tier approach to reading instruction. In D. Haager, J. Klingner, & S. Vaughn (Eds.), *Evidence-based reading practices for response to intervention* (pp. 29–44). Baltimore, MD: Paul H. Brookes.

Gersten, R., Compton, D., Connor, C. M., Dimino, J., Santoro, L., Linan-Thompson, S., et al. (2008). Assisting students struggling with reading: Response to Intervention and multi-tier intervention for reading in the primary grades. A practice guide (NCEE 2009–4045). Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, US Department of Education.

Gerzel-Short, L., & Wilkins, E. (2009). Response to intervention: Helping all students learn. *Kappa Delta Pi Record, 45*(3), 107–110.

Gettinger, M., & Stoiber, K. (2008). Applying a response-to-intervention model for early literacy development in low-income children. *Topics in Early Childhood Special Education, 27*, 198–213.

Greenwood, C. R., Bradfield, T., Kaminski, R., Linas, M. W., Carta, J. J., & Nylander, D. (2011). The response to (RTI) approach in early childhood. *Focus on Exceptional Children, 43*(9), 1–22.

Greenwood, C. R. Carta, J. J., Atwater, J., Goldstein, H., Kaminski, R., & McConnell, S. (2013). Is a response to intervention (RTI) approach to preschool language and early literacy instruction needed? *Topics in Early Childhood Special Education, 33*, 48–64.

Gresham, F. M. (2007). Response to intervention and emotional and behavioral disorders: Best practices in assessment for intervention. *Assessment for Effective Intervention, 32*(4), 214–222.

Grisham-Brown, J. (2012, March) *Designing and implementing a curriculum framework for ALL children*. Workshop for Children Together Conference, Alexandria, VA.

Grisham Brown, J. L., Hemmeter, M. L., & Pretti-Frontczak, K. L. (2005). *Blended practices for teaching young children in inclusive settings*. Baltimore, MD: Brookes.

Grisham-Brown, J. L., & Pretti-Frontczak, K. (2013). A curriculum framework for supporting young children served in blended program. In V. Buysse & E. Peisner-Feinberg (Eds.), *Handbook for response to intervention (RtI) in early childhood*. Baltimore, MD: Brookes.

Hemmeter, M. L., Ostrosky, M., & Fox, L. (2006). Social and emotional foundations for early learning: A conceptual model for intervention. *School Psychology Review, 35*, 583–601.

Hojnoski, R., & Floyd, R. (2006). My IGDIs Early Numeracy Assessments (Preschool Numeracy Indicators). University of Memphis. Retrieved from http://www.myigdis.com/preschool-assessments/early-numeracy-assessments/

Hurley, J. J., Saini, S., Warren, R. A., & Carberry, A. J. (2013). Use of the Pyramid Model for supporting preschool refugees. *Early Childhood Development and Care, 183*(1), 75–91. doi:10.1080/03004430.2012.655242

Ikeda, M. J., Neessen, E., & Witt, J. C. (2008). Best practices in universal screening. In A. Thomas & J. Grimes (Eds.), *Best practices in school psychology V* (pp. 103–114). Bethesda, MD: National Association of School Psychologists.

Individuals with Disabilities Education Improvement Act of 2004. Pub. L. No.108–446 § 300.115 2004.

Jackson, S., Pretti-Frontczak, K., Harjusola-Webb, S., Grisham-Brown, J., & Romani, J. (2009). Response to intervention: Implications for early childhood professionals. *Language, Speech and Hearing Services in Schools, 40*(4), 424–434.

Kaminski, R. (2012, September). *Tier 3 support for early literacy and language: Individual differences and lessons learned*. RTI Early Childhood Summit, Santa Ana Pueblo, NM.

Kaminski, R., Powell-Smith, K. A., Hommel, A., McMahon, R., & Aguayo, K. B. (2015). Development of a Tier 3 curriculum to teach early literacy skills. *Journal of Early Intervention, 36*(4), 313–332. doi:10.1177/1053815115581210

Kelley, E. S., & Goldstein, H. (2015). Building a Tier 2 intervention: A glimpse behind the data. *Journal of Early Intervention, 36*(4), 292–312. doi:10.1177/1053815115581657

Koutsoftas, A. D., Harmon, M. T., & Gray, S. (2009). The effect of tier 2 intervention for phonemic awareness in a response-to-intervention model in low-income preschool classrooms. *Language, Speech, and Hearing Services in Schools, 40*, 116–130.

Linas, M., Greenwood, C. R., & Carta, J., (2012, June). *Taking a snapshot of early childhood Response to Intervention across the United States: 2009–2012*. Poster presented at the Head Start National Research Conference, Washington, DC.

McConnell, S., Bradfield, T., Wackerle-Hollman, A., & Rodriguez, M. (2013). My IGDIs administration manual, early literacy+. University of Minnesota. Retrieved http://www.myigdis.com/wp-content/uploads/2014/04/myIGDIs-Literacy+-Screening-Administration-Manual.pdf?fcd24a

National Association for the Education of Young Children, & National Association of Early Childhood Specialists in State Departments of Education. (2009). *Where we STAND on curriculum, assessment, and program evaluation.* Retrieved from http://www.naeyc.org/files/naeyc/file/positions/StandCurrAss.pdf

Pretti-Frontczak, K., Jackson, S., Goss, S., Grisham-Brown, J., Horn, E., Harjusola-Webb, S., … Matthews, D. (2007). A curriculum framework that supports quality early childhood education for all young children [Monograph]. *Young Exceptional Children, 9*, 16–28.

Sandall, S.R., & Lawrence, L. *Just the right amount of help: Building blocks for including and teaching young children with disabilities*. www.headstartinclusion.org

Sandall, S. R., & Schwartz, I. S. (2002). *Building blocks for teaching preschoolers with special needs*. Baltimore, MD: Brookes.

Sandall, S. R., & Schwartz, I. S. (2008). *Building blocks for teaching preschoolers with special needs* (2nd ed.). Baltimore, MD: Paul H. Brookes.

Sandall, S., Schwartz, I. S., & Joseph, G. (2001). A building blocks model for effective instruction in inclusive early childhood settings. *Young Exceptional Children, 4*(3), 3–9.

Snyder, P. A., Hemmeter, M. L., Fox, L., Bishop, C. C., & Miller, M. D. (2013). Developing and gathering psychometric evidence for a fidelity instrument: The Teaching Pyramid Observation Tool-Pilot Version. *Journal of Early Intervention, 35*(2), 150–172.

Spencer, E. J., Goldstein, H., Sherman, A., Noe, S., Tabbah, R., Ziolkowski, R., et al. (2013). Effects of an automated vocabulary and comprehension intervention: An early efficacy study. *Journal of Early Intervention*, first published on January 18, 2013. doi:10.1177/1053815112471990

Wechsler, D. (2012). *Wechsler Intelligence Scale for Children* (4th ed.). San Antonio, TX: Psychological Corporation.

What Works Clearinghouse. (2009). *WWC evidence reviews protocol for early childhood interventions, version 2.0.* Retrieved from http://ies.ed.gov/ncee/wwc/pdf/reference_resources/ece_protocol_v2.0.pdf

Wiig, E., Secord, W., & Semel, E. (2004). *Clinical Evaluation of Language Fundamentals—Preschool* (2nd ed.). San Antonio, TX: Harcourt Assessment.

Woodcock, R. W., McGrew, K. S., & Mather, N. (2001, 2007). *Woodcock-Johnson Tests of Achievement (WJ III®)* (3rd ed.). Chicago, IL: Riverside Publishing.

Chapter 5
Early Childhood Authentic and Performance-Based Assessment

Karen Riley, Gloria E. Miller and Carly Sorenson

Abstract The purpose of this chapter is to discuss authentic, also known as performance-based, measures and methods that can be applied with infants, toddlers, and young children as alternatives to norm-referenced tests. These measures and methods provide meaningful information about young children's functioning in real-life environments. In addition to describing characteristics of authentic assessment, this chapter details specific types, including embedded methods, transdisciplinary play-based assessment, mediated approaches, and curriculum-based assessment. Following in-depth discussion of different authentic assessment techniques and instruments, practical and systematic challenges are described. This chapter concludes with implications for clinicians, including a table of instruments that summarizes domains of assessment, theoretical rationale, strengths, and limitations.

Keywords Mediated assessment · Embedded assessment approaches · Transdisciplinary play-based assessment · Dynamic assessment · Curriculum-based assessment · Work sampling · AEPS for Infants and Young Children · Individual Growth and Development Indicators

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A. Garro (ed.), *Early Childhood Assessment in School and Clinical Child Psychology*, DOI 10.1007/978-1-4939-6349-2_5

Introduction

The terms "testing" and "assessment" garner a great deal of attention in our current society. These terms are often used interchangeably, resulting in fear and misunderstanding on the part of consumers and confusion and stress on the part of professionals. Assessment is the process of measuring something and often involves observations (Educational definitions, 2013). Authentic assessment, however, is not synonymous with testing and requires a wide framework and repertoire of tools. This approach is particularly critical for work with young children. Two professional organizations have provided frameworks that can further clarify these distinctions.

The National Association of School Psychologists (NASP) provides a comprehensive overview of critical assessment terminology. "Assessment" is defined as the process of gathering information from a variety of sources and using a variety of sources/methods to best address the reason for evaluation. This term is contrasted with "testing," which is defined as the administration and scoring of designated tests (NASP, 2009). Clearly, these two concepts are not mutually exclusive, nor are they interchangeable. Each has a unique approach that provides a specific outcome in relation to a referral issue. According to NASP, assessment practices should be "tailored to the needs and assets of individuals, groups, and systems." The organization also advocates for assessment practices that are linked to instruction and intervention in order to enhance development, prevent delays, and address deficits.

The American Psychological Association (APA) has also provided guidelines for assessment that are outlined in several different sources (e.g., the *Code of Fair Testing Practices in Education* (American Psychological Association Joint Committee on Testing Practices, 2004), *APA Test User Qualifications* (Turner, DeMers, Fox, & Reed, 2001), etc.). *The Standards for Educational and Psychological Testing, which were created jointly by* the American Educational Research Association, APA, and National Council on Measurement in Education (1999, 2014), further describe the appropriate use of testing and differentiate it from assessment by stating, "The label test is ordinarily reserved for instruments on which responses are evaluated for their correctness or quality." Assessment is a broader term, commonly referring to a process that integrates test information with information from other sources. Psychological assessment involves solving problems or answering questions and, in addition to reviewing test results, might incorporate multiple data collection methods such as behavioral observations, interviews, and reviews of records (Vanderploeg, 2000). Unfortunately, time, resources, training, and policy constraints often challenge the roles of practitioners within the assessment process and create a system that is more geared toward testing and more challenging for assessment. As a result, practitioners must broaden their repertoire to include tools that are more authentic and address the fundamental purposes of assessment, particularly for young children.

Snow (2006), Bagnato, Goins, Pretti-Frontczak, and Neisworth (2014) and others have placed ecological validity as the paramount consideration when assessing young children. Educators, policymakers, and researchers have criticized

standardized, norm-referenced tests of global developmental and psychoeducational functioning as being too deficit-oriented and artificial as well as invalid and lacking relevance for young children's everyday functioning or intervention planning (Keilty, LaRocco, & Casell, 2009). Too often, the content of such tests is not related to ongoing classroom curriculum or instructional activities. For children with significant delays, testing also frequently involves floor effects, which yield little information for programming and amplify frustration in both children and their families. Thus, many practitioners and researchers have advocated for authentic assessments, also known as performance-based assessment of young children in their natural environments based on typical, unsolicited behavior. Authenticity in assessment emphasizes behaviors, knowledge, strategies, and skills employed in non-constrained life situations (Tombari & Borich, 1999).

The practice of early childhood authentic-/performance-based assessment is an asset-oriented process to evaluate individual child capabilities within natural environments. A traditional definition of authenticity has many connotations, including genuineness, validity, truth, reliability, and dependability. In practice, these ideas translate into an approach designed to capture children's real-life skills on a consistent, ongoing basis under conditions, expectations, and with tasks and persons who exist in their everyday lives. During an authentic assessment, abilities and needs are evaluated, as providers and families observe children within familiar settings. Engaging with familiar adults and materials during everyday activities and daily routines in real-life settings is paramount to increase comfort (Colorado Department of Education, 2012). These approaches allow children to demonstrate their knowledge, skills, dispositions, and other aspects of development by solving naturally occurring problems, interacting and talking with individuals, and acting on and experimenting in their environments.

Recommended best practices in early childhood education support the use of authentic assessment where children are observed working, playing, and performing real-world tasks (Public Schools of North Carolina State Board of Education, 2010). These approaches are less threatening to children and give a more realistic picture of what a young child knows and is able to do. Authentic performance assessments typically are collected on a continuing basis to monitor a child's progress longitudinally and take into consideration the impact of current environmental contexts. They often include information from a variety of sources, including traditional professionals such as early interventionists, school psychologists, occupational therapists and speech therapists as well as data from parents, classroom personnel, and other care givers. Parents provide integral information about their child because they have observed them in a variety of situations across their life span (Bagnato, 2007). While developmental tests provide information about a child's functioning related to age norms, parents' knowledge about their child is indispensable for true understanding of his/her developmental attributes (Popper, 1996), and, thus, is considered an integral part of an authentic process. Similarly, other caregivers who spend significant time with the child are included in the assessment to provide a more holistic and accurate representation of his/her functioning.

Such documentation practices lead to more accurate appraisals of functional and developmentally appropriate abilities, interpersonal relationships, acquisition and use of information, and decision-making abilities—data that is immediately useful to teachers and parents (Darling-Hammond, 1994). Data from authentic assessments can be directly linked to instructional targets, lead to early identification and individualized programming for children who might be developmentally at-risk or delayed, and can be used to monitor child progress. In addition, authentic assessment data can be used to enhance program development.

Edelman and Vendegna (2009) concluded that authentic assessment, in contrast to traditional testing in early childhood, best reflects the integrated nature of child learning and development. They identified five essential characteristics of valid early childhood assessment, all of which are captured through authentic, performance-based assessment: (a) Ongoing, meaning that it is a natural part of what teachers do everyday; (b) Whole-child focused in that it helps us observe many areas of growth and development; (c) Naturalistic since it occurs as children interact with familiar materials, people and activities; (d) Multidimensional since it uses information from a variety of sources; and (e) Useful because it helps teachers plan, measure progress, individualize curricula, and work with families.

Finally, authentic assessment approaches are more closely aligned with current professional standards, evidence-based practice, and legal requirements (Bagnato, McLean, Macy, & Neisworth, 2011). Additional benefits that have been attributed to authentic assessment include better use of professionals' time, reductions in unnecessary testing, and value-added functional information collected in natural environments that reflect compliance with IDEA, Part C guidelines (Bricker, Yovanoff, Capt, & Allen, 2003). According to Downs and Strand (2006) authentic assessments can contribute valuable information regarding program quality and accountability since they serve multiple purposes. More specifically, these assessments enable identification of children who are at-risk or have special needs, which highlights the types of individualized programming and services that are needed, and they also provide data for child monitoring and progress toward learning outcomes, which helps programs determine how well they are meeting specific standards. Authentic assessments allow the evaluator to reduce reliance on rigid protocol and apply a number of strategies to facilitate improvement in functioning. For example, employing visual supports to increase recall could be recommended as an accommodation identified through the informal assessment process. Because the evaluator is able to "try out" a variety of strategies, recommendations are often viewed with greater credibility and acceptance by educators. This process is also more relevant when developing accommodations and modifications for IEPs or IFSPs.

Authentic assessment approaches can be applied in a variety of ways in evaluation and often place a strong emphasis on formal psychometric properties such as reliability and validity. For example, observational conditions for some authentic assessments are standardized in order to more specifically classify and interpret children's responses. In these models, responses are analyzed, giving as much weight to maladaptive responses as correct ones, which provides more information. Informal assessment enables the observer to identify other diagnostic indicators related to both functional and dysfunctional patterns.

Literature Review

Authentic, performance-based early childhood assessment includes a variety of approaches to gain critical information about young children. Our assessment review is organized into three major categories similar to a scheme developed by Losardo and Syverson (2011): (a) Embedded Approaches, (b) Mediated Approaches, and (c) Curriculum-based Approaches. Due to space limitations, specific examples of key assessment tools within each of these categories are briefly reviewed.

Embedded Approaches

Embedded authentic assessment approaches include documentation primarily through naturalistic observation of play across home, school, or community contexts. Observations are designed to collect information about how a child performs critical skills across domains of development while interacting with different people and materials across multiple environments (Losardo & Syverson, 2011). Observation of play behavior is often viewed as the most naturalistic assessment approach for young children. Such observations are conducted during routine events and everyday activities in order to capture social, emotional, cognitive, and physical skills/activities as well as interactions between an adult and child. Play-based assessment strategies share two characteristics: (a) interactions typically follow the child's lead or capitalize on the child's interests to create multiple and varied demonstration and practice opportunities and (b) outcomes or consequences of the child's behavior are an integral and natural part of these interactions that take place during play (Rule, Losardo, Dinnebeil, Kaiser, & Rowland, 1998). Over the course of play-based interactions, the assessor also can observe adult-facilitated activities where structured antecedents and consequences are presented followed by the use of specific correction procedures (Botts, Losardo, Tillery, & Werts, 2012). This helps attain timely and logical feedback about children's performance during targeted tasks and skills.

Transdisciplinary Play-based Assessment II (TPBA-II). The TPBA-II is a specific well-documented play-based assessment approach that reflects many of the features described above (Linder, 2008). The TPBA-II process involves a facilitated play session with the child in an informal setting that contains manipulatives, representational toys, tactile and art materials, construction toys, and gross motor equipment. The setting and arrangement of the materials are key components of the assessment and are selected to engage the child in a wide range of initiations and responses. Selected materials provide opportunities for success, while appropriately challenging the child. The TPBA team, which consists of multiple disciplines (e.g., speech/language pathologist, occupational therapist, developmental specialist, parents, etc.) documents the child's level of functioning across four developmental

domains. Depending on the setting and the specific issues in question, additional assessment professionals can be included.

The TPBA approach allows a highly qualified team to gain a wealth of information about a child's capabilities in key developmental domains (see Linder, 2008 for full implementation information). The observational data collected can be translated into an age range equivalent but not a standard score. The play format decreases the anxiety associated with having to come up with "right" answers and complete tasks within a given time frame, which can be beneficial for children with Autism Spectrum Disorders, Fragile X syndrome, or those with anxiety problems/disorders. The play facilitator is also allowed to make other adjustments (e.g., changes in sensory input, flexible positioning, reduction in eye contact) which are better suited for children with these disabilities/problems. In addition, the format of TPBA allows for free movement, which is helpful for children with higher activity levels and those with attention difficulties. Parents play an integral role in the assessment process since they are encouraged to communicate with a team member throughout the activities. This dialogue allows parents to ask questions about the assessment and provide suggestions for alternative approaches to use. The inclusion of parents can provide new insights about children's current skill levels, increase accuracy in addressing referral issues/concerns, and increase parental investment in the assessment and intervention processes by validating their concerns.

The TPBA-II can be used for a variety of assessment purposes including, but not limited to, identification of specific problems/disabilities, program and intervention planning, and progress-monitoring. It is a widely preferred alternative for determining placements for young children in school districts and agencies where standardized scores are not mandatory. One of the limitations of this approach is that reimbursement for this process might not be recognized by insurance companies or government agencies (i.e., Social Security Disability Insurance). Another is that it is an arena approach that involves many professionals working together at one time and place, which can be time-consuming and impractical to schedule. This approach also requires a very skilled facilitator who is able to simultaneously follow the child's lead while providing guidance in order to cover many areas of development. Additionally, he/she must gently scaffold the child through multiple developmental levels in order to accurately reveal current levels of functioning while not presenting excessive challenges. Pushing too much or presenting materials that are too advanced can cause a child to become disinterested, frustrated, or inhibited, which, in turn, might deter the team from observing true abilities.

Mediated Approaches

Mediated assessment approaches involve gathering data on a child's performance after an adult guides interactions and facilitates instruction based on that child's behavioral repertoire. The evaluator is allowed to use teaching strategies, prompts, adaptations, or accommodations to guide or mediate instruction in order to determine what leads to

enhanced performance. Mediated assessments can be used to identify specific antecedents that set the occasion for a target behavior to occur (e.g., environmental arrangement, placement of materials, teacher directions) and the consequences likely to promote child responses (e.g., praise or access to materials) (Grisham-Brown, Pretti-Frontczak, Hawkins, & Winchell, 2009). These assessment approaches are designed to provide critical information about children's learning styles, preferences, cognitive and metacognitive strategies, and self-regulatory abilities. The emphasis is on demonstrating outcomes sensitive to small changes in learning in order to demonstrate "responsivity to instruction." Such indices are more easily linked to instructional and teaching strategies and show evidence of being valid as predictors of future outcomes (Russell, Amod, & Rosenthal, 2008). These approaches and outcomes also are more valid for assessing children from different cultural backgrounds or who have limited English abilities (Losardo & Syverson, 2011).

Dynamic assessment. Dynamic assessment is the process of clinically guiding and supporting a student during a learning task and subsequently assessing the "transfer" of such learning during another similar task or situation. The support provided by the assessor is deliberately planned and sequenced and is designed to determine what a child is capable of learning (Lidz, 1991). Dynamic assessment is designed to provide information on modality preferences, accommodations, and the nature and type of scaffolding needed to assist a child to learn or transfer skills or procedures or to promote self-regulated and active learning. The process involves a test–intervene/teach–retest format to determine a child's potential for change (Palincsar, Brown, & Campione, 1994). The assessor guides and modifies real-life tasks and procedures to motivate the child and elicit correct responses through the use of scaffolds, flexible prompts, and questions. The goal is to assess a child's approach to a task and what is needed to increase a child's success and learning over time.

The conceptual basis of dynamic assessment is Vygotsky's theory related to the "zone of proximal development" (Vykotsky, 1978) and the role of "scaffolded instruction" (Wood, Bruner, & Ross, 1976). During a dynamic assessment, the assessor enters into an active relationship with the child that combines principles of structured play, mediated instruction, behavioral observation, and progress monitoring. The assessor also employs materials and tasks at different levels that a child would likely encounter during daily routines. The focus is not only on what a child can do, but also on how she/he approaches tasks and what is needed to help acquire new or higher level skills (Losardo & Syverson, 2011). The outcomes obtained through dynamic assessment procedures are directly applicable to classroom and other educational settings since they directly link to how children learn and work on tasks. The Application of Cognitive Functions Scale (ACFS; Lidz, 2000; Lidz & Jepsen, 1997) is a formal dynamic assessment tool designed to provide qualitative information about children's cognitive processes and learning strategies that can be used to inform instruction and to link assessment to interventions.

Informal dynamic assessments of language ability have been used to determine if difficulty learning a second language like English is due to a language delay or to limited exposure. The assessor might ask the parent to bring in some common objects from home and ask the child to label the objects in their native language.

The assessor would then "teach" the child English labels for these objects using a variety of methods until the English label was understood. The child would then "play" simple comprehension and recognition memory games using the concrete objects and English labels. After this, pictorial representations of the same concepts would be reviewed and learned. Finally, the child would be shown an array of all newly learned pictured items and would be asked to select or point to a named item. This recognition task is similar to that employed on most formal, standardized receptive vocabulary tests. Adequate performance would indicate the child has the motivation and ability to learn new English words with concrete to pictorial scaffolds and direct instruction. This process helps demonstrate general cognitive and reasoning processes and strategies that can help distinguish between a true developmental delay versus trouble with a specific task or misunderstanding due to contextual, cultural, or administrative factors. The effective use of dynamic assessment procedures for improving language, communication, and related cognitive skills in a variety of young children has been described in several qualitative research studies (e.g., Krejcova, 2015; Lin, 2010).

Similarly, informal dynamic assessments have been employed to evaluate young children's mathematical computation. A guided instruction process that includes authentic tasks and self-verbalization procedures is used to analyze error patterns and determine what leads the child to the most accurate performance. Such approaches provide a more complete picture of the child's current strategies and conceptual understanding of underlying mathematical concepts and skills not easily captured through traditional symbolic math assessments (Clements & Sarama, 2011).

Curriculum-Based Approaches

Curriculum-based approaches include documentation of ongoing task performance or work samples collected over time on tasks similar to what the child is supposed to learn in child care programs, preschool, or kindergarten. Two assessment subcategories are associated with this approach: curriculum-based assessment (CBA) and curriculum-based measurement (CBM). Downs and Strand (2006) have summarized CBA approaches as those that refer to attempts to assess mastery of specific skills organized within a logical hierarchy leading toward a desired outcome. Curriculum-based measurement approaches (CBM) refer to the assessment of a smaller sample of specific skills within a specified period of time so that a rate or level of fluency proficiency can be determined. The items included in such assessments reflect critical developmental skills found in most early childhood classroom curricula that can also be developed or translated into legitimate instructional goals (Deno, Fuchs, Marston, & Shin, 2001).

Both of these approaches are designed to yield comprehensive and detailed pictures of children's repertoires of skills aligned directly with ongoing curricular content and objectives, which are then used to help formulate instructional goals and assess instructional outcomes tied to these individualized goals (Neisworth &

Bagnato, 2004). Both approaches also provide functional information that can document changes in task performance or work completion over time (Bagnato, 2005; Bagnato et al., 2011). Thus, the data gained from CBA or CBM assessments facilitate individualized goal planning as well as performance or progress monitoring (Meisels, Bickel, Nicholson, Xue, & Atkins-Burnett, 2001).

Assessment, Evaluation, Programming System (AEPS) for Infants and Young Children, 2nd Edition (AEPS) One well-known early childhood CBA is the AEPS, now in its second edition (Bricker et al., 2002). The AEPS is an activity-based assessment system designed to evaluate fine and gross motor, cognitive, adaptive, social, and communication skills in a child's natural environment. It is viewed as a complete system that links assessment to interventions and progress monitoring that can be used to develop IFSP/IEPs as well as daily classroom learning goals. Each item on the AEPS can be systematically embedded into a set of naturally occurring activities and materials that may be individually administered by familiar people in familiar places (e.g., home, community-based settings). It is designed this way in order to overcome the tendency to pull children from preferred activities and to assess them in an item-by-item fashion, which is contrary to recommended assessment practices and not useful for guiding instructional decision-making (Macy, Bricker, & Squires, 2005). The AEPS is used successfully across the country to determine eligibility for Part C services and to provide accurate and comprehensive information that leads to the development of appropriate and high quality goals and intervention content. Two other comprehensive, research-supported CBA systems are the Hawaii Early Learning Profile (HELP; Warshaw, 2004) and Teaching Strategies Gold (Berke, Heromen, Tabors, Bickart, & Burts, 2010), which is aligned with the Head Start Child Development and Early Learning Framework.

Portfolio/Work-sampling Portfolio/Work Sampling is another form of CBA that allows for continuous progress performance (Meisels et al., 1995). These approaches incorporate systematic documentation of children's knowledge, skills, behavior, and accomplishments on multiple occasions across a wide variety of classroom domains. The purpose of such curriculum-driven archival assessment is to systematize teacher observations by providing clear guidance with specific criteria and well-defined procedures so that a work sampling portfolio does not become a "glorified scrapbook." Work sampling can be a very effective way to document the progress of an individual child, and certainly provides the sensitivity to show very small incremental change. However, this approach must be an intentional and thoughtful collection of content with specific assessment goals that reflects a sound understanding of development and developmental sequences. Three critical and complementary elements typically are reflected in any portfolio or work sampling approach: "(a) developmental guidelines and checklists, (b) portfolio materials collected over time, and (c) summary reports compiled at specific points in time" (Meisels et al., 1995, p. 280).

Individual Growth and Development Indicators (IGDIs) The IGDIs are a formal set of curriculum-based measures. The original version of the IGDIs was developed for infants and toddlers (Carta, Greenwood, Walker, & Buzhardt, 2010). They are psychometrically sound, general performance indices of socially valued,

pre-academic behaviors across a number of critical developmental domains. The infant and toddler IGDIs assess children's development in the areas of early communication, movement, social and cognitive problem-solving, and parent–child interaction (Greenwood et al., 2008; McConnell, Wackerle-Hollman, Bradfield, & Rodriguez, 2013). They involve brief assessments of key associated skills conducted in naturalistic environments. Examples include recordings of gestures, vocalizations, types of locomotion, as well as nonverbal and verbal social behaviors. The child is administered a standard set of toys, objects, and adult–child activities by a familiar adult during a 6-min play session that takes place in a convenient setting with minimal distractions. Another adult serves as the assessor who precisely begins and ends the session with a digital recording device and records specific child behaviors on a designated scoring sheet. Outcomes are documented and recorded in terms of performance in a specified period of time (see www.igdi.ku.edu for free downloadable scoring forms). The outcome data is compared to local or national norms and then used during RTI or special education decision-making frameworks for eligibility determination, goal development, intervention planning, and eventual evaluation of a child's progress over time across home, child care or preschool settings (Early Childhood Research Institute on Measuring Growth and Development, 1998).

Since development of the infant and toddler version of the IGDIs, the instrument has expanded. The early literacy IGDIs, now in its second edition, (IGDIs-EL; McConnell et al., 2013) was designed to assess early skills that enable young children to become successful readers when they enter school. As described in Chap. 3 of this text, it consists of Picture Naming, Rhyming, Sound Identification, "Which One Doesn't Belong?", and Alliteration. The IGDIs-EL is individually administered and has standardized administration and scoring. The IGDIs-EL website (http://www.myigdis.com/preschool-assessments/early-literacy-assessments/) provides a number of free resources, including the administration manual; norms and benchmarks, which, in turn are aligned with potential RTI tiers that might be used in preschools; and a technical information summary sheet, which contains data regarding test–retest reliability, concurrent validity, and specificity and sensitivity. Several studies have shown that the IDGIs-EL can be effectively used as part of early childhood RTI frameworks (e.g., Carta et al., 2015; Kruse, Spencer, Olszewski, & Goldstein, 2015; McConnell, Wackerle-Hollman, Roloff, & Rodriguez, 2015).

The early numeracy IGDIs (IGDIs-EN; Hojnoski & Floyd, 2006) was developed to assess and monitor young children's attainment of beginning mathematics skills. Also described in Chap. 3, it consists of Oral Counting, Number Naming, Quantity Comparison, and 1:1 Correspondence Counting. Each of these tasks is individually administered. As is the case with the IGDIs-EL, the IGDIs-EN website includes the administration manual, norms and benchmarks aligned with RTI tiers, and a technical information summary sheet (http://www.myigdis.com/preschool-assessments/early-numeracy-assessments/). Although not as extensively studied as the IGDIs-EL, the IGDIs-EN has some research to support its technical properties (Floyd, Hojnoski, & Key, 2006).

Challenges and Future Directions

The adoption and implementation of authentic, performance–based assessments have clear benefits when working with young children. However, challenges have been raised regarding these alternative assessment approaches in terms of measurement quality, practicality, and systemic selection obstacles often tied to bureaucratic requirements, regulations, and policies.

Measurement challenges. One challenge to the utilization of these approaches lies in the measurement arena. Some have argued that these authentic assessment methods have limited psychometric properties as compared to more traditional assessments such as norm-referenced, standardized tests. While many of the authentic assessments reviewed here have evidence of sound psychometric properties, most are more concerned with overall validity and alignment with interventions, rather than comparisons to national norms. Also, authentic assessment methods are typically designed to adhere to the tenets and best practices of early childhood assessment. Such professional guidelines highlight the need for a high degree of implementation flexibility, for performance assessments that take place in naturalized settings, for approaches that involve facilitation rather than direction, and for multiple administrations over time.

The assessments discussed here are intended as alternatives to product-oriented, norm-referenced assessments or tests. Indeed, many authentic assessments do not provide practitioners with lockstep formats for implementation or interpretation, characteristics typically associated with "valid" data collection and analysis. For example, in the TPBA-II and dynamic assessment frameworks there is a tension between standardization and facilitation in order to allow the evaluator to gain the most valid information about a child's current performance. Since the evaluator needs to be able to continually adapt the assessment process and intervene when appropriate, these approaches also might not lead to a quantifiable score typically required for eligibility determinations. Some alternative assessment tools and approaches provide limited oversight and guidelines for training in administration, interpretation, or collaboration, which can limit and complicate their implementation.

Practical challenges. A related practical challenge lies in the appropriate training and skill sets necessary for accurate use of many authentic assessment methods. As noted above, the organic nature of these approaches implies that the data generated from their implementation is less prescriptive and relies more upon the skill set of the evaluator to ensure effective links to meaningful interventions. Assessors must have substantial background knowledge, professional expertise, deep familiarity with natural play and general child development, and a comprehensive understanding of developmental disabilities and their unique growth trajectories. Indeed, authentic approaches may require a broader skill set and a higher degree of observational and interactional abilities in comparison to traditional methods (Riley, Sudhalter, & Braden, 2010). Thus, authentic assessment, in effect, may require *more* attention to training in administration and interpretation of results. A second related practical challenge is that users of authentic assessment

Table 5.1 Characteristics of Authentic Assessment Tools

Name of instrument	Age range	Domains assessed	Goal/Theory base
ACFS (Lidz & Jepsen, 1997)	3–5 years	Cognition, perspective taking, short-term auditory memory, visual sequential memory, verbal planning, sequential pattern completion	Curriculum-based dynamic assessment. Administered in pretest–intervention–posttest format. Designed for diagnostic purposes and provides qualitative information about cognitive processes and learning strategies. Used to inform instruction
(AEPS) 2nd edition (Bricker et al., 2002)	Birth through 6 years	Fine motor, gross motor, cognitive, adaptive, social, and communication	Activity-based, curriculum-embedded, comprehensive system that links assessment to interventions and evaluations. Conducted in natural environments and can be incorporated into children's daily routines. Emphasizes functional skills. Provides modifications and accommodations for individualized assessment, goal development, and skill acquisition. Designed for children who have disabilities or who are at-risk for developmental delays
Hawaii Early Learning Profile (HELP 0-3 version; Warshaw) (HELP 3-6 version, 2nd edition; Vort Corp.)	Birth-3 years; 3–6 years	Gross motor, fine motor, language, social, self-help, and cognitive	HELP is a curriculum-based tool that assesses child skills in several domains to help assist in the development of IFSP/IEP goals, intervention planning, and progress monitoring. Family-centered, comprehensive system that builds upon child strengths and identifies areas of concern (including parental point of view)

(continued)

Table 5.1 (continued)

Name of instrument	Age range	Domains assessed	Goal/Theory base
IGDIs Infant and Toddler Version (Carta et al., 2010)	Infant and toddler version— Birth-3 years	Communication Movement Social problem-solving Parent–child interaction	Screening and progress monitoring system that provides growth trends in a number of developmental domains
Early literacy IGDIs (IGDIs- EL) (McConnell et al., 2013)	IGDIs-EL age 4–5 years (1 year before kinderg)	Picture naming Rhyming Sound identification Which one doesn't belong? (comprehension) Alliteration	Universal screening and progress monitoring measure for early literacy. Shows growth trends over time and designed to be used with multitiered systems of support (MTSS) or RTI
Early numeracy IGDIs (IGDIs-EN) (Hojnoski & Floyd, 2006)	IGDIs-EN age 38–71 months	Oral counting Number naming Quantity comparison 1:1 corresp. counting	Universal screening and progress monitoring measure for early math skills. Shows growth trends over time and designed to be used with multitiered systems of support (MTSS) or RTI
(TPBA2) Linder (2008)	Birth-6 years	Sensorimotor Emotional/Social Communication, Cognitive	Dynamic, flexible, functional, and individualized assessment that uses a team approach to evaluate across multiple developmental domains. Used to identify children who might need additional support, to develop intervention plans and IEP goals, and monitor progress
Teaching Strategies Gold Berke et al. (2010)	0–3 years and 3–6 years (Birth-Kinderg)	Social and Emotional, Physical Development, Cognitive, and Language	Comprehensive, research-based assessment and curriculum system based on 38 objectives that are aligned with Head Start, Early Learning Framework, and other national and state core standards. It links assessment and curriculum

(continued)

Table 5.1 (continued)

Name of instrument	Age range	Domains assessed	Goal/Theory base
Autism Diagnostic Observation Schedule-Second Edition (ADOS-2) Lord et al., (2012)	12 months-Adulthood	Language/Communication Social Interaction Restricted and Repetitive Behaviors	Semi-structured assessment that measures social and communication skills to determine if the child/individual exhibits behaviors typically associated with autism
Work Sampling System (WSS) 5th edition (Meisels, Marsden, Jablon, & Dichtelmiller, 2013; Pearson Clinical, 2013)	3–11 years	Personal and Social Development, Language and Literacy, Mathematical Thinking, Scientific Thinking, Social Studies, the Arts, Physical Development, Health, and Safety	Curriculum-embedded, criterion-referenced, progress monitoring assessment system that measures skills across multiple domains and through multiple means. Provides specific assessment guidelines and procedures to ensure that children's abilities are measured systematically throughout the school year. WSS consists of three components: portfolios, developmental guidelines and checklists, and summary reports

need to take more time to become familiar with children in their natural learning contexts and to establish rapport with all primary caretakers. Additionally, authentic and performance-based early assessments necessitate the desire and skills to work cooperatively with a team of professionals and with parents and guardians.

Systemic challenges. Current systems involving eligibility determination for medical, educational and therapeutic services, cost reimbursement, and documentation of effectiveness continue to favor the utilization of traditional, standardized norm-referenced measures. Although the appropriateness of these measures for young children has been consistently challenged, restrictions on the use of authentic assessment approaches often appear to be the result of maintaining the status quo. Challenges that continue to limit more universal utilization of authentic and performance-based assessments include the fact that traditional approaches produce a number that is easily understood and that is often required within bureaucratic

systems. This persists even though the "number" obtained is not particularly helpful for intervention planning and, in some cases, might not be an accurate reflection of a child's abilities.

Implications for Practice

Despite the above challenges, early childhood practitioners continue to pave the way for expanding use of authentic assessment approaches in a variety of settings and contexts. Riley et al. (2010) have argued that the selection of an early childhood assessment tool should be based on a well-defined assessment purpose as well as the audience for whom the assessment information is intended. Notable differences should occur when one is focused on determining what might help a child function better in her/his natural environments versus where that child's performance rests in comparison to others. While these considerations can be overlapping, they are not interchangeable. Riley et al. and other researchers and practitioners (e.g., Bagnato et al., 2014) advocate that the overarching purpose of early assessment should be to collect valid information about a child that can be linked to appropriate intervention strategies. This consideration is of paramount importance when evaluating young children with developmental delays, significant intellectual impairments, and/or identified disabilities such as Down syndrome, Fragile X syndrome, or an Autism Spectrum Disorder. Many traditional assessments lack validity for these children and others who differ on characteristics such as race and home language (Division for Early Childhood, 2007). Traditional assessments often have been standardized on typically developing children and, thus, result in floor effects for students with developmental delays. Such effects, in turn, restrict the ability to develop comprehensive profiles of strengths and weaknesses and to target areas for instruction (Riley et al., 2010). In addition, traditional assessment approaches are generally not sensitive enough to monitor progress or reflect slight changes in skill development. Authentic assessment approaches help to fulfill this gap by using naturalistic methods that are closely tied to young children's real-world functioning. The information gained from these approaches can then be utilized to develop meaningful recommendations and interventions and to monitor progress. The following tables provide a summary of several authentic assessment tools with a description of applicable age ranges, domains assessed, supporting theoretical or goal frameworks, advantages/strengths, and limitations. These tables are not intended to provide an exhaustive list but, instead, offer guidelines to help practitioners choose authentic tools that are suitable for specific purposes and a variety of assessment contexts (Tables 5.1 and 5.2).

Table 5.2 Strengths and limitations of authentic assessment tools

Instrument	Strengths	Limitations
ACFS	Provides info. about: (1) Learning potential; (2) How child strategizes and thinks through tasks; (3) How child approaches tasks; and (4) How child understands and uses feedback from administrator to problem solve. ACFS is an inexpensive tool Procedures, scoring guides, and intervention strategies provided in Haywood and Lidz's (2006) text	Not designed for nonverbal children or those who have limited language skills. Cannot be used for IEP/IFSP determination. Test administrators should be highly trained professionals (e.g., school psychologists, speech-language pathologists)
AEPS-2nd edition	Complete system that links assessment to interventions and progress monitoring. Research-based with evidence of validity and reliability. Can be used in IFSP/IEP goal development and progress monitoring. Involves children's parents throughout assessment and intervention processes	Time-consuming since assessment portion should take place over a 2-week period to engage child in variety of activities. Requires planning and preparation over multiple days. Administrator needs to be qualified to assess child and incorporate the AEPS curriculum into daily routines. Material costs are relatively high
HELP	Provides individualized, family-focused assessment. Helps children develop functional life skills across several domains. Can be used for Part C assessment under IDEA. Does not require extensive training to use. HELP system is relatively inexpensive	Might be overwhelming to administrators since it assesses 1200 developmental skills. HELP lacks standardized administration. It is time-consuming and requires frequent data collection and progress monitoring
IGDIs	Research-based system with strong psychometric properties. Can be used in RTI frameworks. Data from IGDIs can be used in IFSP/IEP goal development and progress monitoring and can also help teachers differentiate learning for students with different needs IGDIs-EL and EN are offered as packages which include materials, record forms, and access to online trainings. IGDIs-EL has measures designed for Spanish–English bilingual students that are not just translations of English version	IGDIs is not designed as an **initial** IFSP/IEP assessment. The infant–toddler version requires frequent progress monitoring and data collection, which can be time-consuming for teachers

(continued)

Table 5.2 (continued)

Instrument	Strengths	Limitations
TBPA2	Multidimensional approach that examines skills in a number of domains. Input from multiple team members provides a more holistic perspective. Parents are included throughout the process. Use of naturalistic setting and familiar materials help team accurately gather data. Play format is engaging and motivating for children. Shows good content validity, criterion-related validity, and social validity. TBPA2 can be linked to intervention system (TBPI2) and development of meaningful curriculum goals. Manual and administration guides are inexpensive	Although the manual and administration books are inexpensive, using a team approach that may include an early interventionist, speech and language pathologist, psychologist, occupational therapist, and other relevant professions, can be costly. Due to the individualized nature of the assessment, it can be time-consuming to conduct the session and to evaluate the findings. The facilitator needs to be well trained in order to conduct a thorough and accurate assessment of the child's abilities. The TPBA2 includes age tables; however, it does not offer normative testing data
Teaching Strategies Gold	Research-based system that allows teachers to assess and develop appropriate goals for children. Has strong psychometric properties. Teachers learn how to: set up responsive environments, form partnerships with parents, record a student's progress, provide appropriate scaffolding, and teach students of varying developmental levels. Data can be used in IFSP/IEP goal development and progress monitoring. Provides online tools to help teachers quickly and easily enter data and create individualized reports	The cost of the system and online teaching strategies is high. It is an ongoing assessment system not designed for initial IFSP/IEP assessment. Users should have strong understanding of child development theories and need to be flexible to allow the child to learn through various methods. Requires a significant amount of time to plan and coordinate assessment and curriculum activities
ADOS-2	Consists of multiple modules, which are designed to be administered to children based upon their level of expressive language from nonverbal to fluent. Shows good reliability and validity. Includes parental input along with observations using toys and play activities. Administration and scoring are standardized, but enable examiner to capture variety of specific information, including qualitative data, regarding child's functioning. IEP goals can be formulated using the ADOS results	Examiners need to complete fairly extensive training to be qualified to administer the ADOS. Costs of test kit materials and training are high. ADOS should not be used on its own to diagnosis autism. It is not a treatment measure

(continued)

Table 5.2 (continued)

Instrument	Strengths	Limitations
Work Sampling System (WSS)	Can be administered by teachers who observe, collect child's work, and summarize the information three times a year through systematic developmental checklists and their own observations of the child's performance. Shows good reliability and validity (Dorfman & Nelson, 1995). Portfolios include work samples designed to show growth overtime, and individualized items highlight the uniqueness of the child. WSS allows child to be involved in selection of portfolio items and provides child and teacher opportunities to collaborate to improve outcomes. Users can purchase kit/materials for a specific age range, and cost is relatively inexpensive	System is not designed as an initial IFSP/IEP assessment. Requires a significant amount of time to plan and coordinate assessment and curriculum activities, and it is not as efficient as standardized instruments. Users must be well versed in child development theory to accurately observe, collect, and summarize children's skills under the various developmental domains. Portfolio component requires work samples to be obtained throughout the year, which may present logistical issues

Case Study

Matt is a 4-year-old boy with Fragile X syndrome. Fragile X is the leading inherited cause of developmental delay and intellectual disability. The specific phenotype of Fragile X varies; males are more significantly affected than females due to the genetic expression of the syndrome which involves the X chromosome (Cornish, Turk, & Hagerman, 2008). This is the case with Matt, who presents with more severe symptoms than his older sister.

Matt recently transitioned from an early intervention Part C program to a preschool program. His parents were concerned about the appropriateness of the placement and wanted to ensure that he had appropriate learning goals. They had done a great deal of reading about his diagnosis and knew that they would need to serve as his advocates throughout his life. During the process of exploring Matt's development and seeking an accurate diagnosis, he was administered several standardized tests. These tests revealed that he demonstrated a profile consistent with that of other young boys with Fragile X. However, Matt's parents felt that they also needed additional information. They sought insight into his learning style to enhance his programming both at home and in school. Although 25–33 % of males with Fragile X also meet criteria for autism (Hagerman, 2006) this is not true for Matt. He was administered an ADOS-2 which confirmed that he did not exhibit behaviors consistent with ASD. He was and continues to be social and easily engaged, but does struggle with social anxiety. Matt's parents felt the ADOS accurately captured his abilities; however, it is not designed to directly inform

academic interventions. Matt has significant difficulties related to sensory processing; he becomes excessively aroused when there is too much going on in his immediate environment.

As is typical in many school districts across the country, the assessment process for Matt and his family started with a standardized approach. In addition to the ADOS-2, he was administered the Mullen Scales of Early Learning AGS edition (Mullen, 1995), an individually administered measure of cognitive functioning designed to assess children's abilities in the language, motor, and visual–perceptual domains. Unfortunately, the standardized format proved ineffective. Matt would not/could not sit and engage in the table top activities associated with the Mullen. The early interventionist, who was very experienced in assessment, spent more time trying to get him to sit down than actually administering the measure. Matt did not engage with the examiner and frequently asked for his mother. He exhibited little spontaneous language and became more and more anxious as the session progressed. Due to his performance he obtained a score that was below 50. This score provided no new information for Matt's parents or his service providers. They already knew that he was significantly delayed. The score did not provide any insight into how he learned or what type of support he would need in order to be successful in preschool. Furthermore, this assessment generated greater disappointment and frustration for Matt's parents. They were allowed to observe the assessment, but, due to the standardized administration protocol, their suggestions for rewording of questions or presentation of the materials could not be infused in a meaningful way. A new approach had to be explored.

The team, including Matt's parents, decided to evaluate him using Transdisciplinary Play-Based Assessment (TPBA). In this approach, Matt interacted with the play facilitator, a clinical psychologist, and his parents, Jeanne and Steve. Other team members included a developmental specialist, an occupational therapist, a physical therapist, and a speech-language pathologist. Initially, the unstructured environment proved overstimulating for him. The play facilitator removed some of the toys, and the occupational therapist provided a cradling seat to help provide a more calming sensory environment for Matt. Subsequently, Matt engaged well with the facilitator and initiated play schemas involving cars and cooking themes. He was able to complete simple inset puzzles and to match items by color. He removed himself several times from the play, when he became hyperaroused, but returned after a few minutes each time without prompting or physical intervention by the facilitator. Matt's performance illustrated not only what he could do, but how best to work with him. He needed an organized environment and worked best when allowed to move, both during and between activities. The assessment team was also able to determine a baseline for his skills. The difference between his performance on the standardized measure and the TPBA was significant, reflecting a 6–9 month difference in ability level across developmental domains. Matt still demonstrated significant delays in the speech/language and gross and fine motor domains. However, the team was able to observe how sensory processing affected his performance. Additionally, Matt's parents felt more comfortable with the assessment because they thought it was an accurate representation of his strengths and weaknesses.

Discussion Questions

1. What specific information from the TPBA would be useful in developing IEP goals for Matt?
2. Based upon the information what was provided in the case, what adaptations and modifications would you recommend for his classroom and the curriculum?
3. Besides the ADOS and TPBA, what other authentic methods would you recommend for Matt's case? Provide a rationale for your choices.

References

American Educational Research Association (AERA), American Psychological Association (APA), & National Council on Measurement in Education (NCME). (1999). *Standards for educational and psychological testing*. Washington, DC: American Psychological Association.

American Educational Research Association (AERA), American Psychological Association (APA), and National Council on Measurement in Education (NCME). (2014). *Standards for educational and psychological testing*. Washington, DC: American Psychological Association.

American Psychological Association Joint Committee on Testing Practices. (2004). *Code of fair testing practices in education*. Retrieved from http://www.apa.org/science/programs/testing/standards.aspx

Bagnato, S. J. (2005). The authentic alternative for assessment in early intervention: An emerging evidence-based practice. *Journal of Early Intervention*, *28*(1), 17–22. doi:10.1177/105381510502800102

Bagnato, S. J. (2007). *Authentic assessment for early childhood intervention: Best practices*. New York: Guilford Press.

Bagnato, S. J., Goins, D. D., Pretti-Frontczak, K., & Neisworth, J. T. (2014). Authentic assessment as "best practice" for early childhood intervention: National consumer social validity research. *Topics in Early Childhood Special Education*, *34*(2), 116–127. doi:10.1177/0271121414523652

Bagnato, S. J., McLean, M., Macy, M., & Neisworth, J. T. (2011). Identifying instructional targets for early childhood via authentic assessment alignment of professional standards and practice-based evidence. *Journal of Early Intervention*, *33*(4), 243–253. doi:10.1177/1053815111427565

Berke, K., Heromen, C., Tabors, P. O., Bickart, T., & Burts, D. C. (2010). *Teaching Strategies Gold*. Baltimore, MD: Teaching Strategies LLC.

Botts, D. C., Losardo, A. S., Tillery, C. Y., & Werts, M. G. (2012). A comparison of activity-based intervention and embedded direct instruction when teaching emergent literacy skills. *The Journal of Special Education*, *48*(2), 120–134. doi:10.1177/0022466912449652

Bricker, D., et al. (2002). *Assessment, Evaluation, and Programming System* (*AEPS®*) *for Infants and Children* (2nd ed., Vols. 1–4). Baltimore, MD: Paul H. Brookes Publishing Co.

Bricker, D., Yovanoff, P., Capt, B., & Allen, D. (2003). Use of a curriculum-based measure tocorroborate eligibility decisions. *Journal of Early Intervention*, *26*(1), 20–30. doi:10.1177/105381510302600102

Carta, J. J., Greenwood, C. R., Atwater, J., McConnell, S. R., Goldstein, H., & Kaminski, R. A. (2015). Identifying preschool children for higher tiers of language and early literacy instruction within a response to intervention framework. *Journal of Early Intervention*, *36*(4), 281–291. doi:10.1177/1053815115579937

Carta, J. J., Greenwood, C. R., Walker, D., & Buzhardt, J. (2010). *Using IGDIs: Monitoring progress and improving intervention for infants and young children*. Baltimore, MD: Paul H. Brookes Publishing Co.

Clements, D. H., & Sarama, J. (2011). Early childhood mathematics intervention. *Science*, *333*(6045), 968–970. doi:10.1126/science.1204537

Colorado Department of Education. (2012). *Child and family outcomes*. Retrieved August 22, 2012 from http://www.cde.state.co.us/resultsmatter/childfamilyoutcomes.htm

Cornish, K., Turk, J., & Hagerman, R. (2008). The fragile X continuum: New advances and perspectives. *Journal of Intellectual Disability Research*, *52*(6), 469–482. doi:10.1111/j.1365-2788.2008.01056.x

Darling-Hammond, L. (1994). Performance-based assessment and educational equity. *Harvard Educational Review, 64*(1), 5–31.

Deno, S. L., Fuchs, L. S., Marston, D. B., & Shin, J. (2001). Using curriculum-based measurement to establish growth standards for students with learning disabilities. *School Psychology Review, 30*, 507–524.

Division for Early Childhood of the Council for Exceptional Children. (2007). *Promoting positive outcomes for children with disabilities: Recommendations for curriculum, assessment, and program evaluation*. Retrieved March 18, 2016 from https://www.naeyc.org/files/naeyc/file/positions/PrmtgPositiveOutcomes.pdf

Downs, A., & Strand, P. S. (2006). Using assessment to improve the effectiveness of early childhood education. *Journal of Child and Family Studies*, *15*(6), 671–680. doi:10.1007/s10826-006-9080-7

Early Childhood Research Institute on Measuring Growth and Development. (1998). *Research and development of Individual Growth and Development Indicators for children between birth and age eight*. Minneapolis, MN: Center for Early Education and Development, University of Minnesota.

Edelman, L., & Vendegna, N. (2009). Observation: The heart of authentic assessment trainer's guide (4th ed.). *Colorado Department of Education.*

Educational definitions. (2013). Retrieved January 14, 2013 from http://www.ehow.com/about_6526638_define-assessment-learning.html

Dorfman, A., & Nelson, R. F. (1995). The Work Sampling System: Reliability and validity of a performance assessment for young children. *Early Childhood Research Quarterly*, *10*(3), 277–296. doi:10.1016/0885-2006(95)90008-X

Floyd, R. G., Hojnoski, R., & Key, J. (2006). Preliminary evidence for the technical adequacy of the Preschool Numeracy Indicators. *School Psychology Review, 35*, 627–644.

Greenwood, C. R., Carta, J. J., Baggett, K., Buzhardt, J., Walker, D., & Terry, B. (2008). Best practices in integrating progress monitoring and response-to-intervention concepts into early childhood systems. In A. Thomas & J. Grimes (Eds.), *Best practices in school psychology V* (pp. 535–547). Bethesda, MD: NASP Publications.

Grisham-Brown, J., Pretti-Frontczak, K., Hawkins, S. R., & Winchell, B. N. (2009). Addressing early learning standards for all children within blended preschool classrooms. *Topics in Early Childhood Special Education*, *29*(3), 131–142. doi:10.1177/0271121409333796

Hagerman, R. J. (2006). Lessons from fragile X regarding neurobiology, autism, and neurodegeneration. *Journal of Developmental and Behavioral Pediatrics, 27*(1), 63–74.

Haywood, H. C., & Lidz, C. S. (2006). *Dynamic assessment in practice: Clinical and educational applications*. New York, NY: Cambridge University Press.

Hojnoski, R. & Floyd, R. (2006). Individual Growth and Development Indicators of Early Numeracy—(IGDIs-EN). Retrieved from http://www.myigdis.com/preschool-assessments/early-numeracy-assessments/

Keilty, B., LaRocco, D. J., & Casell, F. B. (2009). Early interventionists' reports of authentic assessment methods through focus group research. *Topics in Early Childhood Special Education*, *28*(4), 244–256. doi:10.1177/0271121408327477

Krejcova, K. (2015). Dynamic assessment in combination with video interaction guidance in preschool education. *International Education Studies*, *8*(7), 181–190. doi:10.5539/ies.v8n7

Kruse, L. G., Spencer, T. D., Olszewski, A., & Goldstein, H. (2015). Small groups, big gains: Efficacy of a tier 2 phonological awareness intervention with preschoolers with early literacy deficits. *American Journal of Speech-Language Pathology*, *24*, 189–205. doi:10.1044/2015_AJSLP-14-0035

Lidz, C. (1991). *Practitioners' guide to dynamic assessment*. New York: Guilford Press.

Lidz, C. S. (2000). The Application of Cognitive Functions Scale (ACFS): An example of curriculum-based dynamic assessment. In C. S. Lidz & J. G. Elliott (Eds.), *Dynamic assesment: Prevailing models and applications*. New York, NY: Elsevier.

Lidz, C. S., & Jepsen, R. H. (1997). *Application of Cognitive Functions Scale administration manual*. Unpublished document.

Lin, Z. (2010). Interactive dynamic assessment with children learning EFL in kindergarten. *Early Childhood Education Journal*, *37*, 279–287. doi:10.1007/s10643-009-0356-6

Linder, T. (2008). *Transdisciplinary Playbased Assessment* (*TPBA-2*) (2nd ed.). Baltimore, MD: Paul H. Brookes Publishing Co.

Lord, C. et al. (2012). *Autism Diagnostic Observation Schedule* (*ADOS-2*) (2nd ed.). Torrense, CA: Western Psychological Services.

Losardo, A., & Notari Syverson, A. (2011). *Alternative approaches to assessing children* (2nd ed.). Baltimore, MD: Paul H. Brookes Publishing Co.

Macy, M. G., Bricker, D. D., & Squires, J. K. (2005). Validity and reliability of a curriculum-based assessment approach to determine eligibility for Part C services. *Journal of Early Intervention*, *28*(1), 1–16. doi:10.1177/105381510502800101

McConnell, S. R., Wackerle-Hollman, A. K., Bradfield, T., & Rodriguez, M. (2013). *Individual Growth and Development Indicators of Early Literacy* (2nd ed.). St. Paul, MN: Early Learning Labs Inc.

McConnell, S. R., Wackerle-Hollman, A. K., Roloff, T. A., & Rodriguez, M. (2015). Designing a measurement framework for response to intervention in early childhood programs. *Journal of Early Intervention*, *36*(4), 263–280. doi:10.1177/1053815115578559

Meisels, S. J., Bickel, D. D., Nicholson, J., Xue, Y., & Atkins-Burnett, S. (2001). Trusting teachers' judgments: A validity study of a curriculum-embedded performance assessment in kindergarten to grade 3. *American Educational Research Journal*, *38*(1), 73–95. doi:10.3102/00028312038001073

Meisels, S. J., Jablon, J. R., Marsden, D. B., Dichtelmiller, M. L., Dorfman, A. B., & Steele, D. M. (1995). *The Work Sampling System: An overview*. Ann Arbor, MI: Rebus Planning Associates, Inc.

Meisels, S. J., Marsden, D. B., Jablon, J. R., & Dichtelmiller, M. (2013). *The Work Sampling System* (5th ed.). Pearson Clinical.

Mullen, E. M. (1995). *Mullen Scales of Early Learning* (AGS ed.). Circle Pines, MN: American Guidance Service Inc.

National Association of School Psychologists (NASP). (2009). NASP position statement on school psychologists' involvement in the role of assessment. Retrieved November 30, 2015 from http://www.nasponline.org/assets/Documents/Research%20and%20Policy/Position%20Statements/Involvement_in_Assessment.pdf

Neisworth, J. T., & Bagnato, S. J. (2004). The mismeasure of young children: The authentic assessment alternative. *Infants and Young Children, 17*, 198–212.

Palincsar, A. S., Brown, A. L., & Campione, J. C. (1994). Models and practices of dynamic assessment. In E. Wallach & K. Butler (Eds.), *Language learning disabilities in school-age children and adolescents* (pp. 132–144). New York, NY: Macmillan.

Pearson Clinical. (2013). *The Work Sampling System: 5th edition.* Retrieved January 9, 2016 from http://www.pearsonclinical.com/childhood/products/100000755/the-work-sampling-system-5th-edition.html

Popper, B. K. (1996). Achieving change in assessment practices: A parent's perspective. In S. J. Meisels & E. Fenichel (Eds.), *New visions for the developmental assessment of infants and young children* (pp. 59–65). Washington, DC: Zero to Three: National Center for Infants, Toddlers, and Families.

Public Schools of North Carolina State Board of Education. (2010). *Assessment of children in pre-kindergarten.* Retrieved August 22, 2012 from http://www.earlylearning.nc.gov/_pdf/EP-AssessmentAugust2010.pdf

Riley, K., Sudhalter, V., & Braden, M. (2010). Assessment considerations for children with fragile X syndrome. *The National Fragile X Foundation Quarterly*. San Francisco: The National Fragile X Foundation

Rule, S., Losardo, A., Dinnebeil, L., Kaiser, A., & Rowland, C. (1998). Translating research on naturalistic instruction into practice. *Journal of Early Intervention*, *21*(4), 283–293. doi:10.1177/105381519802100401

Russell, C., Amod, Z., & Rosenthal, L. (2008). The effects of parent-child mediated learning experience (MLE) interaction on young children's cognitive development. *Perspectives in Education, 26*(4), 28–41.

Snow, K. L. (2006). Measuring school readiness: Conceptual and practical considerations. *Early Education and Development*, *17*(1), 7–41. doi:10.1207/s15566935eed1701_2

Tombari, M., & Borich, G. (1999). *Authentic assessment in the classroom: Applications and practice*. Upper Saddle River, NJ: Merrill.

Turner, S. M., DeMers, S. T., Fox, H. R., & Reed, G. (2001). APA's guidelines for test user qualifications: An executive summary. *American Psychologist, 56*(12), 1099–1113.

Vanderploeg, R. D. (2000). The interpretation process. In R. D. Vanderploeg (Ed.), *Clinician's guide to neuropsychological assessment* (pp. 111–154). Mahwah, NJ: Lawrence Erlbaum Associates.

Vykotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.

Warshaw, S. P. (2004). *Inside HELP: Administrative and reference manual for HELP (the Hawaii Early Learning Profile) birth – 3 years*. Palo Alto, CA: Vort Corporation.

Wood, B. K., Bruner, J. S., & Ross, G. (1976). The role of tutoring in problem-solving. *Journal of Child Psychology and Psychiatry, 17*, 89–100.

Chapter 6
Assessment of Behavior Problems and the Use of Functional Behavioral Assessment During Early Childhood

Laura Lee McIntyre and Nandita Golya

Abstract Assessing behavior problems in early childhood is important, given how common challenging behavior is among preschool-aged children. While some children seemingly outgrow these difficulties, a significant number go on to exhibit severe behavior disorders or mental health problems, suggesting a high level of continuity of behaviors. In addition, research with preschoolers has found connections between social or behavioral problems and poor learning or academic outcomes. Given that young children might exhibit a number of behavior problems making them at risk for later academic adjustment issues, early assessment and prevention-focused intervention is crucial. The use of functional behavioral assessments (FBAs) is a promising form of assessment that considers information from a variety of sources in an effort to determine the purpose of the behavior and develop a function-behavior support plan. This chapter reviews the applications of FBA with young children and describes specific methods, including indirect, direct, and functional analysis. Implications for clinicians are discussed, including specific steps for conducting an FBA with young children.

Keywords Functional behavior assessment · Functional Assessment Interview · Functional analysis · Direct FBA · Indirect FBA

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A. Garro (ed.), *Early Childhood Assessment in School and Clinical Child Psychology*, DOI 10.1007/978-1-4939-6349-2_6

Introduction

Assessing childhood behavior problems is a complex task requiring knowledge of both normative development and disordered behavior (Sroufe & Rutter, 1984). Effective assessment tools should have evidence of validity and reliability and be used in the manner in which they were intended (American Educational Research Association, American Psychological Association, & National Council on Measurement in Education, 2014). Assessment of behavior problems in early childhood can serve many purposes; however, use of behavioral assessment to inform prevention and early intervention may be especially important (Dunlap & Fox, 2011; Neilsen & McEvoy, 2004). Assessments that inform the development of interventions are said to have treatment utility (Hayes, Nelson, & Jarrett, 1987).

Assessing behavior problems in early childhood is important, given how common challenging behavior is among preschool-aged children. Although prevalence estimates vary, it is suggested that approximately 1 in 5 young children experience significant emotional or behavioral problems during early childhood (Brauner & Stephens, 2006; Egger & Angold, 2006; Gardner & Shaw, 2008). While many children seemingly outgrow these difficulties, a significant number go on to exhibit severe behavior disorders or mental health problems, suggesting a high level of continuity of behaviors. For example, it is estimated that half of children exhibiting heightened disruptive behavior as preschoolers continue to show these problems at school age (Campbell, Shaw, & Gilliom, 2000). A longitudinal study by White, Moffitt, Earls, Robins, and Silva (1990) also illustrated this point. In their sample of over 1000 adolescents, the single largest early childhood predictor of antisocial behavior disorder in adolescence was behavior problems in preschool. More recently, Beyer, Postert, Muller, and Furniss (2012) examined continuity and prognosis of mental health problems using the CBCL in a sample of preschoolers who were followed for 4 years. Their results indicated a high level of continuity in internalizing symptoms over the study period and a change from externalizing problems at baseline to a combination of internalizing and externalizing problems at follow-up. The presence of mental health problems at follow-up was associated with male gender, preexisting mental health problems at baseline, and separation or divorce of the parents. Keenan, Shaw, Delliquadri, Giovanneli, and Walsh (1998) identified precursors of emotional and behavioral problems in early childhood and found that difficult temperament in infancy and toddlerhood was differentially associated with internalizing disorders, such as anxiety, at age 5. Aggression and noncompliance in the toddler and preschool years, on the other hand, were predictive of later externalizing disorders, such as oppositional defiant disorder. In a study of infant risk factors associated with behavioral and emotional problems measured at ages 2½ years and 5 years, Edwards and Hans (2015) also found that early temperament, specifically negative emotionality, was associated with increased risk of externalizing problems in early childhood. Thus, research suggests that early childhood behavioral difficulties can represent significant precursors to later clinical disorders.

Behavioral difficulties are often overrepresented in students with academic achievement problems. Students with challenging behavior are more likely to have

disciplinary actions brought against them (Stanley, Canham, & Cureton, 2006), which, in turn compromise their ability to access academic instruction and curricula, placing them at risk for academic problems (Lane, Barton-Arwood, Nelson, & Wehby, 2008). While few studies have specifically focused on discipline of preschoolers with behavioral problems, the existing research indicates that these children face a high risk of removal from their school environments, either on a temporary basis (i.e., "suspensions") or through expulsion (Gilliam & Shahar, 2006). It is also noteworthy that low achieving students might engage in problem behavior in an effort to escape or avoid the challenging work demands associated with academic tasks, placing them further behind academically. Several research studies with preschoolers have found connections between social or behavioral problems and poor learning or academic outcoes (e.g., Bulotsky-Shearer, Domínguez, Bell, Rouse, & Fantuzzo, 2010; Fantuzzo, Bulotsky, McDermott, Mosca, & Lutz, 2003). Regardless of which problem came first, academic and behavior problems often co-occur (Hinshaw, 1992a; Lane et al., 2008; Walker, Ramsey, & Gresham, 2004). Disruptive behavior disorders have been associated with a variety of disabilities, including specific learning disabilities, autism spectrum disorders, attention deficit hyperactivity disorder, and intellectual disability (e.g., Burke, Loeber, Lahey, & Rathouz, 2005; Emerson, 2003; Hinshaw, 1992b). Egger and Angold (2006) reported that half of their community sample of preschool children with emotional and behavioral disorders had comorbid disorders.

Given that young children might exhibit a number of behavior problems making them at risk for later academic adjustment issues, early assessment and prevention-focused intervention is crucial. A variety of behavioral assessment approaches have been used for young children, including standardized rating scales, interviews with caregivers, and observations across settings. The use of functional behavioral assessments (FBAs) is a promising form of behavioral assessment that considers information from a variety of sources in an effort to determine the purpose of the behavior and develop a function-behavior support plan (Dunlap & Fox, 2011). Below we review the purposes, applications, and limitations of standardized ratings scales for young children and discuss the growing use of FBAs as a practical tool for assessing and intervening with young children with challenging behavior.

Literature Review

Standardized Rating Scales

Standardized rating scales can generally be categorized as omnibus/broadband or behavior-specific scales (Busse, 2005; Merrell, 2003). Omnibus/broadband scales are general purpose instruments that measure a variety of broad behavior categories (e.g., internalizing and externalizing behaviors), which are often broken down further into more specific subcategories of behavior (e.g., aggression, hyperactivity). Behavior-specific scales are narrow in scope and are used with a particular

class of behaviors (e.g., social skills) or problems (Merrell, 2003). Several behavior rating scales have been developed for use with preschool populations, including the Child Behavior Checklist 1½–5 (Achenbach & Rescorla, 2000), the Behavior Assessment System for Children—3rd edition (Reynolds & Kamphaus, 2015), the Social Skills Improvement System (Gresham & Elliott, 2008), and the Devereux Early Childhood Assessment (LeBuffe & Naglieri, 1999, 2012).

There are a number of advantages associated with using standardized behavior rating scales. First, many scales were developed using large, nationally representative normative groups, including early childhood samples. Second, the psychometric properties of published scales are reported. Third, many rating scales include multiple informant versions of the scale for use with parents/caregivers, teachers, and child self-report, as appropriate. Data generated from standardized behavior rating scales can be used for screening, assessment, diagnosis, and evaluation. Although standardized behavior rating scales have a number of advantages, the extent to which they can inform interventions is often insufficient, particularly with younger children. Thus, the treatment utility of standardized rating scales and other forms of traditional psychological assessment is limited. Furthermore, ratings of behavior might be biased in the sense that they are summaries of observations, rather than objective samples of behavior gathered through data collection in a particular context. Thus, the influence of context-specific factors is minimized when using a behavior rating scale. Behavior rating scales focus on within-child problems without consideration of environmental contingencies that influence the occurrence or nonoccurrence of the behavior. Functional behavior assessments, on the other hand, have been used in an effort to overcome many disadvantages associated with rating scales.

Functional Behavioral Assessment

Functional behavioral assessment (FBA) is a process of understanding behavior in the context in which it occurs. An important assumption is that challenging behavior serves a function or purpose for the child (Neisen & McEvoy, 2004). By understanding the function, practitioners can develop positive behavioral interventions that are relevant, effective, and efficient (Sugai et al., 2000a). FBA is a systematic approach for obtaining information about the variables that precede, set the occasion for, or contribute to, the occurrence (or nonoccurrence) of problem behaviors and the consequences that maintain those behaviors (O'Neill et al., 1997). This information can be used to determine the function or reason that a child acts in a certain way under certain conditions and directly informs prevention and early interventions strategies (Dunlap & Fox, 2011).

FBA is not a single test or observation, but rather a collection of methods for gathering information about setting events, triggering antecedents, problem behavior response classes, and maintaining consequences in order to determine the purpose or function of behavior (Gresham, Watson, & Skinner, 2001; Sugai et al., 2000a). The purpose(s) of FBA are to: (a) obtain an observable and measurable description of the

problem behavior(s); (b) identify the setting events and/or antecedents that predict when the behavior(s) will and will not occur; and (c) identify the consequences that maintain the problem behavior (O'Neill et al., 1997).

Regardless of the complex social, emotional, biological, educational, and cultural variables that contribute to the emergence of problem behaviors, these behaviors are unlikely to continue across time unless they produce some form of positive or negative reinforcement (Sugai, Horner, & Gresham, 2003). According to the principles of FBA, the functions associated with problem behaviors can be divided into general categories (a) access to social attention/communication; (b) access to tangibles or preferred activities; (c) escape, delay, reduction, or avoidance of aversive tasks or activities; (d) escape or avoidance of individuals; and (e) access to or reduction of internal stimulation or sensory reinforcement (Carr, 1994; Steege & Watson, 2009). Thus, behavior that continues to occur is thought to be maintained by one or more of the aforementioned categories of functions.

Crone and Horner (2003) highlight three underlying assumptions of FBA. First, behavior is generally assumed to be purposeful and serve at least one function for the child (e.g., a child may behave in a certain way to escape from an aversive situation or to gain adult attention). Second, behavior is predictable and is caused by the interactions of environmental factors (i.e., setting events, antecedents, and consequences) and factors inherent to the child. Third, FBA assumes that behavior is changeable and that the identification of these factors can lead to positive behavior interventions and supports. A critical aspect to keep in mind is that the function(s) of problem behavior is unique to the child, the behavior, and the context (Neilsen & McEvoy, 2004). One child's problem behavior might be maintained by access to preferred tangible items or activities, while a challenging behavior in a different child might be maintained by obtaining attention. Another important issue to consider is that one behavior might serve multiple functions for the same child in different situations (O'Neill et al., 1997). For example, screaming might be used sometimes to obtain caregiver attention and, at other times, to avoid a difficult task, such as cleanup. Finally, FBA is an ongoing process and should not be viewed as a one-time event (Horner, 1994; O'Neill et al., 1997). Sometimes, continued assessment is necessary to adjust aspects of an intervention that are not producing the desired results.

FBA Methods

FBA is intended to be a multisource and multimethod process that analyzes information across multiple contexts (Neilsen & McEvoy, 2004; Steege & Watson, 2009). FBA methods can be categorized as (a) indirect, most commonly involving interviews and behavior rating scales/checklists; (b) direct, utilizing behavioral observations in naturalistic settings; and (c) functional analysis, involving systematic experimental manipulation of environmental variables with single-case research designs (Gresham et al., 2001). In real-life contexts, some practitioners

might combine elements of the indirect and direct methods based upon resources and information available in particular settings and individual needs of children being assessed.

Indirect methods. In this type of data collection, individuals close to the child provide subjective and retrospective reports of the variables surrounding the child's behavior (Neilsen & McEvoy, 2004). These methods most commonly include parent/caregiver and teacher interviews and behavior rating scales/checklists. Indirect methods of assessment contribute a number of potential benefits to the process of FBA. For example, interviews help identify those variables—setting, events, activities—that can be targeted through direct observation and/or systematic manipulation strategies (O'Neill et al., 1997). For example, a parent and early childhood educator might be interviewed to gather more information about a child's tantrums, such as when they happen, what context is most problematic, what are the triggers of the tantrums, how long the tantrums last, what happens following the tantrum, and strategies that seem to help. In addition, parents/caregivers might be asked to complete a behavior checklist (e.g., CBCL 1½–5) to increase understanding of the scope of the child's problems. Indirect methods logically are less time-consuming than direct observations, and they require less training, expertise, and staff collaboration to complete than functional analysis (Floyd, Phaneuf, & Wilczynski, 2005). Furthermore, they might be the only option available when problem behaviors occur at low frequencies or when experimental manipulations of antecedents and consequences (functional analysis) are unethical or untenable (O'Neill et al., 1997).

One example of a formal interview is the Functional Assessment Interview (FAI; O'Neill et al., 1997). Among the most widely researched behavior rating scales/checklists are the Ages and Stages Questionnaires: Social-Emotional (ASQ: SE; Squires, Bricker, & Twombly, 2002), Behavior Assessment System for Children—3rd edition (BASC-3; Reynolds & Kamphaus, 2015), Child Behavior Checklist (CBCL 1½–5; Achenbach & Rescorla, 2000) and Caregiver–Teacher Report Form (C-TRF 1½–5; Achenbach & Rescorla, 2000), Preschool and Kindergarten Behavior Scales (PKBS; Merrell, 1994), and the Social Skills Improvement System (SSIS; Gresham & Elliot, 2008).

Although the benefits of indirect methods are numerous, a significant limitation is that informant reports are based on recollections of problem behaviors and might be influenced by personal judgments. Despite their limitations in validity and reliability, indirect methods can provide qualitatively rich information that is helpful in developing more successful interventions, such as strategies to increase child communicative abilities and activities that are effective reinforcers (O'Neill et al., 1997). For example, parents and early childhood educators are often able to provide input about strategies they have used in the past that seemed to help prevent or reduce challenging behaviors and/or strategies that were ineffective or made the behaviors worse. Furthermore, caregivers can provide valuable information about children's interests, sources of motivation, and skills that will help inform the development of appropriate, contextually relevant interventions.

Direct methods. Direct methods use real-time observation procedures to record the target behavior(s) and the environmental events surrounding behavior(s). Direct

observation of young children in naturalistic settings is a preferred strategy because it explicitly measures the target behavior(s), does not impose artificial test room demands, and provides data that are less likely to be distorted by the expectations and biases of caregivers (Merrell, 2003). Direct observation is also useful to verify or refute the information obtained from the indirect assessment procedures described earlier. When conducting an FBA observation in a preschool setting, a peer-referenced observation is useful. The purpose of peer-referenced comparisons is to determine severity of the child's problem(s) relative to his or her same-age peers (Crone & Horner, 2003).

There are many methods of conducting a direct observation. One standardized tool is the Functional Assessment Observation form (FAO; O'Neill et al., 1997) which is used to collect direct observation data to validate (or disconfirm) hypotheses generated from indirect methods. The FAO form helps make patterns of antecedents, behaviors, and consequences easier to identify visually as well as quantitatively. Other ways of collecting information regarding the occurrence of problem behaviors include anecdotal or written descriptions, frequency counts, and interval recording systems. Another useful tool is the Antecedent-Behavior-Consequence (A-B-C) form. With this form, the target behavior and events occurring immediately prior to it and following it can be recorded. When used over time, A-B-C data can reveal patterns among environmental events and problem behaviors which, in turn, can lead to determination of the plausible function(s) of the behavior (Gresham et al., 2001). For example, a behavior specialist might observe the physical aggression of a 4-year-old child during center time in an early childhood education setting. The behavior specialist would note: (a) the setting, activity, peers/teachers present, and other relevant antecedent information (e.g., demands placed on the children); (b) the occurrence of physical aggression (including whom was the target of the aggression); and (c) the consequences that follow the behavior (e.g., peer and/or teacher attention, escape/avoidance of task, etc.). In addition, direct observations would provide the opportunity for the behavior specialist to capture information regarding dimensions of the target behavior that would contribute to intervention planning. In addition to frequency counts, whole interval recording (counting an occurrence of behavior if it takes place for an entire predetermined interval), and partial interval recording (counting an occurrence of behavior if it takes place at any point during a predetermined interval), other key dimensions include duration of target behaviors, and impact of these behaviors on the child and/or her or his environment.

Although direct observation of behavior under naturally occurring environmental conditions improves ecological validity, it can be a time-consuming process when behaviors occur at low frequencies or when antecedents and consequences are inconsistent (Hall, 2005; Scott et al., 2004). It is important to also keep in mind that measurement errors weaken the reliability of the direct observation method (Gresham, 2003).

Functional analysis. Functional analysis involves a more rigorous experimental method that allows for stronger statements regarding behavioral function (Gresham et al., 2001). While indirect and direct methods of assessment provide correlation

and hypothetical information between behaviors and environmental conditions, functional analysis is the only approach that allows documentation of a true functional relationship (Hall, 2005). Two basic types of single-case research designs that are typically used in conducting functional analyses include the reversal design and alternating treatments design. A reversal design involves implementation of an intervention that addresses the function of the target behavior for a set period of time; removal of that intervention to see if the target behavior returns to previous levels of frequency, duration, etc.; re-implementation of the intervention; and then removal again of the intervention. Since most, if not all, phases of this process involve measurement of the target behavior, it is useful in determining the true effectiveness of the intervention. Multi-treatment designs generally refer to procedures where two or more interventions are implemented, one after another, to examine their effects on the target behavior (Holcombe, Wolery, & Gast, 1994).

The benefit of the control and precision offered by functional analysis must be weighed against the time, high level of technical skill, and extra attention to safety that this approach requires (O'Neill et al., 1997). Since functional analysis is often employed as a research technique, with systematic manipulation of environmental events under artificial conditions, ecological validity is questionable (Hall, 2005). Thus, a functional analysis might be necessary when data from indirect and direct measures do not yield consistent patterns of behavior or if summary statements cannot be verified through direct observations. From a practical standpoint, early childhood professionals conducting FBAs might first consider collecting information through indirect and direct methods and then following up with an experimental analysis, as needed, to confirm the function of the challenging behavior (Neilsen & McEvoy, 2004). Despite these caveats, the application of functional analysis in applied settings, including schools, has received some research support (e.g., Kurtz, Chin, Robinson, O'Connor, & Hagopian, 2015; Machalicek, 2009; Shumate & Wills, 2010).

The Role of FBA in Early Childhood Assessment and Intervention

In general, there are many challenges in assessing young children. For example, some of the assessment tools for use with young children are merely downward-age extensions of those used with older children (Merrell, 2003). Despite the challenge of effectively adapting and extending FBA technology from school-age populations to young children, early interventionists are generally enthusiastic about the potential of FBA (Neilsen & McEvoy, 2004).

Underlying principles of the FBA process are that it must be conducted within an ecological context and that resulting interventions must be designed to influence the environments of children with challenging behavior (Repp & Horner, 1999). A major implication in extending FBA to early childhood is to have a better

understanding of the relevant ecological contexts in which younger children function (Neilsen & McEvoy, 2004). These contexts primarily include homes, child care programs, and preschools.

Practitioners and researchers agree that assessment requires data from multiple informants and this also applies to FBAs. Different informants might contribute unique knowledge about the child from their perspective because they encounter the child in a unique context and have different opportunities to interact with him or her (Stanger & Lewis, 1993). In many instances, information cannot be obtained directly from the targeted children, since they are too young and/or do not have the requisite verbal skills to provide responses. In addition, information from multiple informants might serve to reduce inconsistencies or biases and strengthen the reliability of the assessment (Merrell, 2003).

Parents' input is valuable because they are familiar with their child's functioning across time and across many situations. Mothers and fathers might agree about their perceptions regarding their child's behavior, or disagree based on the duration and quality of time spent with him/her. Studies indicate that mothers' reports correlate moderately with other informants (DuPaul, Power, McGoey, Ikeda, & Anastopoulos, 1998), while fathers' reports correlate low to moderately with mothers' reports (Stanger & Lewis, 1993). Mothers, usually the primary caregivers, are assumed to be more involved with their child and, perhaps, more aware and sensitive to their child's problem behaviors. Teachers and child care providers also provide valuable indices of child problems, because they observe behaviors outside of the home setting, witness children engage in peer interactions, and develop their own norms and standards regarding child development due to their exposure to multiple children. Studies have found that teachers' reports correlate moderately with other informants (e.g., Stanger & Lewis, 1993). Furthermore, teachers' reports might reveal information about preschoolers' academic preparedness and social skills that are not evident to parents.

FBA is a good example of an intervention-based assessment because it takes into consideration the important elements that will be needed to develop effective prevention and intervention strategies. The FBA approach provides a systematic and informed means by which targeted interventions can be developed and monitored (Sugai et al., 2000a). Efforts at home, childcare, and preschool should focus on implementing the behavior support plan with fidelity in order to make the problem behavior(s) less frequent, intense and/or or impairing. Family centeredness and the development of collaborative partnerships and behavior support teams represent the contexts that are necessary for the behavior support plans to be implemented in a manner that will produce positive outcomes for the child and the family (Fox, Dunlap, & Cushing, 2002).

Several studies have examined the use of FBA with younger populations. For example, using a small-group research design, Alter, Conroy, Mancil, and Haydon (2008) compared the use of different types of FBA (two indirect methods, one direct method and functional analysis) with four young children exhibiting a variety of behavior problems. Their results indicated that the two indirect methods and the

direct method, all of which were categorized as "descriptive FBAs" showed low consistency with each other. The functional analysis and direct method (ABC assessment) showed good agreement with each other across the four participants.

Research examining functional interventions with young children based upon FBAs has generated positive results. For example, focusing on a small sample of children ages 5–5½ years attending a nonprofit child care center, Blair, Umbreit, and Bos (1999) used data from functional assessments to develop interventions that were integrated into natural activities. They found that all four children showed marked reductions in problematic behaviors, including off-task and noncompliance. In addition, results indicated that positive student–teacher interactions increased following these interventions. In a more recent study, Park and Scott (2009) used descriptive FBAs in a small sample of Head Start children, followed with applied structural analysis to confirm antecedent conditions, and then generated antecedent-based interventions. Their results indicated that this process yielded positive behavior change for all three students. The researchers also found that the Head Start teachers considered the assessment and intervention procedures to be acceptable and feasible to implement. In addition to the above research, other studies have found that FBA can provide additional benefits when it is used to supplement other interventions (Carter & Horner, 2007; Jefferson, 2001).

Implications for Practice

Since much of the research base regarding FBA with young children has involved small-case research designs, it is clear that large-scale studies are needed to provide additional data regarding its effectiveness. Nevertheless, current research suggests that FBA and FBA-linked interventions hold promise. Most importantly, implementing function-based interventions can serve to prevent problem behaviors from occurring by focusing on antecedent-based manipulations, teaching and reinforcing positive replacement behaviors that are functionally equivalent, and reducing challenging behavior by eliminating their reinforcement (Dunlap & Fox, 2011; Neilsen & McEvoy, 2004). As such, there is a strong theoretical and practical link between FBA and effective prevention and intervention supports for young children with challenging behavior (Dunlap & Fox, 2011).

The intensity and complexity of the FBA process typically depend on the intensity and complexity of the problem behavior (Crone & Horner, 2003). While the FBA process can be adapted to fit the different challenges experienced by different children, its core features essentially remain the same. Sugai, Lewis-Palmer, and Hagan-Burke (2000b) outline the seven main steps in the FBA process. These steps are summarized in Table 6.1.

Table 6.1 Steps for conducting a functional behavioral assessment

Step	Goal	Sources of Information
1. Collect information	Describe the problem in the context in which the behavior occurs	Indirect assessment: • Parent/caregiver and teacher interviews • Behavior rating scales from multiple informants (caregiver/parent, teacher, and others as applicable)
2. Develop summary statement	Develop testable hypotheses in the form of a summary statement. A complete summary statement is comprised of four components: (a) Problem behavior (b) Triggering antecedents or events that predict when the behavior is likely to occur (c) Maintaining consequences or events that increase the likelihood of the behavior happening in the future, and (d) Setting events or factors that make the problem behavior worse	Indirect assessment sources, including interviews and rating scales (see above)
3. Collect direct observation data	Complete direct observations to verify the accuracy of the summary statement. Determine whether problem behavior patterns occur under hypothesized conditions and contexts	Direct observations of child across multiple settings, days, times, and activities
4. Develop competing behavior pathway summary statement	Extend the confirmed summary statement by providing the following additional information: (a) A desired behavior expected of the child (long-term behavioral objective) (b) An alternative behavior that serves the same function as the problem behavior but is socially appropriate (short-term behavioral objective) (c) The consequences that typically provided to support the occurrence of the desired behavior	Summary statement and direct observation data

(continued)

Table 6.1 (continued)

Step	Goal	Sources of Information
5. Develop behavior support plan	A behavior support plan serves as the basis for defining the actual implementation of the behavioral intervention and focuses on the identification of strategies for: (a) Teaching the desired and alternative behaviors (b) Manipulating antecedent events that decrease the likelihood of problem behavior and increase the probability of desired and alternative behaviors (c) Manipulating consequence events to discourage problem behavior and encourage desired and alternative behaviors and (d) Eliminating setting events or neutralizing the impact of setting events	Competing Behavior Pathway and family, school, and other relevant stakeholder input
6. Implement behavior support plan	Develop implementation scripts that specify how, when, and where the behavior support plan will be implemented and by whom	Behavior Support Plan and input from relevant stakeholders
7. Monitor and evaluate implementation of behavior support plan	Collect and use data to evaluate the extent to which the behavior support plan is implemented with high fidelity. Determine if the intervention has a positive impact on child behavior outcomes	Data on implementation of behavior support plan and data on child behavior outcomes

Case Study

The following case study exemplifies the seven main steps in the FBA process as described in Table 6.1. Practitioners are encouraged to modify the types of information collected in the FBA process to address the individualized needs of their cases and referral questions.

Daniel is a 4-year old boy who attends a morning preschool program 5 days a week and is enrolled in an extended child care program in the afternoon at the same center. Daniel lives at home with his younger sister, Eva aged 2, and mother and father. He has attended a center-based child care program since he was 3 months old.

Daniel was recently evaluated for early childhood special education due to concerns with language development and behavior and was found eligible for services due to delays in speech/language. Scores on the Preschool Language Scale—5th edition (PLS-5; Zimmerman, Steiner, & Pond, 2011) suggest that his receptive language skills were found to be relatively intact (Auditory Comprehension standard score = 92), his expressive communication was significantly delayed (Expressive Communication standard score = 70). Full scale IQ scores on the Wechsler Preschool and Primary Scales of Intelligence (WPPSI-IV; Wechsler, 2012) suggest that his cognitive functioning placed him in the low average range (FSIQ = 89). Based on the interdisciplinary evaluation and recommendations, he began receiving speech-language therapy two times per week, with one session conducted in a small group setting and one conducted individually with the speech/language therapist. Daniel's preschool teacher and afternoon daycare teacher expressed concerns about tantrum behavior, which prompted the completion of a FBA. Below is a summary of information gathered using the seven steps described in Table 6.1.

Collect information. The psychologist interviewed Daniel's teachers, speech therapist, and mother regarding his behavior. Daniel's teachers indicated that they had major concerns with tantrum behavior, especially during morning preschool sessions. More specifically, he showed "major meltdowns" one to two times per day involving screaming, throwing items, flopping to the group, kicking, and flailing his arms. Daniel's teachers indicated that he seemed more agitated on days when he came to school tired. When asked about potential antecedents, his teachers stated that Daniel engaged in tantrums when he was asked to do something he did not want to do (e.g., clean up toys) or perform a difficult task (structured activity during entry time). Daniel's teachers stated that they struggled with management of the tantrums. They worried that providing physical guidance to complete tasks would result in escalation of Daniel's behavior. Teachers and students generally moved away from Daniel when he had tantrums, and he was allowed to escape from task demands. The speech therapist reported that she had not observed tantrums in speech therapy, but noted that he had just begun therapy sessions and seemed to like them. Information collected from Daniel's mother was generally consistent with the reports of school personnel. Daniel's mother noted that he sometimes had tantrums at home (2–3 times/week), especially when his father was not home. She agreed that he engaged in tantrums when he was asked to do something he did not want to do. Daniel's mom stated that she often let him get out of tasks because she is trying to avoid a power struggle with him. Daniel's mother indicated that her husband is much better at getting Daniel to listen and follow directions at home. Daniel's mother also mentioned that Daniel sometimes has nightmares and subsequent difficulty falling back to sleep. Thus, on days when he is not well rested, his behavior seems to be especially challenging.

In addition to collecting information through interviews, the psychologist asked Daniel's mother and teacher to complete standardized rating scales. Daniel's mother

completed the preschool version of the Child Behavior Checklist 1½–5 (CBCL/1½–5; Achenbach & Rescorla, 2000) and his teacher completed the preschool teacher version (C-TRF/1½–5; Achenbach & Rescorla, 2000). These rating scales confirmed the presence of externalizing behavior problems (CBCL Externalizing T score = 71; C-TRF Externalizing T score = 69) with fewer concerns regarding internalizing behavior (CBCL Internalizing T score = 63; C-TRF Internalizing = 51).

Develop summary statement. The following summary statement was developed based on indirect assessment information gathered from interviews and rating scales: When a request to complete a task is made, Daniel engages in tantrums (screaming, throwing items, flopping, kicking, and flailing) in order to escape the task. The tantrums are more likely to occur when he comes to school tired.

Collect direct observation data. The psychologist conducted observations of Daniel's behavior across a 4-day period. She focused the observations during the morning hours when his teachers reported he had the most challenging behavior. She collected information regarding the frequency and duration of the tantrums and antecedents and consequences of the tantrums. She observed a peer as a point of comparison, although the peer did not engage in any tantrums during the time of the observations. Table 6.2 provides a summary of the observational data. Over the 4-day period, Daniel was observed engaging in 6 different tantrums, averaging 4.33 min in duration. For 100 % of the incidents observed, a teacher command or directive preceded the tantrum. Also, for 100 % of the instances, Daniel was allowed to escape the command/request. In addition, Daniel received teacher attention in 2 of the 6 instances (33 %) of tantrum behaviors. The preschool teacher wanted to reduce the number of tantrums from an average of 1.5 per day to 1–2 per week.

Develop competing behavior pathway summary statement. Based on the direct observation data and the summary statement, a competing behavior pathway summary statement was developed (see Fig. 6.1). In this pathway, a long-term behavioral objective (desired behavior) was identified. A short-term behavioral objective (alternative behavior) was identified as a positive replacement behavior that served the same function as the problem behavior. Finally, the consequence that typically followed the occurrence of the long-term behavioral objective was identified (see Fig. 6.1). In Daniel's case, the long-term behavioral objective was attempting the task. The short-term behavioral objective was requesting help or asking for a break. The consequence that teachers typically provide students who attempt a task is praise in addition to providing them with more work. Because Daniel's tantrums were likely motivated by escape from tasks, it was not surprising the typical contingencies in place in the classroom were not sufficient to support Daniel's attempts at work completion.

Develop and implement behavior support plan. A behavior support plan was developed to reduce the occurrence of tantrums and reinforce appropriate replacement

Table 6.2 Antecedent, behavior, consequence observational data

Date/Time/Activity	Antecedent	Behavior	Consequence
May 7 8:35 am–8:42 am Free play clean up	Teacher requested Daniel to clean up toys	Screaming, throwing toys, flopping Duration: 7 min	Teacher reprimanded Daniel, repeated command, then allowed escape. Paraprofessional finished cleaning up
May 7 11:15–11:19 am Centers	Teacher instructed Daniel to move from one small group center to the next	Screaming, banging toys on table, kicking and stomping Duration: 4 min	Teacher withdrew command and allowed Daniel to sit under the table for the remainder of center time (15 min)
May 8 10:10–10:15 am Transition from recess to classroom	Teacher requested that class line up and reenter class after recess	Daniel ran away and refused to come inside Screaming, running away Duration: 5 min	Teacher reprimanded Daniel and then left him outside with paraprofessional (who talked to him and allowed him to play for another 10 min)
May 9 8:35–8:37 am Free play clean up	Teacher requested Daniel to clean up toys	Screaming, throwing toys Duration: 2 min	Allowed to continue playing while other students went to circle time
May 10 11:03–11:08 am Centers	Small group center task (coloring Mother's Day card)	Screaming, ripping up paper, flopping to floor Duration: 5 min	Allowed to sit under table while other students completed activity
May 10 11:45–11:48 am Lunch	Teacher requested Daniel to stay seated until it was recess time	Screaming, running away, swiping items off table Duration: 3 min	Allowed to go to recess early (with supervision of paraprofessional)

behaviors. Page limitations interfere with a full description of the behavior support plan developed; however, antecedent-based, instructionally based, and consequent-based strategies are briefly outlined below:

Antecedent strategies	Teaching strategies	Consequence strategies
1. Reduce demands on days when Daniel comes to school tired 2. Provide choice of two activities when possible 3. Provide verbal and visual cues to prepare Daniel for upcoming commands/requests	1. Teach Daniel to ask for a break or ask for help when difficult commands/requests are given	1. Follow through on commands (do not allow escape) 2. Reinforce compliance with a choice of small rewards (break, activity) 3. Reinforce Daniel's asking for a break or help by providing him with immediate assistance or escape from task (in the absence of problem behavior)

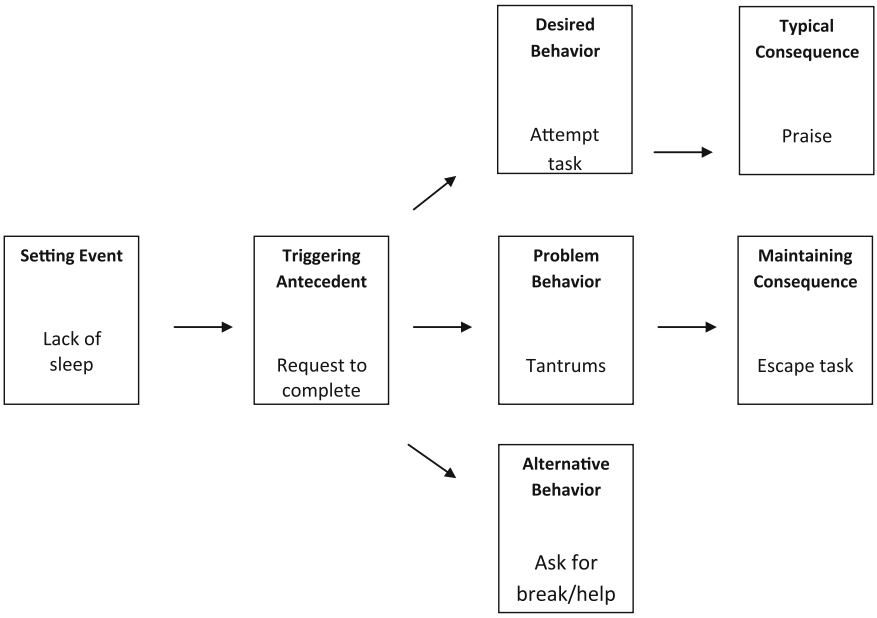

Fig. 6.1 Example of a competing pathway summary

Monitor and evaluate implementation of behavior support plan. The final step in this case involved monitoring the implementation of the behavior support plan and evaluating Daniel's outcomes. A checklist was created for the preschool teacher to record the number of behavior support plan steps that she implemented. The teacher completed the checklist once per week for 6 weeks. Tantrum behavior was recorded using a daily frequency count. Duration of tantrums was not recorded. After 6 weeks, the plan was evaluated based on the implementation data and student outcome data.

Tantrums were reduced to an average of 2 per week (0.4 per day) with anecdotal reports suggesting that the tantrums were less intense than before. Next, the plan implementation data were reviewed. It was noted that visual cues were rarely used to prepare Daniel for a transition or an upcoming command/request. Rather, the teachers relied exclusively on the use of choice and reducing the number of commands on days when Daniel came to school tired. Teaching Daniel to ask for help or ask for a break was implemented consistently; however, the preschool teacher noted some concern regarding giving Daniel a break when the other children had to complete the task. Nevertheless, she was able to implement this portion of the plan with fidelity, and admitted that she thought this was a helpful component of the plan. The consequence strategies were also implemented consistently in that the teachers did not allow escape from tasks and provided small rewards for compliance. In addition, Daniel's teachers created a small sticker chart for him and provided a sticker when he cleaned up independently after morning free play and

when he came in from recess the first time he was asked. If he received two stickers, he was able to skip one center activity and engage in an activity of his choosing. The team liked the modifications to the plan and agreed to continue the sticker chart in addition to the other behavior support components. The team agreed that the visual prompts were probably unnecessary for Daniel, but they agreed to modify the plan in the future if Daniel's behavior did not continue to improve. The team agreed that Daniel's school behavior was improving but that he still had occasional outbursts at home. Daniel's preschool teacher volunteered to help Daniel's mother develop a sticker chart for use at home, focusing on providing small rewards for listening and following directions.

Discussion Questions

1. In what ways were Daniel's developmental skills considered when conducting the FBA and behavioral intervention plan?
2. How was the natural environment considered when assessing Daniel's behavior?
3. Describe how the results of the FBA were used to inform the development of the behavior support plan.
4. What was learned in reviewing the teacher's behavior support implementation data? Are there other ways that implementation could have been monitored?

References

Achenbach, T. M., & Rescorla, L. A. (2000). Manual for the Child Behavior Checklist 1½–5. Burlington, VT: Department of Psychiatry, University of Vermont.

American Educational Research Association, American Psychological Association, & National Council on Measurement in Education. (2014). *Standards for educational and psychological testing*. Washington, D.C.: Author

Alter, P. J., Conroy, M. A., Mancil, G. R., & Haydon, T. (2008). A comparison of functional behavior assessment methodologies with young children: Descriptive methods and functional analysis. *Journal of Behavioral Education*, *17*, 200–219. doi10.1007/s10864-008-9064-3

Beyer, T., Postert, C., Muller, J. M., & Furniss, T. (2012). Prognosis and continuity of child mental health problems from preschool to primary school: Results of a four-year longitudinal study. *Child Psychiatry and Human Development, 43*, 533–543. doi10.1007/s10578-012-0282-5

Blair, K. C., Umbreit, J., & Bos, C. S. (1999). Using functional assessment and children's preferences to improve the behavior of young children with behavioral disorders. *Behavioral Disorders, 24*(2), 151–166.

Brauner, C. B., & Stephens, C. B. (2006). Estimation the prevalence of early childhood serious emotional/behavioral disorders: Challenges and recommendations. *Public Health Reports, 121*, 303–310.

Bulotsky-Shearer, R. J., Domínguez, X., Bell, E. R., Rouse, H. L., & Fantuzzo, J. W. (2010). Relations between behavior problems in classroom, social and learning situations and peer social competence in head start and kindergarten. *Journal of Emotional and Behavioral Disorders*, *18*(4), 195–210. doi:10.1177/1063426609351172

Burke, J. D., Loeber, R., Lahey, B. B., & Rathouz, P. J. (2005). Developmental transitions among affective and behavioral disorders in adolescent boys. *Journal of Child Psychology and Psychiatry, 46*, 1200–1210.

Busse, R. T. (2005). Rating scale applications within the problem-solving model. In R. Brown-Chidsey (Ed.), *Assessment for intervention: A problem-solving approach* (pp. 200–218). New York, NY: Guilford Press.

Campbell, S. B., Shaw, D. S., & Gilliom, M. (2000). Early externalizing behavior problems: Toddlers and preschoolers at risk for later maladjustment. *Development and Psychopathology, 12*, 467–488.

Carr, E. G. (1994). Emerging themes in functional analysis of problem behavior. *Journal of Applied Behavioral Analysis, 27*, 393–399.

Carter, D. R., & Horner, R. H. (2007). Adding functional behavioral assessment to first step to success: A case study. *Journal of Positive Behavior Interventions, 9*(4), 229–238.

Crone, D. A., & Horner, R. H. (2003). *Building positive behavior support systems in schools: Functional behavioral assessment*. New York, NY: Guilford Press.

Dunlap, G., & Fox, L. (2011). Function-based interventions for children with challenging behavior. *Journal of Early Intervention, 33*, 333–343.

DuPaul, G. J., Power, T. J., McGoey, K. E., Ikeda, M. J., & Anastopoulos, A. D. (1998). Reliability and validity of parent and teacher ratings of attention deficit/hyperactivity disorder symptoms. *Journal of Psychoeducational Assessment, 16*, 55–68.

Edwards, R. C., & Hans, S. L. (2015). Infant risk factors associated with internalizing, externalizing, and co-occurring behavior problems in young children. *Developmental Psychology, 51*(4), 489–499.

Egger, H., & Angold, A. (2006). Common emotional and behavioral disorders in preschool children: Presentation, nosology and epidemiology. *Journal of Child Psychology and Psychiatry, 47*, 313–337.

Emerson, E. (2003). Prevalence of psychiatric disorders in children and adolescents with and without intellectual disability. *Journal of Intellectual Disability Research, 47*, 51–58.

Fantuzzo, J. W., Bulotsky, R. J., McDermott, P., Mosca, S., & Lutz, M. N. (2003). A multivariate analysis of emotional and behavioral adjustment and preschool educational outcomes. *School Psychology Review, 32*, 185–203.

Floyd, R. G., Phaneuf, R. L., & Wilczynski, S. M. (2005). Measurement properties of indirect assessment methods for functional behavioral assessment: A review of research. *School Psychology Review, 34*, 58–73.

Fox, L., Dunlap, G., & Cushing, L. (2002). Early intervention, positive behavior support, and transition to school. *Journal of Emotional and Behavioral Disorders, 10*, 149–157.

Gardner, F., & Shaw, D. S. (2008). Behavioral problems of infancy and preschool children (0–5). In M. Rutter, D. Bishop, D. Pine, S. Scott, J. Stevenson, E. Taylor, & A. Thapar (Eds.), *Rutter's child and adolescent psychiatry* (5th ed., pp. 882–893). Oxford, England: Blackwell Publishing.

Gilliam, W. S., & Shahar, G. (2006). Preschool and child care expulsion and suspension rates and predictors in one state. *Infants and Young Children, 19*(3), 228–245.

Gresham, F. M. (2003). Establishing the technical adequacy of functional behavioral assessment: Conceptual and measurement challenges. *Behavioral Disorders, 28*, 282–298.

Gresham, F. M., & Elliott, S. N. (2008). *Social Skills Improvement System*. Bloomington, MN: Pearson Assessments.

Gresham, F. M., Watson, T. S., & Skinner, C. H. (2001). Functional behavioral assessment: Principles, procedures, and future directions. *School Psychology Review, 30*, 156–172.

Hall, S. S. (2005). Comparing descriptive, experimental, and informant-based assessments of problem behaviors. *Research in Developmental Disabilities, 26*, 514–526.

Hayes, S. C., Nelson, R. O., & Jarrett, R. B. (1987). The treatment utility of assessment: A functional approach to evaluating assessment quality. *American Psychologist, 42*, 963–974.

Hinshaw, S. P. (1992a). Externalizing behavior problems and academic underachievement in childhood and adolescence: Causal relationships and underlying mechanisms. *Psychological Bulletin, 111*, 127–155.

Hinshaw, S. P. (1992b). Academic underachievement, attention deficits, and aggression: Comorbidity and implications for intervention. *Journal of Consulting and Clinical Psychology, 60*, 893–903.

Holcombe, A., Wolery, M., & Gast, D. L. (1994). Comparative single-subject research: Description of designs and discussion of problems. *Topics in Early Childhood Special Education, 14*(1), 119–145.

Horner, R. H. (1994). Functional assessment: Contributions and future directions. *Journal of Applied Behavior Analysis, 27*, 401–404.

Jefferson, G. L. (2001). *An evaluation of the generalized effects of training teachers of young children to use functional assessment in combination with behavioral consultation to remediate problematic classroom behaviors* (Doctoral dissertation). Retrieved from ProQuest Dissertations Publishing. 3018375.

Keenan, K., Shaw, D., Delliquadri, E., Giovanneli, J., & Walsh, B. (1998). Evidence for the continuity of early problem behaviors: Application of a developmental model. *Journal of Abnormal Child Psychology, 26*, 441–454.

Kurtz, P. F., Chin, M. D., Robinson, A. N., O'Connor, J. T., & Hagopian, L. P. (2015). Functional analysis and treatment of problem behavior exhibited by children with fragile X syndrome. *Research in Developmental Disabilities, 43*, 150–166.

Lane, K. L., Barton-Arwood, S. M., Nelson, J. R., & Wehby, J. (2008). Academic performance of students with emotional and behavioral disorders served in a self-contained setting. *Journal of Behavioral Education, 17*, 43–62.

LeBuffe, P. A., & Naglieri, J. A. (1999). *The Devereux Early Childhood Assessment*. Lewisville, NC: Kaplan Press Publishing.

LeBuffe, P. A., & Naglieri, J. A. (2012). *Devereux Early Childhood Assessment for Preschoolers* (2nd ed.). Lewisville, NC: Kaplan Early Learning Compan.

Machalicek, W. (2009). Using videoconferencing to conduct functional analysis of challenging behavior and develop classroom behavioral support plans for students with autism. *Education and Training in Developmental Disabilities, 44*(2), 207–217.

Merrell, K. W. (1994). *Preschool and Kindergarten Behavior Rating Scales*. Austin, TX: PRO-ED.

Merrell, K. W. (2003). *Behavioral, social, and emotional assessment of children and adolescents* (2nd ed.). Mahwah, NJ: Lawrence Erlbaum Associates.

Neilsen, S. L., & McEvoy, M. A. (2004). Functional behavioral assessment in early education settings. *Journal of Early Intervention, 26*, 115–131.

O'Neill, R. E., Horner, R. H., Albin, R. W., Sprague, J. R., Storey, K., & Newton, J. S. (1997). *Functional assessment and program development for problem behavior: A practical handbook* (2nd ed.). Pacific Grove, CA: Brooks/Cole.

Park, K. L., & Scott, T. M. (2009). Antecedent-based interventions for young children at risk for emotional and behavioral disorders. *Behavioral Disorders, 34*(4), 196–211.

Repp, A. C., & Horner, R. H. (1999). *Functional analysis of problem behavior: From effective assessment to effective support*. Belmont, CA: Wadsworth.

Reynolds, C. R., & Kamphaus, R. W. (2015). *Behavior Assessment Scale for Children* (3rd ed.). San Antonio, TX: Pearson Clinical.

Scott, T. M., Bucalos, A., Liaupsin, C., Nelson, C. M., Jolivette, K., & DeShea, L. (2004). Using functional behavior assessment in general education settings: Making a case for effectiveness and efficiency. *Behavioral Disorders, 29*, 189–201.

Shumate, E. D., & Wills, H. P. (2010). Classroom-based functional analysis and intervention for disruptive and off-task behaviors. *Education and Treatment of Children, 33*(1), 23–48.

Squires, J., Bricker, D., & Twombly, E. (2002). *Ages and Stages Questionnaires: Social and Emotional*. Baltimore, MD: Brookes Publishing.

Sroufe, L. A., & Rutter, M. (1984). The domain of developmental psychopathology. *Child Development, 55*, 17–29.

Stanger, C., & Lewis, M. (1993). Agreement among parents, teachers, and children on internalizing and externalizing behavior problems. *Journal of Clinical Child Psychology, 22*, 107–115.

Stanley, M. J., Canham, D. L., & Cureton, V. Y. (2006). Assessing prevalence of emotional and behavioral problems in suspended middle school students. *Journal of School Nursing, 22*, 40–47.

Steege, M. W., & Watson, T. S. (2009). *Conducting school-based functional behavioral assessments, second edition: A practitioner's guide*. New York, NY: Guilford Press.

Sugai, G., Horner, R. H., Dunlap, G., Hieneman, M., Lewis, T. J., Nelson, C. M., et al. (2006a). Applying positive behavior support and functional behavioral assessment in schools. *Journal of Positive Behavior Interventions*, *2*, 131–143.

Sugai, G., Horner, R. H., & Gresham, F. M. (2003). Behaviorally effective school environments. In M. R. Shinn, H. M. Walker, & G. Stoner (Eds.), *Intervention for academic and behavior problems II: Preventive and remedial approaches* (pp. 315–350). Bethesda, MD: National Association of School Psychologists.

Sugai, G., Lewis-Palmer, T., & Hagan-Burke, S. (2000b). Overview of the functional behavioral assessment process. *Exceptionality*, *8*, 149–160.

Walker, H. M., Ramsey, E., & Gresham, F. M. (2004). *Antisocial behavior in school: Evidence based practices* (2nd ed.). Belmont, CA: Wadsworth.

Wechsler, D. (2012). *Wechsler Preschool and Primary Scales of Intelligence* (*WPPSI-IV*) (4rd ed.). San Antonio, TX: Pearson/PsychCorp.

White, J. L., Moffitt, T. E., Earls, F., Robins, L., & Silva, P. A. (1990). How early can we tell?: Predictors of childhood conduct disorder and adolescent delinquency. *Criminology, 28*, 507–535.

Zimmerman, I. L., Steiner, V. G., & Pond, R. E. (2011). *Preschool Language Scale Fifth Edition: Examiner's manual*. San Antonio, TX: The Psychological Corporation.

Chapter 7
Assessment and Collaboration in School and Child Care Settings

Andrea Burch and Nancy Evangelista

Abstract Nonparental childcare settings encompass a wide spectrum of quality, ranging from publicly funded preschools with clearly defined standards and expected outcomes, to family day care providers who may not be subject to licensing standard. Within the array of early childhood settings, assessment is a core component of high-quality school and childcare programs. This chapter provides a broad overview of policy driving the assessment of children and of their care and educational settings. Both child-focused and setting-focused assessment practices are reviewed and described. Consultation and collaboration in early childcare settings are discussed as means of using assessment data to facilitate positive outcomes for children. Finally, a case study illustrates the use of assessment data to improve practice within a preschool classroom in order to bring about enhanced growth and development for young learners.

Keywords Preschool classroom quality · Early childhood special education consultation · Developmental screening · Early Language and Literacy Classroom Observation (ELLCO) · Early Childhood Environment Rating Scale (ECERS) · Classroom Assessment Scoring System (CLASS) · Inclusive Classroom Profile (ICP) · Early childhood standards · Preschool standards · Head Start standards · Kindergarten readiness screenings

Introduction

Most young children in the United States spend a significant portion of their days playing, eating, resting, socializing, and learning outside of their homes. The annual update on the state of child care, compiled by Child Care Aware of America (2013),

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A. Garro (ed.), *Early Childhood Assessment in School and Clinical Child Psychology*, DOI 10.1007/978-1-4939-6349-2_7

notes that close to 11 million young children participate in child care for 35 hrs. per week. This means that approximately half of all children under age five are cared for full time in early childhood settings, with only 24 % of children aged three to five years cared for exclusively in their homes (Mamedova & Redford, 2015). Nonparental child care settings encompass a wide spectrum of quality, ranging from publicly funded preschools with clearly defined standards and expected outcomes, to family day care providers who may not be subject to licensing standards (Child Care Aware of America, 2013).

Within the array of early childhood settings, assessment is a core component of high-quality school and childcare programs. Child-based assessment is used for a variety of child-focused purposes in early childhood settings including: (a) screening for health, developmental, and behavioral problems; (b) tracking attainment of early learning standards; (c) monitoring progress toward mastery of specific skills within the curriculum; (d) determining eligibility for special services; (e) making diagnoses of disabilities or mental health disorders; and (f) determining placement and support needs as the child transitions to kindergarten (Brassard & Boehm, 2007). In addition, aggregated child assessment data is a key outcome measure used for program evaluation purposes (Hauser-Cram, Upshur, Warfield, & Weisner, 2000; NAEYC and National Association of Early Childhood Specialists in State Departments of Education (NAECS/SDS), 2009; NAEYC & NAECS/SDE, 2003).

The process of consultation and collaboration in early childhood schools and childcare settings utilizes child assessment data to help design and monitor interventions to promote growth and resolve academic and behavioral problems. Mental health consultation in early childhood programs has not only been shown to be an effective intervention for reducing problematic behaviors, but a means of improving overall program quality, teacher efficacy, and teacher competence (Conners-Burrow, Mansell, McKelvey, Virmani, & Sockwell, 2012; Perry, Dunne, McFadden, & Campbell, 2008; Virmani, Masyn, Thompson, Conners-Burrow, & Whiteside, 2013). Effective consultation practices are necessary for productive collaboration between psychologists, classroom teachers and home care providers, and early intervention professionals (Wesley & Buysse, 2004).

Beyond child-focused assessments, a growing body of literature attests to the value of assessing process elements, such as teacher behaviors and interactions, as well as structural elements within preschool and day care environments to help support teachers, improve program quality, and enhance outcomes for children (Early et al., 2005; Mashburn et al., 2008). Research-based tools for teacher and classroom observation hone in on teacher–child interactions (e.g., LaParo, Pianta, & Stuhlman, 2004), creation of literacy-rich learning environments (Smith, Brady, & Anastasopoulos, 2008), and overall quality of preschool and day care settings (Harms, Clifford, & Cryer, 2015). Similar tools for assessment of both process and structural elements which contribute to quality family day care settings are also available (Biscelgia, Perlman, Schaack, & Jenkins, 2009; Bradley, Caldwell, & Corwyn, 2003; Harms, Cryer, & Clifford, 2007; Rusby, Jones, Crowley, & Smolkowski, 2013; Schaack, Le, & Setodji, 2013) to guide providers, consultants, and researchers in improving family-based care.

We begin this chapter on assessment in preschool and childcare settings by first examining regulation and policy driving assessment of children and of their care and educational settings. We will review child-focused and setting-focused assessment practices and discuss implications for practice. A case study will illustrate how assessment data can be used to improve practice within a preschool classroom and, thus, bring about enhanced growth and development for young learners.

Review of Literature

Early Childhood Settings and Standards

A rich research base exists to document the impact of high-quality childcare and preschool experiences on child outcomes (Keys et al., 2013; National Institute of Child Health and Development (NICHD) Early Child Care Research Network, 2003; Pianta, Barnett, Burchinal, & Thornburg, 2009; Pinto, Pessanha, & Aguiarc, 2013; Raikes et al., 2013). For example, a large, multi-site longitudinal study conducted by the NICHD Early Child Care Research Network (2003) revealed that childcare quality, measured using standardized observations of caregiver behavior and physical environment checklists, had a positive influence on child cognitive and social development, even beyond the contributions of child and family variables. Similarly, Keys et al. (2013) conducted a meta-analysis of preschool quality indicators drawn from multiple-scale studies. Based upon this analysis, they concluded that quality of preschool programs provides small, but significant contributions to child outcomes, especially in language and mathematics domains, even after controlling for demographic variables and characteristics of children upon entry to preschool. Despite these positive findings about the importance of quality settings for children's development, Pianta et al. (2009) pointed out that the patchwork of program models and regulations means that some children might not benefit from the aspects of the preschool environment that matter most—teachers and caregivers who know how to target skill progressions and to engage children in stimulating activities and interactions. The sections which follow provide an overview of the organization and regulation of child care settings, with a focus on policy regarding assessment of children's learning and development, and of overall quality of the settings.

Standards for Child Care Centers and Family Child Care Homes

The regulation of child care centers and family day care homes is accomplished at the state level, with wide latitude left to individual states with respect to

development and monitoring of sound child care policies and practices. The 2013 update on child care center regulations compiled by Child Care Aware of America is entitled *We Can Do Better*, suggesting the very slow progress toward enactment of standards to insure that children are cared for by qualified teachers in safe settings where they can learn and grow. The report notes that only 25 states require childcare centers to provide learning activities in the six core developmental domains: language/literacy, cognitive/intellectual, social, emotional, cultural, and physical development. Child care centers are advised to use state early learning guidelines as a basis for assessment of children's developmental progress; however, given that 17 states do not require even a high school diploma to serve as a lead teacher in a day care classroom, implementation of quality curriculum and assessment programs seems out of reach for many child care centers.

A companion ranking for family child care homes, completed by the National Association for Child Care Resources and Referral Agencies (NACCRRA, 2012), documented the alarming lack of standards for in-home child care. NACCRRA (2011) also observed that even the most basic credentialing regulations, such as requiring a verifiable background check prior to receiving federally backed child-care subsidy payments, are missing in 26 states. Therefore, NACCRAA recommended that states adopt minimal training standards for providers, including background checks, a high school degree and at least 40 hrs of initial training, with child development and discipline included among the topics. Curriculum planning and child-focused screening are not addressed, which continues to leave vital gaps in consistent skill development for many child care providers.

Developmental assessment of infants, toddlers, and preschoolers is mandated only for those children enrolled in day care who also have disabilities and are served through the Early Intervention and Preschool Special Education programs (P.L. 99–457, also known as Part C of IDEA). Children without identified disabilities may receive little in the way of quality learning activities or progress assessments, depending on the state regulatory environment. In addition, in both day care centers and family care homes, assessment of children's development is likely to vary widely, depending on the skills, initiatives, and insights of individual care providers. Some centers/facilities might use age-appropriate instruments and multiple tools to assess different developmental domains, while others engage in informal assessment with nonstandardized methods. Other important factors to consider include involvement of parents/families and the use of assessment tools that are tied to the educational/care curriculum. Given this variability in assessment practices, consultation and collaboration with providers in these settings by early intervention teachers, therapists, and psychologists are even more imperative in helping to support positive learning outcomes for young children with special developmental needs.

Fortunately, measures designed to assess both structural (i.e., the physical environment) and process (i.e., interactional) elements of child care and family day care environments exist to help gauge quality and guide consultants (Biscelgia et al., 2009; Bradley et al., 2003; Rusby et al., 2013; Schaack et al., 2013). These tools will be discussed in greater depth in the section on assessment for program quality.

Head Start Regulations

The Head Start program is now 50 years old and serves nearly 1 million low-income and at-risk children and families through center-based Head Start classrooms and the home-based Early Head Start program (Early Childhood Learning and Knowledge Center, 2014). In contrast to the variable approach of states with respect to regulations for infant, toddler, and preschool age childcare programs, the Head Start Program Performance Standards (2007) state clear expectations for programs regarding assessment of children and learning environments. With the downward expansion to Early Head Start in 1995, this federal program has continued to play a pivotal role in the establishment of assessment practices for screening infant and toddler development.

The comprehensive Head Start standards direct programs to provide developmental screening of all children to determine whether further evaluation of potential disabilities is needed, and then to insure that a disabilities coordinator arranges for such evaluations. In addition to participating in screening, programs must also conduct ongoing developmental assessment of each child's functioning in the areas of gross and fine motor skills, perceptual discrimination, cognition and attention, self-help and social skills, and receptive and expressive language skills. The results of developmental assessments are used for progress monitoring and planning of program activities. Furthermore, the Head Start standards for assessment are interwoven with provisions of federal preschool special education legislation. Beyond child-focused assessment, Head Start standards for program management mandate annual self-assessment and development of quality improvement plans, as well as the use of mental health consultants to assist with selection of assessment tools and development of interventions.

National Head Start research initiatives have funded large-scale research projects to develop tools for assessment and monitoring of children's development and to investigate effective classroom practices. A recent example is Head Start CARES, which explored ways to enrich preschool classroom climate and teacher practices to improve children's social-emotional and behavioral functioning (Morris et al., 2014). More specifically, this research examined the effects of three Head Start program enhancements on children's social-emotional outcomes. These enhancements included: (a) Preschool PATHS, which utilizes structured lessons to help children learn about emotions and improve peer interaction skills; (b) Tools of the Mind–Play, a streamlined version of a curriculum that uses structured pretend play and professional development (e.g., teacher training and ongoing coaching) to improve children's learning; and (c) Incredible Years Teacher Training Program, which focuses on the development of teachers' skills in positively managing their classrooms and children's behavior. In summary, Head Start's articulation of clear policies for screening, ongoing developmental assessment, and individual evaluation for children, in combination with its establishment of standards for program self-evaluation, has spurred the development of the broad field of early childhood assessment and consultation.

Preschool Standards

By the end of 2013–2014, state-funded preschool programs served 32.4 % of the nation's 4-year olds and 7.4 % of the 3-year olds (Barnett et al., 2015). This benchmark and other indicators are reported in the Annual State of Preschool Report produced by the National Institute for Early Education Research (NIEER) (Barnett et al., 2015). According to this report, there are more than 1.3 million children served in 53 state-funded preschool; with some states offering more than one initiative. NIEER uses ten research-based standards/benchmarks as indicators of quality, though Barnett et al. acknowledge that these ten are not guarantees of excellence. The ten include these requirements: establishment of early learning standards; lead teachers have BA degrees and specialized pre-K training; assistant teachers have a Child Development Associate degree or equivalent; sites receive at least 15 h of in-service training per year; class sizes of 20 or lower; staff–child ratio of 1:10 or better; site visits to monitor quality; screenings/referrals for vision, hearing, and health and the provision of at least one other support service for families; and provision of at least one meal As of 2013–2014, the state-funded programs in five states, including Alabama, Alaska, North Carolina, Rhode Island, and the newly established initiative in Mississippi, attained all ten of the above benchmarks. Programs in 17 states met eight or more benchmarks. All 53 state-funded programs outlined by NIEER/Barnett have comprehensive standards for early learning (first requirement). Thirty of them (56.6 %) require a bachelor's degree as the standard for qualifying as a teacher. Assessment of children's progress toward meeting comprehensive learning standards cannot be assumed, since this component is not explicitly included in the NIEER learning standards benchmark. However, among the 53 programs, 37 of them (69.8 %) incorporate documentation of children's learning and/or child outcomes as part of their program quality monitoring. Monitoring of program quality is accomplished by site visits at least every five years to audit compliance with state standards in 32 programs/initiatives (60.4 %).

With respect to types of screening and referral requirements in the 53 programs described in the most recent NIEER report, there is considerable variability. Thirty five of the 53 (66 %) require a developmental screening along with more standard requirements (e.g., immunizations, vision/hearing screenings). However, only 22 of the program initiatives (41.5 %) require psychological/behavioral screenings. Within some states, psychological/behavioral screenings are locally determined, indicating that particular regions or program sites might require them. For additional information regarding types of information (e.g., structured classroom observations) collected by the 53 programs, readers are referred to the most recent NIEER report: http://nieer.org/yearbook.

The most recent NIEER report noted that, while publicly funded preschool is not primarily designed to educate children with disabilities, such preschool programs

might be offered as part of inclusive educational environments. Therefore, young children with disabilities might have been identified for services as a result of screening procedures required in some state-funded initiatives and be enrolled in universal pre-K programs. Once identified, children with disabilities participate in ongoing developmental assessment and progress monitoring as part of early childhood special education services. Yet, progress monitoring for children in the general preschool population and monitoring of teaching using program quality assessment tools are not consistent across publicly funded preschool programs.

Standards for the Field

The National Association for the Education of Young Children (NAEYC) is a policy and advocacy group which sets standards for program management and quality and offers accreditation to programs adhering to their standards. NAEYC standards apply to settings across the developmental span of early childhood and, thus, encompass child care programs serving infants, toddlers, and preschool age children; preschool education programs; and programs in kindergarten. NAEYC has established ten standards that encompass well-researched hallmarks of quality childcare and education settings: *Relationships*, *Curriculum*, *Teaching*, *Assessment of Child Progress*, *Health*, *Teachers*, *Families*, *Community Relationships*, *Physical Environment*, and *Leadership and Management*. These ten are divided into several levels of sub-standards, which are defined and delineated by specific criteria to help programs establish and implement quality practices. As an example, *Relationships* is divided into "Building Positive Relationships Among Teachers and Families," "Building Positive Relationships Between Teachers and Children," "Helping Children Make Friends," "Creating a Predictable, Consistent and Harmonious Classroom," "Addressing Challenging Behaviors," and "Promoting Self-Regulation" (NAEYC, 2015). In addition, NAEYC specifies: (a) age categories to which the standards/sub-standards apply (e.g., infant, toddler/two, preschool, kindergarten); (b) assessment categories, which indicate whether sub-standards are "required," "always assessed," "randomly assessed," "emerging practice," or "not currently assessed"; and (c) sources of evidence that can be used to assess sub-standards (e.g., program portfolio, teaching staff survey, etc.).

In 2009, NAEYC and NAECS/SDE jointly published a position statement on curriculum, assessment, and program evaluation which highlighted the centrality of appropriate assessment practices to the provision of quality childcare and education. According to this position paper, the purposes of assessment are "making sound decisions about teaching and learning, identifying significant concerns that may require focused intervention for individual children, and helping programs improve their educational and developmental interventions" (p. 2). In order to accomplish these goals, programs must begin with carefully constructed curricula that are challenging, engaging, and developmentally appropriate.

Early Childhood Curricula

One primary foundation for developmental progress is a sound curriculum which defines learning goals and provides ample opportunities for children to engage in activities aligned with these goals and with the values and culture of the program. While some preschool and child care facilities use published curricula, it is not unusual for programs to develop their own curricula, as well as assessments to measure mastery of curricula goals (Hagans-Murillo, 2005). In fact, Head Start standards allow staff and parents to develop their own "local" curricula to match characteristics and needs of the community (Wolverton, 2000). According to Dodge (2004), programs often consider the following characteristics in choosing a curriculum: (a) clearly written; (b) adaptable to individual and group needs and characteristics; (c) incorporates parent involvement; (d) addresses child outcomes and state goals/expectations; and (e) fits with community needs. In their position statement, NAEYC and NAECS/SDE (2003) noted that effective curricula are indicated by: (a) comprehensive nature; (b) clear and shared goals; (c) active engagement of children in curricular activities; (d) content that is learned through play and exploration and focused, purposeful teaching and builds upon children's prior learning and experiences; (e) likelihood of yielding benefits for children; and (f) evidence base and validation of content by professional standards.

It is also important to note that federal government initiatives and grant programs (e.g., IDEIA, Reading First, Early Reading First) have continued to emphasize the importance of evidence-based curricula and interventions in promoting higher levels of achievement and reducing the need for expensive remedial and special education programs. While it is often difficult to evaluate the effectiveness of comprehensive early childhood curricula across different settings, several have empirical support, including HighScope (Schweinhart & Weikart, 1997) and Tools of the Mind (Barnett et al., 2008). Federal initiatives to promote more effective literacy instruction have spurred research on preschool literacy skills, teaching practice, and curriculum. As a result, evidence-based preschool literacy curricula, such as The Literacy Express Preschool Curriculum (Lonigan, Farver, Phillips, & Clancy-Menchetti, 2011), are now available. More recently, there is emerging evidence for preschool mathematics and science curricula and progress assessment (Brenneman, 2011; Clements et al., 2011) as well as curricula to teach children self-regulatory and metacognitive skills to facilitate learning and behavioral control (Wilson & Farran, 2012).

Screening and Readiness Assessments

Screening assessments are typically brief measures which can be quickly administered to all children in a setting with the goal of identifying children who may demonstrate delays or who are at risk for academic and behavioral problems; these

children are then referred for more in-depth evaluation and interventions. Brassard and Boehm (2007) recommended a multi-step screening process that can identify strengths and areas of need across the major domains of functioning (e.g., physical, cognitive, communication, social-emotional, and adaptive development). The authors identified the Early Screening Profiles (ESP-R), Developmental Indicators for the Assessment of Learning (DIAL-4), and First STEP: Screening Test for Evaluating Preschoolers as standardized assessment tools most useful for the screening of preschool age children. Other chapters in this book provide extensive information about individualized cognitive, language, and behavioral assessments for determining levels of functioning, delays, and service eligibility.

Historically, screening processes have also been used as a means of assessing preparedness for entering kindergarten. As far back as 1999, Carlton and Winsler described the need for a "paradigm shift" with respect to the determination of readiness for kindergarten. More specifically, they noted that screening processes which rely on brief checklists of developmental milestones, such as the Gesell School Readiness Test, or over-reliance on chronological age in general, provide a narrow, problematic mechanism for deciding readiness. In general, these approaches have yielded little value in predicting school success, and some research indicates that they over-identified children from low-income and minority groups as "not ready" for school (Walsh, Ellwein, Eads, & Miller, 1991). Moreover, children who perform poorly on readiness measures have often been required to wait an additional year before beginning school. The delaying of school entrance has been widely recognized as counterproductive, as the children who are not ready for school are often most in need of the structure and stimulation of school (Carlton & Winsler, 1999).

More recently, readiness has been assessed through other approaches which do not rely on chronological age or developmental milestones. For example, Stormont, Herman, Reinke, King, and Owens (2015) examined the use of three items from the Kindergarten Academic and Behavior Readiness Screener (K-ABR; Stormont, Reinke, & Herman, 2011) at the beginning of the kindergarten year to predict academic, emotional, and behavioral outcomes at the end of the year. The study included 19 teachers and 350 kindergarten students. The researchers also utilized independent observations of students, teacher ratings of behavior and academic competence, and subtests from the Woodcock-Johnson III Tests of Achievement. Their results indicated that the three items from the K-ABR were good predictors of outcomes later in the year, even after taking covariates (e.g., whether or not children received support interventions) into account. In addition, the K-ABR item ratings were significantly associated with several other behavioral and academic indicators of readiness.

As more children participate in preschool programs, readiness for school entry is the target of the preschool learning environment. Thus, preschool portfolios used in state-funded programs (Forry, Davis, & Welti, 2013) or developmental progress inventories, such as the Learning Accomplishment Profile (LAP-D; Nehring, Bruni, & Randolph, 1992) are used as indicators of readiness (Winsler et al., 2008). Brassard and Boehm (2007) endorsed a school readiness definition which

"recognizes a reciprocal relationship between the child and school" (p. 172) and suggested that parent checklists and school visit observations be used as part of assessment-teach-assessment approaches. These multiple data sources help prepare teachers to modify their curriculum and arrange for special services to meet the individual needs of their incoming students, rather than sorting children by those who should start and those who should stay home.

Assessment of Program Quality

The development of standards and accreditation systems has drawn increased attention to instruments designed to measure early childhood program quality. The most widely used of these instruments is The Early Childhood Environment Rating Scale which is now in its third edition (Harms et al., 2015). This scale can be used to evaluate key structural (e.g., space, routines) and process aspects (e.g., activities, interactions) of center-based preschool programs. The ECERS-3 is a 35-item measure organized into six subscales: Space and Furnishings, Personal Care Routines, Language & Literacy, Learning Activities, Interaction, and Program Structure. Editions of the ECERS have long been employed in large-scale national studies examining program quality of federal and state preschool programs such as Head Start. Several states have adopted the ECERS as a tool for evaluating quality, improving outcomes, and making high-stakes decisions in state-funded preschool programs. Overall, the ECERS has an impressive record of linking higher scores with better developmental outcomes for children, and for generating recommendations to improve classroom quality through professional development and technical assistance (Mashburn et al., 2008). The Family Child Care Environment Rating Scale, Revised Edition (FCCERS-R) is a companion tool for assessing the quality of family day care homes (Harms et al., 2007).

Often referred to as the "sister measure" of the ECERS, the Infant-Toddler Environment Rating Scale-Revised Edition (ITERS-R) is similar in purpose and structure, but is used to evaluate the quality of early childcare classrooms for children up to 30 months of age (Harms, Cryer, & Clifford, 2003). The ITERS-R has 39 items organized into seven subscales: Space and Furnishings, Personal Care Routines, Listening and Talking, Activities, Interaction, Program Structure, and Parents and Staff. Each item is rated on a seven point scale, with values 1–3 indicating "inadequate" and "minimal" care; scores of 4–5 representing "good," and ratings of 6–7 indicating 'excellent' quality. A full score can be computed by averaging the scores on all items for each classroom (Biscelgia et al., 2009).

An in-depth focus on the quality of interactions in preschool settings is available using the Classroom Assessment Scoring System: (Pianta, La Paro, & Hamre, 2008). The CLASS is an observation system that measures teacher–student interactions clustering in three domains: Emotional Support, Classroom Organization, and Instructional Support. Substantial evidence supports the use of the CLASS as a tool for global program evaluation and teacher training. Several large-scale studies

of early childhood program quality confirmed the validity and reliability of the CLASS (e.g., LaParo et al., 2004), while others illustrated how CLASS observation can document changes in teacher practices following professional development and/or technical assistance (Downer, Kraft-Sayre, & Pianta, 2009; Hamre et al., 2012; Mashburn, Downer, Hamre, Justice, & Pianta, 2010).

Instructional structures and interactions which embody good literacy teaching practices can be assessed using the Early Language and Literacy Classroom Observation (ELLCO) PreK Tool (Smith et al., 2008). The ELLCO is designed for use in center-based classrooms as an instrument for peer and supervising teachers or consultants to observe and rate literacy-related practices and materials, and for teacher reflection to guide improvements. Implementation studies have used the ELLCO as a means of identifying weaknesses in the instructional quality and classroom environments of early childcare settings, as well as for targeting classroom-based interventions (Grace et al., 2008; Wayne, DiCarlo, Burts, & Benedict, 2007). In these studies, consultation, mentoring, and training of early childhood teachers based on needs identified by the ELLCO resulted in significant improvements in child literacy behaviors and early literacy environment ratings.

The Inclusive Classroom Profile (ICP; Soukakou, 2012) is a useful tool for assessing the quality of inclusive practices in early childhood classrooms. The ICP was developed to supplement other measures of classroom quality due to concerns that other measures might not adequately assess how well the needs of children with disabilities are met. The ICP is organized similarly to the ECERS-R, with each of the 11 items containing a 7-point Likert scale of "quality indicators," or behavioral descriptions which are primarily rated by an observer. A few items can be rated through interview or review of classroom documents. Initial validation of the ICP suggested strong inter-rater reliability, evidence of internal consistency, a single factor structure, and moderate support for construct validity (Soukakou, 2012).

While these environmental assessments have helped researchers and policy-makers reach some consensus regarding what constitutes high-quality educational environments for young children, questions still exist about the magnitude and scope of purported positive outcomes. According to Mashburn et al. (2008), higher quality instructional practices were associated with higher academic language skills and higher quality teacher emotional interactions were related to better child social skills in their large-scale study of state-funded preschool programs. These results suggest that specific quality features of preschool environments can positively impact both cognitive/learning and social-emotional outcomes. In their meta-analysis, Burchinal, Kainz, and Cai (2011) found that better child care quality showed stronger relationships with academic and learning skills than social-emotional outcomes. According to a secondary meta-analysis conducted by Keys et al. (2013), high-quality early childhood classrooms have positive effects on academic-type outcomes, such as language and mathematics skills. More specifically, Keys et al. found small, but statistically significantly effects in these domains when they conducted analyses using four large-scale datasets to examine both the main effects of early childhood classroom quality and the interactions between quality and child demographic characteristics and skill level at the time of entry. However, the researchers did not find evidence that demographic factors such as

gender, SES, or race were significant moderators in the relationship between classroom quality and language and math skill development. Also, skill level at time of entry to preschool did not serve as a significant moderator. Based upon these results, Keys et al. concluded that there is not sufficient evidence to support the claim that high-quality environments have differential effects on at-risk children. Lastly, the analyses of Keys et al. found little evidence that preschool quality influenced social-emotional outcomes.

Other research, however, has focused specifically on young children with risk factors. For example, Votruba-Drzal, Coley, and Chase-Lansdale (2004) and Watamura, Phillips, Morrissey, McCartney, and Bub (2011) found that high-quality educational environments were beneficial to children who were considered high risk due to low income, low parental responsivity, lack of stimulation/resources at home or other factors. Both of these studies also found that higher child care/preschool quality was associated with better social-emotional development in contrast to the analysis of Keys et al.

Children who are considered "at-risk" due to economic circumstances often come from families who qualify for and receive childcare subsidies. Subsidized childcare provides financial support for children to attend a spectrum of childcare situations from informal or family child care, to formal community centers. These types of programs vary greatly in terms of quality, and sometimes are an alternative or supplement to Title I Universal Prekindergarten programs provided through public schools. Given that subsidized care is intended to level the educational playing field for disadvantaged children, it is important to examine if these programs, which are sometimes of mediocre quality, actually result in developmental gains. In a study of 3838 children participating in the Miami Readiness Project, Winsler et al. (2008) made comparisons among children in center-based subsidized childcare, those enrolled in Title I subsidized public school prekindergarten, and those enrolled in fee-supported public school prekindergarten. Results showed that children in all types of programs made significant gains on measures of language, cognitive development, and fine motor skills, yet children from low SES backgrounds in subsidized Title I prekindergarten public school programs experienced the greatest benefits. The authors of this study speculate that public school pre-kindergarten programs are likely of better quality due to the education attainment and relatively higher salaries of the teachers in these settings. While the above findings suggest that quality matters, it is encouraging to learn that even children in programs of mediocre quality make substantial progress, suggesting that childcare subsidies are producing the desired effect (Winsler et al., 2008).

Forry et al. (2013) further explored this issue by examining the kindergarten readiness of low-income children enrolled in regulated versus unregulated subsidized care and also those enrolled in supplementary prekindergarten or Head Start programs at four years of age. Findings indicated that children enrolled in subsidized center-based care were more likely to be ready for kindergarten than those who received childcare in informal home settings, yet concurrent enrollment in prekindergarten programs was found to mitigate these differences.

Linking Assessment to Consultation and Collaboration

The focus on service delivery in the child's natural setting has resulted in children with special needs increasingly receiving intervention services embedded within an array of preschool environments, including day care centers, family child care homes, and universal preschool classrooms (Buysse & Wesley, 2005). Whereas most early intervention providers have traditionally engaged in direct therapies and interventions with the children they serve, many are now engaging in more indirect services in the form of collaborative partnerships with teachers and parents (Wesley & Buysse, 2004). Given that preschool teachers and other caregivers in these inclusive settings might have limited experience with children with disabilities, significant mental health needs, or severe behavioral difficulties, consultation and collaboration are necessary to match program characteristics and educational practices to child needs. Consultation for early childhood special education (ECSE) has, thus, been advocated as a means of improving knowledge and skills of early childcare providers as they implement interventions and services for young children with special needs (Wesley & Buysse, 2004).

The Head Start regulations (Head Start Program Performance Standards, 2009) direct programs to insure that children's mental wellness is promoted through a regular schedule of mental health consultation provided on-site to program staff and parents. This consultation must include: (a) staff and parent education on mental health issues; (b) design and implementation of program practices which meet the behavioral and mental health needs of individuals or groups of children; and (c) assistance in providing special services for children with atypical behavior or development.

A body of research validates the use of mental health consultation as an effective means of reducing problem behaviors and increasing prosocial outcomes in young children. Specifically, reductions in teacher-reported externalizing behaviors such as inattention and hyperactivity; oppositional defiant, disruptive, and destructive behaviors; and hostility, anger, and aggression have been found in a number of peer-reviewed studies of consultation (Gilliam, 2005; Raver et al., 2009; Upshur, Wenz-Gross, & Reed, 2009; Williford & Shelton, 2008). Currently, there is little evidence to suggest that early childhood mental health consultation is an equally effective intervention for internalizing behaviors (Perry, Allen, Brennan, & Bradley, 2010). However, its effectiveness for increasing prosocial behaviors appears promising, with several studies demonstrating improvements across a variety of areas such as social skills and interactions, cooperation, self-control, play and leisure time, and coping skills (Raver et al., 2009; Perry et al., 2010). Mental health consultation has also been shown to increase teachers' competence and self-efficacy in dealing with challenging behaviors (Alkon et al., 2003; Wesley & Buysse, 2004) and assist teachers in increasing academic engagement in preschool classrooms (Carter & Van Norman, 2010), both of which can result in overall improvements in the quality of child care centers.

While there are clear-cut benefits to mental health consultation as a collaborative framework in early childhood settings, researchers have also identified several

issues and challenges that must be addressed. Specifically, many early intervention practitioners have not been adequately prepared to engage in consultation and are, therefore, unfamiliar with consultation processes and strategies (Wesley & Buysse, 2004). For instance, ECSE consultants themselves might be unaware of the tasks required for entry into a new setting; have difficulty adequately assessing child, consultee, and program characteristics; and can move too quickly to strategy development before underlying problems have been identified. Moreover, practitioners conceptualize consultation services about children as being parallel to providing direct services to children and families (Wesley et al., 2001). This perspective might help explain consultants' discomfort with indirect service frameworks including the need to incorporate issues of global program quality into their work. According to Wesley and Buysse's qualitative research (2004), the early childhood consultants in their study expressed limited insight regarding the influence of their personal characteristics on consultative relationships and had difficulty adequately addressing program characteristics that can impact consultation processes and outcomes. Research from early childhood mental health consultation has sown that the ability to form positive collaborative relationships with program staff is the single most important characteristic of effective mental health consultants (Green et al., 2006). Furthermore, consultation models that prescribe a comprehensive approach involving intervention at the child, family, and program levels have shown promising results (Upshur et al., 2009).

Summary and Implications for Practice

Given the wide range of early childhood settings offering varying levels of supports for children's growth and development, there is considerable diversity in the assessment practices used in these settings to identify children in need of services and supports, monitor progress, and to help evaluate setting quality. While many day care centers and family care homes are not subject to the same standards and regulations as Head Start, Early Start, and other federally or state-funded facilities, effective assessment practices and measures are available. Screening and assessment activities might be less beneficial for children in these centers and family care homes unless they are receiving early childhood special education services. Head Start and state-regulated preschools mandate certain types of screening, as well as implementation of curricula, that provide appropriate learning experiences. Significant strides have been made in developing high-quality preschool curricula, especially those focused on literacy and metacognitive skills that facilitate learning and behavioral regulation. Tools assessing the quality of preschool environments provide an index of general setting quality and/or focus on optimal environments for literacy learning.

Consultation in the early childhood settings is an effective practice which has been shown to have positive effects when it comes to addressing young children with special needs, particularly externalizing problems, and helping teachers enhance aspects of the learning environment. However, many early childhood special

education service providers lack appropriate preparation for their consulting roles. Given the paucity of standards for community-based child care settings and concerns regarding quality of instructional supports and teacher-child interactions, even in state-supported preschools programs, it is clear that skilled consultants will have much to contribute to the development and implementation of strategies for promoting skill development and managing challenging child behaviors. The following table summarizes implications for practice in varied early childhood educational settings.

Assessment task	Considerations	Empirically validated practice
Developmental screening	Not required in childcare settings; Required in Head Start and most state-operated preschools	Standardized measures available for major domains of functioning. Results used for identification of disabilities or development of individual interventions
School readiness screening	Past practice often led to recommendations to delay school entry	Best practice calls for use of multiple data sources (parent checklist, child observations, assess-teach-assess procedures); data is used to prepare teachers and support staff to meet needs of incoming students
Curriculum assessment and progress monitoring	Childcare settings might not have structured curricula to guide childcare providers Local curricula used in Head Starts and preschools vary in quality	Standardized preschool curriculum packages include progress assessments. There have been recent advances in research-based literacy curricula and emerging models to promote metacognitive skills
Assessment of setting quality	Preschool quality research reflects the need to enhance teacher-child and instructional interactions	There are a variety of research-based tools to gauge quality of preschools and family day care homes. Teacher-child interactions are a key component of quality ratings Assessments of literacy teaching environments boost effective instructional practices
Consultation approaches	Mental health consultation is mandated by Head Start for ECSE and must be provided in natural settings Lack of training for consultants remains a significant issue	There is ample evidence that mental health consultation can produce improvements in child behaviors and learning environments Consultation is a key component of RTI models. Effective consultants understand stages of consultation and impact of their relationships

Case Study

Patricia is the lead teacher in a universal pre-k classroom housed within an elementary school in a small rural public school district. It is an inclusive, half-day program which typically enrolls 15–18 students, including several with disabilities. Patricia holds an early childhood teaching certification and is in her second year of teaching; she has plans to begin her graduate study at a local university in the near future. Patricia's teaching assistant, Maria, has no formal education, but many years of experience in preschool classrooms.

The elementary school principal, Mr. Weston, has expressed concerns about the readiness of incoming kindergarten students based on the results of the developmental screenings administered at entry. Seven out of 16 of Patricia's preschool students who entered kindergarten this year did not meet age-level expectations on the DIAL-4 screening measures of language and concept development. Specifically, these students did not demonstrate understanding of many concept words, lacked rhyming skills, and struggled with copying letters and writing their names. Social-emotional screening procedures using both parent and teacher ratings of the BASC-3 Behavioral and Emotional Screening System (BESS) (Reynolds & Kamphaus, 2015) identified three students to be at the Extremely Elevated Risk level and six students to be at the Elevated Risk Level for behavioral or emotional problems. Mr. Weston and the supervisor of special services, Mrs. Carrey, have requested that the school psychologist, Laurie, consult with Patricia on how to improve her students' performance.

During the initial meeting, Patricia expressed frustration with the amount of instructional time in the day, lack of additional adult support, and the range of skills and abilities of the children. During her initial meeting with Laurie, Patricia stated, "What Mr. Weston doesn't understand is that there are so many obstacles to getting these kids ready for kindergarten. Some of my kids come from homes where learning to read and write is not a priority, so they have little exposure to these skills. On the other hand, I have a few kids who know all of their letters and numbers and are beginning to read by the end of the year. I have a hard time designing activities that address the needs of all of my students. I wish I was able to break the kids into small groups so that I could target skills, but I don't have the time or the staff. After factoring in morning routine, dismissal, and snack time, I really only have two-and-a-half hours of instructional time in my day, so that's not enough to do additional activities to address writing or small-group instruction targeting skills deficits."

As they began their consultation work together, Patricia and Laurie agreed that over the next few weeks, Laurie would spend time observing in Patricia's classroom to examine potential changes which could be made to the existing classroom structure and routine without straining already scarce time and personnel resources. Laurie decided to use two assessments of classroom environments to identify opportunities for improvement in instructional interactions: the Early Language and Literacy Classroom Observation (ELLCO) Pre-K tool to assess the level of support for language and literacy development in the classroom and the Classroom

Assessment Scoring System (CLASS) to examine organization, overall management, and climate of the classroom. Results of the ELLCO indicated several areas of strength on both the General Classroom Environment and Language and Literacy subscales. While the classroom appeared to be well organized for learning with many appealing materials, Laurie noted that improvements could be made to the language environment by creating a climate for discourse and building vocabulary. Laurie also noted that several improvements could be made during book reading time. Children struggled to remain attentive and engaged during read-aloud time, resulting in Patricia reading stories quickly without pausing for comments or discussion. When interviewed about her approach to book reading, Patricia noted that she often has difficulty selecting a book that will be at an appropriate level for all of her students, and, although many children want to share comments, she struggles to manage the discussion in a way that engages the attention of all the students. Through the CLASS, Laurie determined that Patricia was running a well-managed, organized classroom with a generally positive climate. However, the class would likely benefit from Patricia being more sensitive to children's perspectives and improving her instructional support by giving more specific feedback to students and helping them develop more complex language skills through modeling.

Laurie and Patricia worked together to design an intervention to increase direct instruction in shared book reading. Recognizing Patricia's limited time and personnel resources, Laurie suggested that Patricia recruit and train youth volunteers to read in small groups (2–3 children), allowing for the selection of books at appropriate levels for each group. The youth volunteers would be carefully instructed to ask questions and make comments throughout the group reading in order to help children make connections to personal knowledge and experiences, remain interested and engaged in the story, and build comprehension skills. The youth volunteers would also be trained to build on the children's responses by rephrasing their comments and adding information. Laurie explained that writing could be integrated into many activities that were already part of the daily classroom routine. For example, writing could be embedded into art activities (i.e., labeling pictures, dictating stories to accompany drawings). By integrating writing props into pretend play, Patricia's students could also begin to understand the varied purposes of writing. Laurie also encouraged Patricia to think of ways to provide more opportunities to motivate her students to use their emergent writing skills on a daily basis by integrating writing into daily routines.

The interventions suggested by Laurie were intended to help Patricia increase opportunities to support language development and build on emerging writing without altering the already tight schedule. By employing youth volunteers to assist with shared book reading, Patricia is able to spend more time focusing on children's interests and perspectives and fostering enjoyment of learning.

Discussion Questions

- If you were the consultant in this scenario, what additional information would you want to gather during the entry phase?
- How might Laurie support Patricia as she begins to implement the new plan?
- What factors did Laurie consider when helping Patricia to select strategies in this scenario? Are there other factors that should be considered? What are some potential barriers to the strategies selected?
- How might this plan be evaluated?

References

Alkon, A., Ramler, M., & MacLennan, K. (2003). Evaluation of mental health consultation in child care centers. *Early Childhood Education Journal, 31*, 91–99.

Barnett, W. S., Carolan, M. E., Squires, J. H., Clarke Brown, K., & Horowitz, M. (2015). *The state of preschool 2014: State preschool yearbook*. New Brunswick, NJ: National Institute for Early Education Research. Retrieved October 1, 2015 from http://nieer.org/yearbook

Barnett, W. S., Jung, K., Yarosz, D. J., Thomas, J., Hornbeck, A., Stechuk, R., et al. (2008). Educational effects of the tools of the mind curriculum: A randomized trial. *Early Childhood Research Quarterly, 23*, 299–313.

Biscelgia, R., Perlman, M., Schaack, D., & Jenkins, J. (2009). Examining the psychometric properties of the infant-toddler environment rating scale-revised edition in a high-stakes context. *Early Childhood Research Quarterly, 24*(2), 121–132.

Bradley, R. H., Caldwell, B. M., & Corwyn, R. F. (2003). The child care HOME inventories: Assessing the quality of family child care homes. *Early Childhood Research Quarterly, 18*(3), 294–309.

Brassard, M. R., & Boehm, A. E. (2007). *Preschool assessment: Principles and practices*. New York, NY: The Guilford Press.

Brenneman, K. (2011). Assessment for preschool science learning and learning environments. *Early Childhood Research and Practice, 13*(1).

Burchinal, M., Kainz, K., & Cai, Y. (2011). How well do our measures of quality predict child outcomes? A meta-analysis and coordinated analysis of data from large-scale studies of early childhood settings. In M. Zaslow (Ed.), *Quality measurement in early childhood settings*. Baltimore, MD: Brooks.

Buysse, V., & Wesley, P. W. (2005). *Consultation in early childhood settings*. Baltimore, MD: Paul H. Brookes Publishing Co.

Carlton, M. P., & Winsler, A. (1999). School readiness: The need for a paradigm shift. *School Psychology Review, 28*(3), 338–352.

Carter, D. R., & Norman, R. K. (2010). Class-wide positive behavior support in preschool: Improving teacher implementation through consultation. *Early Childhood Education Journal, 38*, 279–288.

Child Care Aware of America. (2013). *We can do better: Child Care Aware of America's ranking of state child care center regulations and oversight.* Retrieved January 5, 2015 from http://www.naccrra.org/sites/default/files/default_site_pages/2013/wcdb_2013_final_april_11_0.pdf

Clements, D. H., Sarama, J., Farran, D., Lipsey, M., Hofer, K. G., & Bilbrey, C. (2011 Spring). *An examination of the building blocks math curriculum: Results of a longitudinal scale-up study.* Paper presented at the meeting of the Society for Research on Educational Effectiveness, Washington, D.C.

Conners-Burrow, N. A., Mansell, L. W., McKelvey, L., Virmani, E. A., & Sockwell, L. (2012). Improved classroom quality and child behavior in an Arkansas early childhood mental health consultation pilot project. *Infant Mental Health Journal, 33*(3), 256–264. doi:10.1002/imhj.21335

Dodge, D. T. (2004). Early childhood curriculum models: Why, what, and how programs use them. *Child Care Information Exchange* (pp. 71–75). Retrieved November 1, 2015 from https://www.childcareexchange.com/library/5015571.pdf

Downer, J. T., Kraft-Sayre, M. E., & Pianta, R. C. (2009). Ongoing, web-mediated professional development focused on teacher–child interactions: Early childhood educators' usage rates and self-reported satisfaction. *Early Education & Development, 20*(2), 321–345.

Early Childhood Learning and Knowledge Center. (2014). *Head Start program facts fiscal year 2013*. Retrieved January 5, 2015 from https://eclkc.ohs.acf.hhs.gov/hslc/data/factsheets/2013-hs-program-factsheet.html

Early, D., Barbarin, O., Bryant, D., Burchinal, M., Chang, F., Clifford, R., ... Kraft-Sayre, M. (2005). *Pre-Kindergarten in eleven states: NCEDL's multi-state study of pre-kindergarten and study of state-wide early education programs.* Chapel Hill, NC: National Center for Early Development and Learning (NCEDL).

Forry, N. D., Davis, E. F., & Welti, K. (2013). Ready or not: Associations between participation in subsidized childcare arrangements, pre-kindergarten, and Head Start and children's school readiness. *Early Childhood Research Quarterly, 28*, 634–644.

Gilliam, W. S. (2005). *Pre-kindergarteners left behind: Expulsion rates in state prekindergarten programs (Policy Brief No. 3).* Retrieved from Edward Zigler Center in Child Development & Social Policy website: http://medicine.yale.edu/childstudy/zigler/publications/briefs.aspx

Grace, C., Bordelon, D., Cooper, P., Kazelskis, R., Reeves, C., & Thames, D. G. (2008). Impact of professional development on the literacy environments of preschool classrooms. *Journal of Research in Childhood Education, 23*, 52–81.

Green, B. L., Everhart, M., Gordon, L., & Gettman, M. G. (2006). Characteristics of effective mental health consultation in early childhood settings: Multilevel analysis of a national survey. *Topics in Early Childhood Special Education, 26*, 142–152.

Hagans-Murillo, K. (2005). Using a response-to-intervention approach in preschool to promote literacy. *The California School Psychologist, 10*, 45–54.

Hamre, B. K., Pianta, R. C., Burchinal, M., Field, S., LoCasale-Crouch, J., Downer, J. T., ... Scott-Little, C. (2012). A course on effective teacher-child interactions: Effects on teacher beliefs, knowledge, and observed practice. *American Educational Research Journal, 49*(1), 88–123.

Harms, T., Clifford, R. M., & Cryer, D. (2015). *Early Childhood Environment Rating Scale—Third Edition (ECERS-3)*. New York, NY: Teachers College Press.

Harms, T., Cryer, D., & Clifford, R. M. (2003). *Infant/Toddler Environment Rating Scale—Revised Edition (ITERS-R)*. New York, NY: Teachers College Press.

Harms, T., Cryer, D., & Clifford, R. M. (2007). *Family Child Care Environment Rating Scale—Revised Edition (FCCERS-R)*. New York, NY: Teachers College Press.

Hauser-Cram, P., Upshur, C. C., Warfield, M. E., & Weisner, T. (2000). An expanded view of program evaluation in early childhood intervention. In J. P. Shonkoff & S. J. Meisels (Eds.), *Handbook of early childhood intervention* (2nd ed., pp. 487–509). New York, NY: Cambridge University Press.

Head Start Program Performance Standards. (2009). *45 CFR Chapter XIII (10-1-09 edition)*. Retrieved January 5, 2015 from https://eclkc.ohs.acf.hhs.gov/hslc/standards/hspps/45-cfr-chapter-xiii/45-cfr-chap-xiii-eng.pdf

Keys, T. D., Farkas, G., Burchinal, M. R., Duncan, G. J., Vandell, D. L., Li, W., ... Howes, C. (2013). Preschool center quality and school readiness: Quality effects and variation by demographic and child characteristics. *Child Development, 84*, 1171–1190.

LaParo, K., Pianta, K., & Stuhlman, M. (2004). The Classroom Assessment Scoring System: Findings from the prekindergarten year. *The Elementary School Journal, 104*, 409–426.

Lonigan, C. J., Farver, J. M., Phillips, B. M., & Clancy-Menchetti, J. (2011). Promoting the development of preschool children's emergent literacy skills; a randomized evaluation of literacy-focused curriculum and two professional development models. *Reading and Writing, 24*, 305–337.

Mamedova, S., & Redford, J. (2015). *Early childhood program participation, from the National Household Education Surveys Program of 2012* (NCES 2013-029.REV), National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education, Washington, DC. Retrieved from http://nces.ed.gov/pubsearch

Mashburn, A., Downer, J., Hamre, B., Justice, L., & Pianta, R. (2010). Consultation for teachers and children's language and literacy development during pre-kindergarten. *Applied Developmental Science, 14*, 179–196.

Mashburn, A. J., Pianta, R. C., Hamre, B. K., Downer, J. T., Barbarin, O. A., Bryant, D., ... Howes, C. (2008). Measures of classroom quality in prekindergarten and children's development of academic, language, and social skills. *Child Development, 79*(3), 732–749.

Morris, P., Shira, K., Mattera, N. C., Bangser, M., Bierman, K., & Raver, C. (2014). *Impact findings from the head start CARES demonstration: National evaluation of three approaches to improving preschoolers' social and emotional competence.* OPRE Report 2014-44. Washington, DC: Office of Planning, Research and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services.

National Association for the Education of Young Children. (2015). *NAEYC early childhood program standards and accreditation criteria and guidance for assessment*. Retrieved November 1, 2015 from http://www.naeyc.org/files/academy/file/AllCriteriaDocument.pdf

National Association for the Education of Young Children, & Association of Early Childhood Specialists in State Departments of Education. (2003). Early Childhood Curriculum, Assessment, and Program Evaluation. Joint position statement, Washington, DC (NAEYC).

National Association for the Education of Young Children (NAEYC), & National Association of Early Childhood Specialists in State Departments of Education (NAECS/SDS). (2009). *Where we stand on curriculum, assessment and program evaluation*. Retrieved September 2, 2015 from https://www.naeyc.org/files/naeyc/file/positions/StandCurrAss.pdf

National Association of Child Care Resources and Referral Agencies. (2011). *We can do better: NACCRRA's ranking of state child care center regulations and oversight.* Retrieved October 6, 2012 from http://usa.childcareaware.org/advocacy-public-policy/resources/reports-and-research/we-can-do-better-2013-update/

National Association of Child Care Resources and Referral Agencies. (2012). *Leaving children to chance: NACCRRA's ranking of state standards and oversight for small family child care homes.* Retrieved October 6, 2012 from https://usa.childcareaware.org/wp-content/uploads/2015/10/lcc_executivesummaryapril2012.pdf

National Center for Education Statistics. (2014). Early childhood program participation, from the National Household Education Surveys Program of 2012. Retrieved October 10, 2015 from http://nces.ed.gov/pubs2013/2013029rev.pdf

Nehring, A. D., Nehring, E. F., Bruni, J. R., & Randolph, P. L. (1992). *Learning Accomplishment Profile—Diagnostic standardized assessment*. Lewisville, NC: Kaplan Press.

NICHD Early Child Care Research Network. (2003). Does quality of child care affect child outcomes at age 4 1/2? *Developmental Psychology, 39*, 451–469.

No Child Left Behind Act of 2001. Public Law 107–110.

Perry, D. F., Allen, M. D., Brennan, E. M., & Bradley, J. R. (2010). The evidence base for mental health consultation in early childhood settings: A research synthesis addressing children's behavioral outcomes. *Early Education and Development, 21*, 795–824.

Perry, D. F., Dunne, M. C., McFadden, L., & Campbell, D. (2008). Reducing the risk for preschool expulsion: Mental health consultation for young children with challenging behaviors. *Journal of Child and Family Studies, 17*(1), 44–54.

Pianta, R. C., Barnett, W. S., Burchinal, M., & Thornburg, K. R. (2009). The effects of preschool education: What we know, how public policy is or is not aligned with the evidence base, and what we need to know. *Psychological Science in the Public Interest*, *10*, 49–88. doi:10.1177/1529100610381908

Pianta, R., La Paro, K., & Hamre, B. (2008). *Classroom Assessment Scoring System (CLASS) manual-Prek*. Baltimore, MD: Brookes Publishing.

Pinto, A. I., Pessanha, M., & Aguiarc, C. (2013). Effects of home environment and center-based child care quality on children's language, communication, and literacy outcomes. *Early Childhood Research Quarterly, 28*, 94–101.

Raikes, H., Torquati, J., Jung, E., Peterson, C., Atwater, J., Scott, J., et al. (2013). Family child care in four Midwestern states: Multiple measures of quality and relations to outcomes by licensed status and subsidy program participation. *Early Childhood Research Quarterly, 28*, 879–892.

Raver, C. C., Jones, S. M., Li-Grining, C., Zhai, F., Metzger, M., & Solomon, B. (2009). Targeting children's behavior problems in preschool classrooms: A cluster randomized controlled trial. *Journal of Consulting and Clinical Psychology, 77*, 302–316.

Reynolds, C.R., & Kamphaus R. W. (2015). *Behavior Assessment System for Children Manual*. Bloomington, MN: Pearson

Rubinson, F. (2009). Consultation. In B. Mowder, F. Rubinson, & A. Yasik (Eds.), *Evidence-based practice in early childhood* (pp. 259–288). Hoboken, NJ: Wiley.

Rusby, J. C., Jones, L. B., Crowley, R., & Smolkowski, K. (2013). The child care ecology inventory: A domain-specific measure of home-based child care quality to promote social competence for school readiness. *Early Childhood Research Quarterly, 28*, 947–959.

Schaack, D., Le, V., & Setodji, C. M. (2013). Examining the factor structure of the Family Child Care Environment Rating Scale-Revised. *Early Childhood Research Quarterly, 28*, 936–946.

Schweinhart, L. J., & Weikart, D. P. (1997). The HighScope preschool curriculum comparison study through age 23. *Early Childhood Research Quarterly, 12*(2), 117–143.

Smith, M. W., Brady, J. P., & Anastasopoulos, L. (2008). *Early Language and Literacy Classroom Observation tool, Pre-K (ELLCO Pre-K) manual*. Baltimore, MD: Brookes Publishing.

Soukakou, E. P. (2012). Measuring quality in inclusive preschool classrooms: Development and validation of the Inclusive Classroom Profile (ICP). *Early Childhood Research Quarterly, 27*, 478–488.

Stormont, M., Herman, K. C., Reinke, W. M., King, K. R., & Owens, S. (2015). The Kindergarten Academic and Behavior Readiness Screener: The utility of single-item teacher ratings of kindergarten readiness. *School Psychology Quarterly, 30*(2), 212–228.

Stormont, M., Reinke, W. M., & Herman, K. C. (2011). *The Kindergarten Academic Behavior Readiness Screener (K-ABR)*. Columbia, MO: University of Missouri.

Upshur, C., Wenz-Gross, M., & Reed, G. (2009). A pilot study of early childhood mental health consultation for children with behavioral problems in preschool. *Early Childhood Research Quarterly, 24*, 29–45.

Virmani, E. A., Masyn, K. E., Thompson, R. A., Conners-Burrow, N. A., & Whiteside, L. M. (2013). Early childhood mental health consultation: Promoting change in the quality of teacher-child interactions. *Infant Mental Health Journal, 34*(2), 156–172.

Votruba-Drzal, E., Coley, R. L., & Chase-Lansdale, P. L. (2004). Child care and low-income children's development: Direct and moderated effects. *Child Development, 75*(1), 296–312. doi:10.1111/j.1467-8624.2004.00670.x

Walsh, D. J., Ellwein, M. C., Eads, G. M., & Miller, A. K. (1991). Knocking on kindergarten's door: Who gets in? Who's kept out? *Early Childhood Research Quarterly, 6*, 89–100.

Watamura, S. E., Phillips, D. A., Morrissey, T. W., McCartney, K., & Bub, K. (2011). Double jeopardy: Poorer social-emotional outcomes for children in the NICHD SECCYD experiencing home and child care environments that confer risk. *Child Development, 82*, 48–65. doi:10.1111/j.1467-8624.2010.01540.x

Wayne, A., DiCarlo, C. F., Burts, D. C., & Benedict, J. (2007). Increasing the literacy behaviors of preschool children through environmental modification and teacher mediation. *Journal of Research in Childhood Education, 22*, 5–16.

Wesley, P. W., & Buysse, V. (2004). Consultation as a framework for productive collaboration in early intervention. *Journal of Educational and Psychological Consultation, 15*, 127–150.

Wesley, P. W., Buysse, V., & Skinner, D. (2001). Early interventionists' perspectives on professional comfort as consultants. *Journal of Early Intervention, 24*, 112–128.

Williford, A. P., & Shelton, T. L. (2008). Using mental health consultation to decrease disruptive behaviors in preschools: Adapting an empirically supported intervention. *Journal of Child Psychology and Psychiatry, 49*, 191–200.

Wilson, S. J., & Farran, D. C. (2012, Spring). *Experimental evaluation of the tools of the mind preschool curriculum*. Paper presented at the meeting of the Society for Research on Educational Effectiveness, Washington, D.C.

Winsler, A., Tran, H., Hartman, S. C., Madigan, A. L., Manfra, L., & Bleiker, C. (2008). School readiness gains made by ethnically diverse children in poverty attending center-based childcare and public school pre-kindergarten programs. *Early Childhood Research Quarterly, 23*(3), 314–329.

Wolverton, E. D. (2000). *The curriculum: A written plan for action* (Bulliten No. 67). Retrieved from Head Start: An office of the Administration for Children and Families Early Childhood Learning and Knowledge Center website: http://eclkc.ohs.acf.hhs.gov/hslc/tta-system/teaching/eecd/Curriculum

Chapter 8
Assessment and Collaboration in Family, Home, and Cultural Contexts

Amanda Clinton and Korah La Serna Guilar

Abstract This chapter covers family, home, and cultural factors that influence trajectories of development. Both risk and resilience factors related to child developmental outcomes are described. The chapter also covers family/home assessment, including use of specific tools. The last sections of this chapter cover links of family/home assessment to interventions. These sections incorporate learning/academic interventions as well as interventions that target development of social-emotional skills in young children.

Keywords Preschool risk factors · Preschool resiliency · Family/home assessment · Home literacy environment · Parent–child Interaction Therapy · Everyday Language Intervention Model · Incredible Years · Reach Out and Read

Introduction

Toddlers and preschoolers experience significant developmental strides in a variety of spheres, including physical, learning and cognition, social, and linguistic skills. As a result of rapid growth and change during this period, assessment is simultaneously a dynamic and challenging enterprise for psychologists. In order to appropriately serve young children, professional psychologists require an understanding of changes and processes, not only within the child, but within family and cultural context as well.

Contextual factors related to family, home, and culture have been shown to exert significant and meaningful impacts on young children's development and their future long-term success. Research on academic skills suggests that early and active

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A. Garro (ed.), *Early Childhood Assessment in School and Clinical Child Psychology*, DOI 10.1007/978-1-4939-6349-2_8

involvement of parents in learning programs facilitates positive educational outcomes for preschoolers (Büyüktaskapu, 2012). In terms of behavior, effective use of rules and establishment of expectations are key for preventing oppositional symptoms (Harvey & Metcalfe, 2012). Community factors, such as poverty and linguistic or cultural isolation, further affect young children's learning outcomes and social engagement (Hanson et al., 2011).

In sum, a complex set of intra-individual and inter-individual interactions affect growth and development during the early childhood years. Young children experience impressive changes in their thinking, motor, language, and social skills. These changes, naturally, occur within the context of families, homes, and communities. Contextual factors might exert positive, detrimental, or mixed effects on skill development. School and clinical psychologists who work with youngsters in this age group must possess knowledge and understanding of individual and environmental factors and their interrelationships in order to design informative assessment protocols and develop effective prevention and intervention plans.

The purpose of the present chapter is to examine family and home contributions to skill development in young children. First, a brief overview of skill development and developmental trajectories will be provided. Next, risk factors and resiliency in preschool are addressed. Subsequently, evidence-based interventions that incorporate familial participation and collaboration are delineated. Finally, specific assessment instruments designed for use with families of young children are described.

Literature Review

Preschool Skill Developmental Trajectories

Young children acquire a myriad of new skills through play-based activities. The typical preschooler dedicates his or her waking hours to actively creating, discovering, and imagining everything from sounds and words to social interaction to ideas, both at home and in educational settings. These processes are considered key to learning and development. They are, naturally, embedded in the child's context. Research demonstrates differences in the role and perceptions of play in preschool learning, depending on culture (van der Aalsvoort, Prakke, König, & Goorhuis, 2010; Cote & Bernstein, 2009). These differences include initiation and direction of play by parents, which may be related to values placed on child independence versus obedience, as well as efforts to direct children's attention in specific ways based upon the desire to foster interdependence and collective thinking in mother-child partnerships (Morelli & Rothbaum, 2007).

In general, young children progress through a series of biological, cognitive and social maturation processes. In terms of biological development, significant physical growth occurs. Well-nourished children typically gain approximately 4½ pounds per year, while growing nearly 3 inches annually. Familial and community factors

impact nutrition and physical development in preschool. Malnutrition can negatively impact growth in the brain and body, and even lead to a child's death (UNICEF, 2007). Poor nutrition has been shown to be related to significant learning and behavioral problems in childhood and beyond (Seymour, 2014). Currently, many communities in the United States are facing the challenge of obesity and issues related to overconsumption of unhealthy foods. The problem is widespread, but appears to impact impoverished areas to a greater degree than higher income neighborhoods. A study of low-income children aged 2–4 years in New York City indicated a negative correlation between income level and weight (Nelson, Chiasson, & Ford, 2004). That is, the poorer the family, the more overweight the child.

Cognitive maturation processes are facilitated by biological changes during the early childhood years, as well. The brain grows most rapidly before birth and during infancy, establishing a myriad of neuronal connections and pruning unused nervous system cells by 2 years of age. Early childhood is an important period for motor and sensory development, largely a result of increasing myelination of axons in these areas (Silk & Wood, 2011). As the frontal cortex initiates its course of development—one lasting through adolescence and early adulthood—thinking and self-control processes advance (Kolb & Whishaw, 2008). This means that fewer tantrums are observed and emotional expression matures in terms of improved nuance (Berger, 2012). Significant progress in language and social comprehension also occurs during the preschool years (Johnson, 2005; Kagan & Herschkowitz, 2005). Similar to physical growth, brain maturation has a genetic basis that is influenced by experience. Research indicates that family experiences and environment, ranging from everyday maternal interactions to traumatic events, can have both direct and indirect effects on young children's cognitive and language development (Graham-Bermann, Howell, Miller, Kwek, & Lilly, 2010; Lemelin, Tarabulsy, & Provost, 2006).

The research of the Russian developmental psychologist Vygotsky emphasized the sociocultural aspects of learning. Vygostky (1987) observed that children are interested in their environments and ask questions about events that occur around them. The response provided by caretakers and, later, mentors, such as teachers, extended family members, and peers, are influenced by their own culturally embedded perceptions and interpretations. As such, a child's learning is facilitated via older and more knowledgeable members of the community, and cognitive growth occurs through shared social experience and exploration using guided participation. Several research studies have examined the application of Vygotsky's concepts in parent–child interactions and found positive effects. For example, in a longitudinal study looking at predictors of children's reading abilities at ages 8 and 10 years, Dieterich, Assel, Swank, Smith, and Landry (2006) found that maternal verbal scaffolding indirectly influenced both decoding and comprehension by supporting children's language skills at ages 3 and 4 years. In a mini-longitudinal study conducted when children were 2, 3, and 4 years of age, Hammond, Muller, Carpendale, Bibok, and Liebermann-Finestone (2012) found that parents' scaffolding positively influenced their children's executive functioning skills, both directly and indirectly, at various points in time. Additional studies have supported the positive association between parents' scaffolding strategies and various

executive functioning skills in children (Bernier, Carlson, & Whipple, 2010; Hughes & Ensor, 2009). In a study of five year old Spanish children and parents, Galende, de Miguel, and Arranz (2012) found that specific Vygotskian strategies were effective in fostering the development of theory of mind, which refers to the ability to think of other people as mental beings with their own thoughts, desires, motives, and emotions. The strategies included linguistic scaffolding (e.g., promoting independence, explanation, modeling); use of the contingency rule, (e.g., providing more help when the child struggles with a task and less help when she or he is more competent with it); and decontextualization (e.g., connecting an object, story, or theme of conversation to a child's prior experiences) (Galende et al., 2012).

Influence of Parents, Families, and Culture on Child Development

Child development is influenced by a variety of factors, including parents and extended family members, as well as community and cultural contexts. Specific components of these factors, such as the emotional state of caregivers, can impact child functioning as well. High levels of stress or psychological conditions, such as depression in parents, can lead to lack of warmth and sensitivity or parental disinterest in engaging with one's children (Bronte-Tinkey, Moore, Matthews, & Carrano, 2007; Harvey, Stoessel, & Herbert, 2011). However, programs providing social support and health-oriented interventions can have a positive impact with respect to reducing parental depression and improving parenting (Cooley, Veldorale-Griffin, Petren, & Mullis, 2014; Waylen & Stewart-Brown, 2009). Additionally, parent/family factors influence the development of self-regulation in early childhood. This occurs as a baby transitions from modulating its hunger, sleep, and soothing needs together with its mother to doing so independently, a change that occurs with environmentally mediated neurological maturation (Meléndez, 2005). In addition, some research has identified specific cultural factors and pathways that impact the development of self-regulation in children. In Latino families, these include various aspects of acculturation and familism (Li-Grining, 2012). In African-Americans, families' thoughts and perspectives regarding emotional expression have been found to influence children's emotional understanding and adjustment (Cunningham, Kliewer, & Garner, 2009). In addition, for African-American children, there is some evidence that specific parenting practices, such as limit setting and "no-nonsense parenting," which combines high levels of control with warmth and nurturance, are linked to compliance and self-regulation (Brody & Flor, 1998; Gunnoe & Mariner, 1997; LeCuyer, Swanson, Cole, & Kitzman, 2011).

When examining research literature related to the influences of family and culture on the development of children's cognitive, social-emotional, and academic skills, it is clear that there are many overlapping layers. As early as the first year of life, there is evidence that emotional matching and coordination occurs across different cultures in parent–infant dyads (Feldman, 2006; Kokkinaki, 2003).

As infants progress into the toddler and preschool periods, the role of culture is evident in their play activities. As noted by Tamis-LeMonda, Uzgiris, and Bornstein (2002), parents' shaping and structuring of play activities represent mechanisms for them to transmit the norms and values of their culture to their young children. Differences in parent/family play interactions across cultures involve a variety of factors, including leading and directiveness of play activities, demonstration of tasks, verbal encouragement, and various nonverbal aspects of play (Cote & Bornstein, 2005; Goncu & Gaskins, 2007; Haight, Wang, Fung, Williams, & Mintz, 1999; Halgunseth, Ispa, & Rudy, 2006). While several studies have demonstrated differences in play across cultures (e.g., Bornstein & Cote, 2001; Haight et al., 1999), there is also research that has found no significant differences related to culture (e.g., Cote & Bornstein, 2009). In addition, it is important to consider variables beyond ethnicity in reviewing the research on young children's play. For example, immigration status, level of acculturation, and the interaction between socioeconomic factors and cultural norms might impact type of play activities and parent–child interactions (Cote & Bornstein, 2005, 2009; Raven, Gershoff, & Aber, 2007).

As noted above, it is clear that cultural variables play a significant role in young children's social-emotional development, and there are several constructs and patterns that have been studied. Among Latino families, socialization norms often stress the importance of family (*familismo*), learning how to carry oneself appropriately (*bien educado*), and respect for adults (*respeto*) (Livas-Dlott et al., 2010; Valdés, 1996). When considering Baumrind's (1966) parenting style constructs, there is a body of research indicating that Latino families lean toward authoritarian principles (e.g., Hill, Bush, & Roosa, 2003; Parke et al., 2004). However, additional research has highlighted a more complex picture. In a study of maternal socialization practices in Mexican-American families, Livas-Dlott found that direct verbal commands were the most commonly used strategy for compliance. The researchers noted that, while these strategies are somewhat congruent with the authoritarian parenting framework, additional analyses revealed more detail. For example, Livas-Dlott found that their small sample of mothers tended to rely more on low power-assertion methods such as verbal commands/directions, gestures, nonverbal commands, redirecting or distracting a child from misbehavior, versus high power-assertion methods, which include physically maneuvering the child, physical punishment, threatening, or shaming the child. Similarly, other studies which included Mexican-American and Puerto Rican families found that authoritarian parenting strategies were combined with non-authoritarian ones, including warmth and support (*carino*) (Carlson & Harwood, 2003; Ispa et al., 2004).

As is the case with Latino families, the traditional parenting styles outlined by Baumrind are not necessarily congruent with what occurs in families of Asian descent. For example, Chao (1994, 2001) noted that many Chinese parents use *guan*, a form of training and socialization that involves high parental control and involvement, but also incorporates support and investment in children. Along the same lines, Choi, Kim, Kim, and Park (2013) discussed *ga-jung-kyo-yuk*, a form of traditional Korean parenting which emphasizes parental role modeling, family

hierarchy, importance of family, and respect for elders. Research indicates that *ga-jung-kyo-yuk* is associated with both authoritative and authoritarian aspects of parenting. In one of the few comprehensive discussions of cultural influences on the development of children who have Southeast Asian ethnicity (from Laos, Cambodia, Thailand, Vietnam, or the Philippines), Bankston and Hidalgo (2006) described respect for elders and authority as a central theme which often transmits to the school environment and contributes to positive adaptation in school. In addition to describing patterns of respect of children from Southeastern Asian backgrounds, Bankston and Hidalgo noted that there are variations in cultural values among these groups which are rooted in their acculturation, specifically whether they emigrate as refugees or non-refugees to the U.S. Other research that has focused on Asian cultural values related to education includes the work of Li and Wang (2004) and Li (2004) who have studied perceptions of achievement and beliefs regarding learning in native Chinese children. Their results indicated that, in general, these children express a high level of respect for learning and perceive both intellectual and social benefits to others for learning. Furthermore, Li's 2004 study found that these values are expressed early when children are 3–6 years of age.

Among African-American families, the practice of racial socialization has received considerable attention in the research literature. According to McHale et al. (2006), Hughes and Johnson (2001) define racial socialization as the ways in which "parents shape children's learning about their own race and about relations between ethnic groups" (p. 981). Specific examples of racial socialization strategies employed by African-American parents include: (a) preparing children for experiences related to bias and discrimination; (b) providing messages and examples to build racial pride; (c) discussing examples of achievement among their race and encouraging achievement; and (d) emphasizing equality among races (Coard, Wallace, Stevenson, & Brotman, 2004). The literature indicates that the practice of racial socialization in African-American families is quite common (Caughy, O'Campo, Randolph, & Nickerson, 2002; Hughes, 2003; Hughes et al., 2006), and the Coard et al. study suggests that it begins early in a child's life. In addition, the results from several studies point to the associations between certain aspects of racial socialization (e.g., racial pride) and beneficial outcomes for children, including positive ethnic identity (McHale et al., 2006; Peck et al., 2014); higher self-esteem (Constantine & Blackmon, 2002; Harris-Britt, Valrie, Kurtz-Costes, & Rowley, 2007); and better cognitive skills and academic outcomes (Caughy et al., 2002; Hughes, Witherspoon, Rivas-Drake, & West-Bey, 2009; Smith, Atkins, & Connell, 2003). However, it is important to note that some of these results involved indirect relationships between racial socialization and the various outcomes reported, suggesting a complex interplay of factors. Also, only one of these studies specifically focused on preschoolers (Caughy et al., 2002).

Other variables have been examined as part of the cultural picture in African-American families. One of these is neighborhood environment. For example, in a study which did focus specifically on preschoolers, Caughy and O'Campo (2006) found that neighborhood poverty showed a significant relationship to lower problem-solving skills, even after accounting for the associations between these skills and the variables of family economic resources and level of positive parent

involvement. The link between neighborhood poverty and lower cognitive development in young African-American children has also been found in previous research (Chase-Lansdale & Gordon, 1996; Klebanov, Brooks-Gunn, McCarton, & McCormick, 1998). The mechanisms through which neighborhood poverty influences child outcomes are complex and are likely to involve multiple variables, including family processes.

Preschool Risk Factors and Resiliency

Public health models emphasize the influence of protective and risk factors in development. These models highlight the importance of protective factors, such as secure attachment, supportive peer relationships, and positive child temperament, which act as buffers when a child is confronted with potential negative influences, or risks (Mason, 2010). Examples of risk factors may include poor parenting, exposure to trauma, and poverty (Mason, 2010; Williams et al., 2007). The model of protective and risk factors describes interrelated individual, familial, and community tendencies, contexts, and experiences. For this reason, intervention by school-based and other mental health personnel might be challenging and complex. Clinicians can help address related behaviors in the classroom, ensure student health safety, and participate in progress monitoring, for example. They might also need to participate in a significant amount of case management since treatment of abuse is typically beyond the scope of the educational setting.

Key components of the protective/risk factor model are summarized in the table below:

Examples of risk and protective factors		
Risk factors	Domain	Protective factors
Early aggressive behavior	Individual	Self-control
Poor social skills	Individual	Positive relationships
Lack of parental supervision	Family	Parental monitoring and support
Substance abuse	Peer	Academic competence
Drug availability	School	Anti-drug use policies
Poverty	Community	Strong neighborhood attachment

National Institute on Drug Abuse (2010)

Protective and risk factors during infancy and early childhood influence young children's developmental trajectories and, thus, can affect long-term outcomes. Research indicates an important role for healthy social-emotional and cognitive experiences, each of which may contribute to positive growth (e.g., Webster-Stratton & Reid, 2004). Risk factors, by comparison, can play a significant role in negative outcomes (e.g., Caughy et al., 1999). When a youngster is confronted by risks, resiliency becomes critical in order to help ameliorate the situation.

Individual characteristics, such as temperament and related behaviors, can have a negative impact on a youngster's social-emotional and cognitive development. A preschooler who is overly reactive to his environment might experience rejection or isolation. This, in turn, leads to fewer opportunities for development of communication and cognitive abilities (Fantuzzo & McWayne, 2002). As a result, school engagement and success can suffer, and, as the child grows, she or he is at greater risk for negative outcomes, including low academic achievement (Schwartz, McFadyen-Ketchum, Dodge, Pettit, & Bates, 1999).

Beyond individual characteristics, contextual factors can make significant contributions toward childhood outcomes (Brofenbrenner, 1999). Two particularly crucial environmental factors are family and community. Research has demonstrated, for example, that a strong child-caregiver attachment is associated with positive outcomes in young children (Keogh, 2000). Additionally, living in a safe neighborhood appears to serve as a protective factor for children (Stacks, 2005).

Living in an urban versus rural community environment can also have an impact on children's social-emotional development. In a study of risk and protective factors in young children attending Head Start programs in both rural and urban settings, Bender, Fedor, and Carlson (2011) found significant differences between the two. For example, urban preschoolers from low socioeconomic backgrounds demonstrated higher levels of self-control as compared to those living in rural areas. The authors noted that this might be attributed to greater availability of peers for play activities in urban areas and/or the adaptive value of self-control behaviors in such areas where families might experience stress due to crime and violence. Preschoolers from rural areas, on the other hand, showed increased attachment behaviors to caregivers, in comparison to their urban peers. Bender et al. noted that this attachment protective factor for young children from rural areas might be related to increased time spent with caregivers. Across settings, preschool girls demonstrated more advanced development of protective factors that can lead to increased resiliency.

Family/Home Assessment Tools

Family-focused service delivery acknowledges the critical role of caregivers in the lives of young children, as well as the importance of the family context as a contributing factor to child development. The importance of focusing on the broader family context rather than the child is highlighted by data showing that success is much greater when assessment and intervention is geared toward the former (Silber, 1989).

Family-focused assessment should lead to building on strengths in order to empower and increase positive functioning, and, therefore, ultimately, help families meet their own needs. When including families as part of young children's assessment, it is crucial to include procedures and methods that emphasize resources and existing skills rather than a more traditional emphasis on dysfunction and problems (Davis & Gettinger, 1995). The following is a discussion of some of the most commonly used tools in family assessment.

Family Environment Scale. The Family Environment Scale (FES; Moos & Moos, 2009) is a questionnaire that assesses family members' perceptions of their relationships and functioning from three perspectives: (a) real (functioning as it currently exists), (b) idealized (perfect situation), and (c) expected (probable in future situations). The FES was developed for use in counseling and therapy to provide insights about family systems. It is organized in three subscales: Personal Growth, Family Relationship, System Maintenance and Change. The Personal Growth Subscale assesses independence, achievement orientation, intellectual-cultural orientation, active-recreational orientation and moral-religious emphasis. The Family Relationship Subscale considers cohesion, expressiveness and conflict in the family system. System Maintenance considers organization, planning, rules and procedures within the family system.

In terms of preschool assessment, the FES can be useful in that it identifies family issues/problems that might be targeted for treatment. In this process, clinicians can better understand dynamics of the family system in a manner that is strength-based, yet attentive to key problems. Since infants, toddlers, and preschoolers are more embedded in their family system than children at older ages, understanding the perceptions and expectations of parents and extended family members is key in the assessment process.

Family Adaptability and Cohesion Evaluation Scale (FACES) IV. The Family Adaptability and Cohesion Evaluation Scale (FACES) IV (Olson, 2008) is a self-report measure of family cohesion and flexibility based on the Circumplex Model of Marital and Family Systems (Olson, 2000). The Circumplex Model emphasizes cohesion, flexibility, and relationship rules, and communication. Cohesion may be defined as emotional bonding between family members. Flexibility refers to the relationship rules, leadership, and organization in the family system. In this model, "communication" emphasizes positive communication utilized to negotiate and facilitate within the family system.

The hypothesis underlying the FACES IV is that healthy family functioning results from balanced levels of cohesion and flexibility while very high or very low levels of cohesion and flexibility (unbalanced) are associated with problematic family functioning. These components are measured on two scales: Balanced Cohesion and Balanced Flexibility. The four scales that measure the extreme ends of cohesion and flexibility—or unbalanced behaviors—are titled Disengaged, Enmeshed, Rigid, and Chaotic, respectively. In assessing the family system of young children, this information can be particularly useful because it helps identify contextual risk factors. For example, research indicates that higher stress exists in families with unbalanced cohesion and flexibility (Craddock, 2001). Young children whose mothers are under particular stress tend to demonstrate more behavioral and mental health problems (Miller Brotman et al., 2011).

Parenting Stress Index. The Parenting Stress Index, Fourth Edition (PSI-IV; Abidin, 2011) is a measure for parents of children from 1 month to 12 years of age. The PSI-IV is designed to evaluate stress in the parent–child relationship and identify dysfunctional parenting and child adjustment problems. The concept of parenting stress is defined by the publishers as events that "lead to aversive

psychological and physiological reactions resulting from attempts to adapt to the demands of parenting" (www4.parinc.com). Parenting stress is understood as resulting from a combination of internal factors from parents, child behavior, and the relationship between the two. This tends to be exacerbated by the cumulative effect of daily pressures and stressors. The relationships among parents, children and stress are further understood in the PSI-IV as reflective of the environment and community setting in which the child is being raised.

The PSI-IV has been used with a variety of parent and child populations. Studies have examined the impact of parenting stress in mothers with psychiatric diagnoses (Siqveland et al., 2013), parents of children with Attention-Deficit/Hyperactivity Disorder (Hwang et al., 2013) and mothers of pre-term infants (Gray et al., 2013), among others.

Implications for Practice

Interventions for Families of Young Children-Learning and Early Academic Skills

Dunst, Hamby, Trivette, Raab, and Bruder (2000) expanded Brofenbrenner's (1993, 1999) idea of contextually oriented child development in terms of "everyday learning opportunities," or regular participation by small children in naturally occurring learning experiences. As explained by Brofenbrenner (1993) in line with Vygotsky's suggestions (1987), successful everyday learning occurs when children are supported and challenged in interactions with people and materials that promote exploration and mastery in an interesting manner. Research has indicated positive findings for this type of daily natural learning in family and community contexts in that it generates positive child developmental outcomes and enhances parental–child interactions (Dunst, Trivette, & Hamby, 2012; Dunst, Trivette, Hamby, & Bruder, 2006).

One example of a naturalistic learning intervention is the Everyday Language Intervention Model (Dunst, Trivette, & Raub, 2013), which incorporates caregiver-mediated instructional practices, using children's own interests as a basis for language development; promoting language-rich everyday activities and routines; and increasing opportunities for language learning through play, family outings, community activities, etc. Another example is Enhanced Milieu Teaching (EMT; Kaiser & Hester, 1994), which combines the use of multiple strategies while engaging children in everyday activities. According to Hancock and Kaiser (2006), there is a strong evidence base for the efficacy and effectiveness of EMT with children, including preschoolers, who experience significant cognitive and language delays, autism spectrum disorder, or who are at-risk for language disorders. EMT involves a high level of interaction with the target child and applies strategies such as semantic contingency (continuing and expanding upon a child's communicative exchanges); balanced turn taking in exchanges with the child; and modeling words, phrases, and other language examples (Hancock & Kaiser, 2006).

A third relatively newer naturalistic practice is a family-created portfolio. Although a portfolio itself is an assessment tool that is created or compiled and, thus, is not truly a naturally occurring product, its contents consist of work samples and other materials that are typically part of children's functioning in school. In the case of family-created portfolios, family members choose the products and information to demonstrate not only their child's abilities, but also to highlight their experiences at home and values and strengths as a family. Gregg, Rugg, and Souto-Manning (2011) described a case example using the Take a Look at Me portfolio, which includes specific prompts and information (e.g., "hopes and dreams for our child," "ways to help my child during daily routines") to guide families in sharing information. Gregg et al. noted that their case study showed that this portfolio could be successfully used to help parents/families communicate knowledge about their child. In addition, it was found to be a useful tool in fostering family collaboration and prompting family conversations about their child's education. While EMT, the Everyday Language Intervention Model, and family-created portfolios can all be considered intervention strategies, it is clear that assessment is integrated as a key component of these strategies since they involve frequent observations and/or collection of other information about the child's problem solving, language, and other skills. In addition, these strategies often incorporate monitoring by practitioners and/or parents themselves, which further strengthens the link between assessment and intervention.

Research supports the effectiveness of literacy enrichment interventions during early childhood as a means of improving long-term educational outcomes. One recent study by Lonigan, Purpura, Wilson, Walker, and Clancy-Menchetti (2012) supported the use of targeted interventions in basic skills and literacy exposure for preschoolers at-risk for reading difficulties. The most effective interventions were those that aimed to specifically address preschoolers' areas of weakness, rather than broad-based approaches. This suggests that, in terms of parent/family and community involvement in academic skills development, teaching parents specific skills or developing directed community programs will be meaningful and effective for many young children.

Home Literacy Environment (HLE) refers to a range of parent–child activities that are designed to promote early literacy skills (Burgess, 2002). Several studies have examined HLE and found positive outcomes for young children, including improved comprehension and reading fluency (Sénéchal, 2006; Sénéchal & LeFevre, 2002). One component of HLE is shared book reading. Shared book reading has been identified as an important activity for development of oral language and print awareness (Fletcher & Reese, 2005; National Education Literacy Panel, 2008) and successful academic achievement. A recent study of HLE combined parenting strategies with particular attention to responsive behaviors and shared reading (Landry et al., 2012). Findings indicated that improved interactivity between mother and child—or increased emotional responsiveness—played a critical role in literacy gains. In the case of cultural, socioeconomic and linguistic diversity, however, parents may not always be able to access children's literature. An encouraging alternative family-based intervention centered on a technique

called “elaborative reminiscing” has been shown to improve preschoolers’ narratives and language comprehension (Reese, Leyva, Sparks, & Grolnick, 2010). Elaborative reminiscing involves a style of interaction in which parents discuss events with their children in a detailed manner which incorporates meaningful statements and questions (Fivush & Fromhoff, 1988). Several studies have found that this style is associated directly and/or indirectly with positive outcomes for young children, including memory skills and self-concept (e.g., Reese & Newcombe, 2007; Wang, 2006).

With respect to community-based interventions, there has also been some research to support early literacy programs. Ogg, Sundman-Wheat, and Bateman (2012) conducted a review of early literacy interventions carried out in health care settings. The authors note that, since most young children see a health care provider at least once per year, this provides an ideal forum for prevention-based literacy initiatives. One example of such an initiative is Reach Out and Read (ROR) (http://www.reachoutandread.org/) which provides: (a) training and professional development for doctors, nurses and other health care providers to incorporate literacy activities into practice; (b) free audio books online; (c) toolkits for building literacy activities at home; and (d) provision of books to families who cannot afford them. Several studies provide support for the ROR model and/or its specific components. For example, Theriot et al. (2003) found that higher language scores were associated with greater participation in ROR activities in a sample of inner-city toddlers and preschoolers, suggesting a positive dosage effect for the intervention. In more recent research, Diener, Hobson-Rohrer, and Byington (2012) found that a sample of Latino children who participated in ROR beginning at six months of age demonstrated average or above average literacy skills in kindergarten and experienced literacy-rich home environments, with frequent shared reading and relatively high book ownership. In a third study, Mendelsohn et al. (2001) found that, as compared to a control group, participants in ROR showed more parent–child reading activities and higher expressive and receptive language scores on standardized measures.

Interventions for Families of Young Children-Social-Emotional Skills

Behavior during early childhood is challenging for many parents/caregivers, even those with sufficient resources and support, due to multiple factors. This developmental period, as compared to middle childhood, is characterized by lower communication abilities and many egocentric behaviors, since young children have less capacity to understand other people’s viewpoints. Children from low socioeconomic backgrounds might be exposed to higher levels of community violence and parent stress, which can exacerbate behavioral problems. In addition, families with multiple risk factors, such as limited income, lower educational levels, and lower social support often are less equipped to positively cope with these problems. Thus, these child and family risk factors have reciprocal effects on each other and

can contribute to an ongoing cycle of psychological problems and dysfunctional family environments (Sanders, 2008).

When it comes to social-emotional functioning in young children, research has demonstrated the importance of parent and family factors, including parent–child interactions and discipline. Based upon this link, there has been increased emphasis on the development and implementation of evidence-based interventions to improve parenting skills and promote positive parent–child relationships. One such intervention is Parent–Child Interaction Therapy (PCIT). PCIT is an empirically-supported intervention that has been used for young children with a variety of psychological problems. It includes structured interactions designed to help parents build warm, responsive interactions and secure attachments with their children (Eyberg, 2001). PCIT also includes strategies to teach parents more positive appropriate ways to address children's negative behaviors. Several studies have demonstrated improvements in child symptoms through use of PCIT. For example, Luby et al. (2012) examined Parent–Child Interaction Therapy Emotion Development (PCIT-ED) in comparison to an education-oriented intervention with depressed children ranging from 3 to 7 years of age and their caregivers. Initially, parents expressed the perception that their child's characteristics were contributing to parenting stress; this was reduced significantly subsequent to intervention with PCIT-ED. Overall, maternal depressive symptoms decreased in relation to the PCIT-ED program. This is a key factor since reciprocal relationships between maternal depression and child maladjustment have been identified (Goodman & Gotlib, 1999). In a meta-analysis of PCIT incorporating 11 studies, Cooley, Veldorale-Griffin, Petren, and Mullis (2014), not only looked at child outcomes in a variety of samples, but also parenting stress. They found that PCIT was effective in reducing child symptoms as well as parenting stress, suggesting a two-fold impact.

Incredible Years (IY; Webster-Stratton, 2011) has also received empirical support as a mental health intervention for young children who are at-risk for or show significant behavioral problems. It includes parent, teacher, and child small-group components. The parenting program now includes four versions based upon age of the target child; each of these takes into account the specific developmental characteristics of that stage. According to the underlying framework of IY, it operates to reduce risk factors and increase protective factors (www.incredibleyears.com). All of the parent programs incorporate strategies to promote positive parent–child interactions, increase healthy attachment, and reduce harsh, negative parenting. In terms of child outcomes, the programs target improvement of social-emotional competencies and decreases in disruptive behaviors and conduct problems (www.incredibleyears.com). Empirical evidence for IY comes from multiple studies, including several that incorporated randomized controlled or clinical trials (e.g., Azevedo, Seabra-Santos, Gaspar, & Homem, 2013; Perrin et al., 2014; Webster-Stratton, Reid, & Beauchaine, 2011). In a meta-analysis of 50 studies examining IY parent training. Menting, deCastro, and Matthys (2013) found positive effects on disruptive child behavior across diverse samples of families and concluded that the program could be considered a well-established treatment. Lastly, ICY has not only been found effective as a treatment for young children

with existing problems and diagnoses, but also as a form of prevention (e.g., McGilloway et al., 2012; O'Neill et al., 2013). The application of ICY and other parenting programs as forms of prevention is based upon a framework that combines holistic assessment of children, including examination of parent/family context, and early intervention.

Based upon the above research, it is clear that there are a number of effective interventions for parents/families of young children to promote healthier social-emotional functioning and higher levels of pre-academic skills. Although some of these interventions have been carried out in clinical settings, rather than children's natural home environments, they speak to the importance of including parents and families as agents of change. Thus, for early childhood clinicians, the interlocking processes of assessment and intervention must not separate child problems or referral issues from the context of parent and family functioning.

Case Study

David is a three old Latino boy who lives with his biological mother, a family friend and the friend's young daughter, in a small apartment in northern California. His mother emigrated from South America just prior to David's birth. She exhibited a pronounced gait disturbance as a result of childhood polio and, while ambulatory, was scheduled to have hip surgery within the year. David does not have any contact with his biological father, and there are no reported family members within the United States. Spanish is the language spoken in the home and is David's native language. At age two, David's pediatrician suspected that he might have autism and suggested he begin an early intervention program due to below average skills in the language and motor domains. At that time, he was described to be somewhat combative with his peers and adults.

For this program, David received occupational therapy in addition to speech and language therapy and made "tremendous" growth during his sessions. At the end of the year, an assessment conducted by a bilingual speech pathologist determined that David presented with moderate impairments in both receptive and expressive language skills in Spanish. This was an improvement from his initial severe to profound delays which were found at intake. David performed significantly below average in both receptive and expressive language skills in English at intake. He has made some improvements in his English language development, though he is still behind. Overall, the early intervention team reported that "David made significant gains in many areas." Since he continued to struggle with following directions, comprehension of spoken language, and social skills difficulties, the team recommended the addition of a psychological evaluation by the local school district in order to determine appropriate educational services for David.

During assessment, David's mother reported that she was unaware of her pregnancy and did not receive prenatal care until her third trimester. According to her report, David reached most developmental milestones within normal limits;

however, he did not begin speaking his first words ("agua" and "jugo") until two years of age. At age three, he is unable to speak three word utterances or dress himself in loose fitted clothing, and he continues to require the use of diapers. During a home visit, David was cheerful and willing to play with the examiner; however, when asked to engage in non-preferred activities; he was observed to protest by falling to the floor. This behavior resulted in deterring his mother's redirection. She stated that she feared David would drag her to the ground, and she would not be able to stand back up. Because David's mother could not effectively contain his tantrums, she often found herself giving him treats in order to avoid physical protests. During a bilingual cognitive assessment, the school psychologist, Dr. Swinson, observed that David was very cooperative with activities he liked, such as those that involved manipulatives. David resisted looking at pictures and answering questions, but Dr. Swinson was able to effectively use redirection to increase engagement and planned ignoring to reduce disruptive behavior. Dr. Swinson also noted that David showed appropriate eye contact during the assessment, shared toys with her, used imaginary play with stuffed animals, and smiled and giggled in response to funny comments and gestures. The assessment results indicated that David demonstrated average nonverbal abilities and low verbal abilities. David's overall adaptive skills were in the moderately low range for his age; however, he did not show social interactive or stereotypical behaviors that were indicative of autism.

Discussion Questions

(1) What are family, home, and cultural factors that are integral to understanding David's functioning?
(2) How were these factors taken into account as part of the assessments that have been conducted thus far with David?
(3) If you were to carry out additional assessment with David, what types of activities and/or measures would you use? How would you continue to incorporate family and cultural factors into your assessment?

References

Abidin, R. R. (2012). Parenting Stress Index (4th ed.). Lutz, FL: Psychological Assessment Resources.

Azevedo, A. F., Seabra-Santos, M. J., Gaspar, M. F., & Homem, T. C. (2013). The Incredible Years basic parent training for Portuguese preschoolers with AD/HD behaviors: Does it make a difference? *Child Youth Care Forum 42*, 403–424. doi:10.1007/s10566-013-9207-0

Bankston, C. L., & Hidalgo, D. A. (2006). Respect in Southeast Asian American children and adolescents: Cultural and contextual influences. *New Directions for Child and Adolescent Development, 114*, 25–38.

Baumrind, D. (1966). Effects of authoritative parental control on child behavior. *Child Development, 37*(4), 887–907.

Bender, S. L., Fedor, M. C., & Carlson, J. S. (2011). Examining protective factors and risk factors in urban and rural head start preschoolers. *Journal of Community Psychology, 39*(8), 908–921.

Berger, K. S. (2012). *The developing person through childhood and adolescence* (9th ed.). New York, NY: Worth.

Bernier A., Carlson S. M., Whipple N. (2010). From external regulation to self-regulation: Early parenting precursors of young children's executive functioning. *Child Development, 81*, 326–339. doi:10.1111/j.1467-8624.2009.01397.x

Bornstein, M. H., & Cote, L. R. (2001). Mother-infant interaction and acculturation I: Behavioral comparisons in Japanese American and South American families. *International Journal of Behavioral Development, 25*, 549–563.

Brody, G. H., & Flor, D. L. (1998). Maternal resources, parenting practices, and child competence in rural, single-parent African-American Families. *Child Development, 69*, 803–816.

Bronfenbrenner, U. (1993). The ecology of cognitive development: Research models and fugitive findings. In R. H. Wozniak & K. W. Fischer (Eds.), *Development in context: Acting and thinking in specific environments* (pp. 3–44). Hillsdale, NJ: Erlbaum.

Bronfenbrenner, U. (1999). Environments in developmental perspective: Theoretical and operational models. In S. L. Friedman & T. D. Wachs (Eds.), *Measuring environments across the life span: Emerging methods and concepts* (pp. 3–28). Washington, DC: American Psychological Association.

Bronte-Tinkew, J., Moore, K. A., Matthews, G., & Carrano, J. (2007). Symptoms of major depression in a sample of fathers of infants: Sociodemographic correlates and links to father involvement. *Journal of Family Issues*, *28*, 61–99. doi:10.1177/0192513X06293609

Burgess, S. R. (2002). The influence of speech perception, oral language ability, the home literacy environment, and pre-reading knowledge on the growth of phonological sensitivity: A one-year longitudinal investigation. *Reading and Writing: An Interdisciplinary Journal, 15*, 709–737.

Büyüktaşkapu, S. (2012). Effect of family supported pre-reading training program given to children in preschool education period on reading success in primary school. *Educational Sciences: Theory & Practice, 21*(1), 309–316.

Carlson, V. J., & Harwood, R. L. (2003). Attachment, culture, and the caregiving system: The cultural patterning of everyday experiences among Anglo and Puerto Rican mother–infant pairs. *Infant Mental Health Journal, 24*(1), 53–73. doi:10.1002/imhj.10043

Caughy, M. O., & O'Campo, P. J. (2006). Neighborhood poverty, social capital, and the cognitive development of African-American preschoolers. *American Journal of Community Psychology, 37*(1–2), 141–154.

Caughy, M. O., O'Campo, P., & Brodsky, A. E. (1999). Neighborhoods, families, and children: Implications for policy and practice. *Journal of Community Psychology, 27*, 516–533.

Caughy, M. O., O'Campo, P. J., Randolph, S. M., & Nickerson, K. (2002). The influence of racial socialization practices on the cognitive and behavioral competence of African American preschoolers, *Child Development*, *73*, 1611–1625.

Chao, R. K. (1994). Beyond parental control and authoritarian parenting style: Understanding Chinese parenting through the cultural notion of training. *Child Development, 65*, 1111–1119. doi:10.2307/1131308

Chao, R. K. (2001). Extending research on the consequences of parenting style for Chinese Americans and European Americans. *Child Development, 72*, 1832–1843. doi:10.1111/1467-8624.00381

Chase-Lansdale, P. L., & Gordon, R. A. (1996). Economic hardship and the development of five- and six-year-olds: Neighborhood and regional perspectives. *Child Development, 67*(6), 3338–3367.

Choi, Y., Kim, Y. S., Kim, S. Y., & Park, I. K. (2013). Is Asian American parenting controlling and harsh? Empirical testing of relationships between Korean American and Western parenting measures. *Asian-American Journal of Psychology, 4*(1), 19–29. doi:10.1037/a0031220

Coard, S. I., Wallace, S. A., Stevenson, H. C., & Brotman, L. M. (2004). Towards culturally relevant preventive interventions: The consideration of racial socialization in parent training with African American families. *Journal of Child and Family Studies, 13*(3), 277–293.

Conner, N. W., & Fraser, M. W. (2011). Preschool social-emotional skills training: A controlled pilot test of the making choices and strong families programs. *Research on Social Work Practice, 21*(6), 699–711.

Constantine, M. G., & Blackmon, S. M. (2002). Black adolescents' racial socialization experiences: Their relations to home, school, and peer self-esteem. *Journal of Black Studies, 32*(3), 322–335.

Cooley, M. E., Veldorale-Griffin, A., Petren, R. E., & Mullis, A. K. (2014). Parent-Child Interaction Therapy: A meta-analysis of child behavior outcomes and parent stress. *Journal of Family Social Work, 17*(3), 191–208.

Cote, L. R., & Bornstein, M. H. (2005). Child and mother play in cultures of origin, acculturating cultures, and cultures of destination. *International Journal of Behavioral Development, 29*, 479–488.

Cote, L. R., & Bornstein, M. H. (2009). Child and mother play in three U.S. cultural groups: Comparisons and associations. *Journal of Family Psychology, 23*(3), 355–363. doi:10.1037/a0015399

Craddock, A. E. (2001). Relationships between family structure and family functioning: A test of Tiesel and Olson's revision of the circumplex model. *Journal of Family Studies, 7*, 29–39.

Cunningham, J. N., Kliewer, W., & Garner, P. W. (2009). Emotion socialization, child emotion understanding and regulation, and adjustment in urban African-American families: Differential associations across child gender. *Development and Psychopathology, 21*, 261–283. doi:10.1017/S0954579409000157

Davis, S. K., & Gettinger, M. (1995). Family-focused assessment for identifying family resources and concerns: Parent preferences, assessment information, and evaluation across three methods. *Journal of School Psychology, 33*(2), 99–121.

Diener, M. L., Hobson-Rohrer, W., & Byington, C. L. (2012). Kindergarten readiness and performance of Latino children participating in Reach out and Read. *Community Medicine and Health Education, 2*(3), 1–7.

Dieterich, S. E., Assel, M. A., Swank, P., Smith, K. E., & Landry, S. H. (2006). The impact of early maternal verbal scaffolding and child language abilities on later decoding and reading comprehension skills. *Journal of School Psychology, 43*(6), 481–494.

Dunst, C. J., Hamby, D., Trivette, C. M., Raab, M., & Bruder, M. B. (2000). Everyday family and community life and children's naturally occurring learning opportunities. *Journal of Early Intervention, 23*, 151–164.

Dunst, C. J., Trivette, C. M., & Hamby, D. W. (2012). Meta-analysis of studies incorporating the interests of young children with autism spectrum disorders into early intervention practices. *Autism Research and Treatment*, 1–10. doi:10.1155/2012/462531

Dunst, C. J., Trivette, C. M., Hamby, D. W., & Bruder, M. B. (2006). Influences of contrasting natural learning environment experiences on child, parent and family well-being. *Journal of Developmental and Physical Disabilities, 18*(3), 235–250.

Dunst, C. J., Trivette, C. M., & Raub, M. (2013). Caregiver-mediated everyday child language learning practices: II. Intervention methods and procedures. *Everyday Child Language Learning Reports, 2*, 1–13.

Eyberg, S. M. (2001). Parent-Child Interaction Therapy with behavior problem children: One and two year maintenance of treatment effects in the family. *Child and Family Behavior Therapy, 23*(4), 1–20.

Fantuzzo, J., & McWayne, C. (2002). The relationship between peer-play interactions in the family context and dimensions of school readiness for low-income preschool children. *Journal of Educational Psychology, 94*, 79–87.

Feldman, R. (2006). From biological rhythms to social rhythms: Physiological precursors of mother-infant synchrony. *Developmental Psychology, 42*(1), 175–188.

Fivush, R., & Fromhoff, F. A. (1988). Style and structure in mother–child conversations about the past. *Discourse Processes, 11*, 337–355.

Fletcher, K. L., & Reese, E. (2005). Picture book reading with young children: A conceptual framework. *Developmental Review, 25*(1):64–103.

Galende, N., de Miguel, M. S., & Arranz, E. (2012). The role of parents' distancing strategies in the development of five-year-old children's theory of mind. *Early Child Development and Care, 18*(2), 207–220.

Goncu, A., & Gaskins, S. (Eds.). (2007). *Play and development: Evolutionary, sociocultural, and functional perspectives*. Hillsdale, NJ: Erlbaum.

Goodman, S. H., & Gotlib, I. H. (1999). Risk for psychopathology in the children of depressed mothers: A developmental model for understanding mechanisms of transmission. *Psychological Review, 106*, 458–490.

Graham-Bermann, S. A., Howell, K. H., Miller, L. E., Kwek, J., & Lilly, M. M. (2010). Traumatic events and maternal education as predictors of verbal ability for preschool children exposed to Intimate Partner Violence (IPV). *Journal of Family Violence, 25*(4), 383–392.

Gray, P. H., Edwards, D. M., O'Callaghan, M. J., Cuskelly, M., & Gibbons, K. (2013). Parenting stress in mothers of very preterm infants—influence of development, temperament, and maternal depression. *Early Human Development, 89*(9), 625–629.

Gregg, K., Rugg, M., & Souto-Manning, M. (2011). Fostering family-centered practices through a family-created portfolio. *The School Community Journal, 71*(1), 53–70.

Gunnoe, M. L., & Mariner, C. L. (1997). Toward a developmental-contextual model of the effects of parental spanking on children's aggression. *Archives of Pediatric and Adolescent Medicine, 1*(51), 768–775.

Haight, W. L., Wang, X., Fung, H. H., Williams, K., & Mintz, J. (1999). Universal, developmental, and variable aspects of young children's play: A cross-cultural comparison of pretending at home. *Child Development, 70*, 1477–1488.

Halgunseth, L. C., Ispa, J. M., & Rudy, D. (2006). Parental control in Latino families: An integrated review of the literature. *Child Development, 77*, 1282–1297.

Hammond, S. I., Muller, U., Carpendale, J. I., Bibok, M. B., & Liebermann-Finestone, D. P. (2012). The effects of parental scaffolding on preschoolers' executive function. *Developmental Psychology, 48*(1), 271–281. doi:10.1037/a0025519

Hancock, T. B., & Kaiser, A. P. (2006). Enhanced milieu teaching. In R. McCauley & M. Fey (Eds.), *Treatment of language disorders in children*. Baltimore, MD: Paul Brookes.

Hanson, M. J., Miller, A. D., Diamond, K., Odom, S., Lieber, J., Butera, G., ... Fleming, K. (2011). Neighborhood community risk influences on preschool children's development and school readiness. *Infants and Young Children, 24*(1), 87–100.

Harris-Britt, A., Valrie, C. R., Kurtz-Costes, B., & Rowley, S. J. (2007). Perceived racial discrimination and self-esteem in African-American youth: Racial socialization as a protective factor. *Journal of Research on Adolescence, 17*, 669–682.

Harvey, E. A., & Metcalfe, L. A. (2012). The interplay among preschool child and family factors and the development of ODD symptoms. *Journal of Clinical Child and Adolescent Psychology, 41*(4), 458–470.

Harvey, E., Stoessel, B., & Herbert, S. (2011). Psychopathology and parenting practices of parents of preschool children with behavior problems. *Parenting Science and Practice, 11*(4), 239–263.

Hill, N. E., Bush, K. R., & Roosa, M. W. (2003). Parenting and family socialization strategies and children's mental health: Low-income Mexican American and Euro-American mothers and children. *Child Development, 74*, 189–204.

Hughes, C., & Ensor, R. (2009). Independence and interplay between maternal and child risk factors for preschool problem behaviors? *International Journal of Behavioral Development, 33*(4), 312–322.

Hughes, D. (2003). Correlates of African American and Latino parents' messages to children about ethnicity and race: A comparative study of racial socialization. *American Journal of Community Psychology, 31*, 15–33.

Hughes, D., Rodriguez, J., Smith, E. P., Johnson, D. J., Stevenson, H. C., & Spicer, P. (2006). Parents' ethnic–racial socialization practices: A review of research and directions for future study. *Developmental Psychology, 42*(5), 747–770. doi:10.1037/0012-1649.42.5.747

Hughes, D., Witherspoon, D., Rivas-Drake, D., & West-Bey, N. (2009). Received ethnic–racial socialization messages and youths' academic and behavioral outcomes: Examining the mediating role of ethnic identity and self-esteem. *Cultural Diversity and Ethnic Minority Psychology, 15*, 112–124.

Hwang, J. W., Kim, B., Kim, Y., Kim, T. H., Seo, W. S., Shin, D. W., ... Lim, M. H. (2013). Methylphenidate-osmotic-controlled release oral delivery system treatment reduces parenting stress in parents of children and adolescents with attention deficit/hyperactivity disorder. *Human Psychopharmacology: Clinical and Experimental, 28*(6), 600–607.

Incredible Years Fact Sheet. (n.d.). Retrieved from http://incredibleyears.com/programs/

Incredible Years Logic Model. (n.d.). Retrieved from http://incredibleyears.com/about/

Ispa, J. M., Fine, M. A., Halgunseth, L. C., Harper, S., Robinson, J., Boyce, L., ... Brady-Smith, C. (2004). Maternal intrusiveness, maternal warmth, and mother-toddler relationship outcomes: Variations across low-income ethnic and acculturation groups. *Child Development, 75*, 1613–1631.

Johnson, M. H. (2005). Developmental neuroscience, psychophysiology and genetics. In M. H. Bornstein & M. E. Lamb (Eds.), *Developmental science: An advanced textbook* (5th ed., pp. 187–222). Mahwah, NJ: Erlbaum.

Kagan, J., & Herschkowitz, N. (2005). *A young mind in a growing brain*. Mahwah, NJ: Erlbaum.

Kaiser, A. P. & Hester, P. P. (1994). Generalized effects of enhanced milieu teaching. *Journal of Speech, Language and Hearing Research, 37*, 1320–1340.

Keogh, B. K. (2000). Risk, families, and schools. *Focus on Exceptional Children, 33*, 1–11.

Klebanov, P. K., Brooks-Gunn, J., McCarton, C., & McCormick, M. C. (1998). The contribution of neighborhood and family income to developmental test scores over the first three years of life. *Child Development, 69*(5), 1420–1436.

Kokkinaki, T. (2003). A longitudinal, naturalistic and cross-cultural study on emotions in early infant-parent imitative interactions. *British Journal of Developmental Psychology, 21*(2), 243–258.

Kolb, B., & Whishaw, I. (2008). *Fundamentals of human neuropsychology* (6th ed.). New York, NY: Worth.

Landry, S. H., Smith, K. E., Swank, P. R., Zucker, T., Crawford, A. D., & Solari, E. F. (2012). The effects of a responsive parenting intervention on parent-child interactions during shared book reading. *Developmental Psychology, 48*(4), 969–986.

Lemelin, J. P., Tarabulsy, G. M., & Provost, M. A. (2006). Predicting preschool cognitive development from infant temperament, maternal sensitivity, and psychosocial risk. *Merrill-Palmer Quarterly, 52*(4), 779–806.

LeCuyer, E. A., Swanson, D. P., Cole, R., & Kitzman, H. (2011). Effect of African- and European-American maternal attitudes and limit-setting strategies on children's self-regulation. *Research in Nursing and Health, 34*, 468–482.

Li, G. (2004). Perspectives on struggling English language learners: Case studies of two Chinese Canadian children. *Journal of Literacy Research, 36*(1), 29–70.

Li, J., & Wang, Q. (2004). Perceptions of achievement and achieving peers in U.S. and Chinese kindergartners. *Social Development, 14*(3), 413–436.

Li-Grining, C. P. (2012). The role of cultural factors in the development of Latino preschoolers' self-regulation. *Child Development Perspectives, 6*(3), 207–217. doi:10.1111/j.1750-8606.2012.00255.x

Lonigan, C. J., Purpura, D. J., Wilson, S. B., Walker, P. M., & Clancy-Menchetti, J. (2012). Evaluating the components of an emergent literacy intervention for preschool children at-risk for reading difficulties. *Journal of Experimental Child Psychology, 114*, 111–130.

Livas-Dlott, A., Fuller, B., Stein, G. L., Bridges, M., Mangual Figueroa, A., & Mireles, L. (2010). Commands, competence, and cariño: Maternal socialization practices in Mexican American families. *Developmental Psychology, 46*(3), 566–578. doi:10.1037/a0018016

Luby, J., Lenze, S., & Tillman, R. (2012). A novel early intervention for preschool depression: Findings from a pilot randomized controlled trial. *Journal of Child Psychology and Psychiatry, 53*(3), 313–322.

Mason, M. (2010). Mental health, school problems and social networks: Modeling urban adolescent substance use. *Journal of Primary Prevention, 31*, 321–331.

McGilloway, S., Mhaille, G. N., Bywater, T., Furlong, M., Leckey, Y., Kelly, P., ... Donnelly, M. (2012). A parenting intervention for childhood behavioral problems: A randomized controlled trial in disadvantaged community-based settings. *Journal of Consulting and Clinical Psychology, 80*(1), 116–127. doi:10.1037/a0026304

McHale, S. M., Crouter, A. C., Kim, J. Y., Burton, L. M., Davis, K. D., Dotterer, A. M., et al. (2006). Mothers' and fathers' racial socialization in African-American families: Implications for youth. *Child Development, 77*(5), 1387–1402.

Meléndez, L. (2005). Parental beliefs and practices around early self-regulation. *Infants and Young Children, 18*, 136–146.

Mendelsohn, A. L., Mogilner, L. N., Dreyer, B. P., Forman, J. A., Weinstein, S. C., Broderick, M., ... Napier, C. (2001). The impact of a clinic-based literacy intervention on language development in inner-city preschool children. *Pediatrics, 107*(1), 130–134.

Menting, A. T., deCastro, B. O., & Matthys, W. (2013). Effectiveness of the incredible years parent training to modify disruptive and prosocial child behavior: A meta-analytic review. *Clinical Psychology Review, 33*, 901–913.

Miller Brotman, L., Calzada, E., Huang, K. Y., Kingston, S., Dawson-McClure, S., Kamboukos, D., ... Petkova, E. (2011). Promoting effective parenting practices and preventing problems in school among ethnically diverse families from underserved, urban communities. *Child Development, 82*(1), 258–276.

Moos, B. S., & Moos, R. H. (2009). *Family Environment Scale*. Menlo Park, CA: Mind Garden Publishers.

Morelli, G., & Rothbaum, F. (2007). Situating the child in context: Attachment relationships and self-regulation in different cultures. In S. Kitayama & D. Cohen (Eds.), *Handbook of cultural psychology* (pp. 500–527). New York, NY: Guilford Press.

National Education Literacy Panel. (2008). *Developing early literacy: Report of the National Early Literacy Panel*. Washington, D.C.: National Institute for Early Literacy.

Nelson, J. A., Chiasson, M. A., & Ford, V. (2004). Overweight childhood in a New York City WIC population. *American Journal of Public Health, 94*, 458–462.

Ogg, J. A., Sundman-Wheat, A. N., & Bateman, L. P. (2012). A primary approach to reading: Review of early literacy interventions implemented in pediatric settings. *Journal of Applied School Psychology, 28*(2), 111–132, doi:10.1080/15377903.2012.669741

Olson, D. H. (2008). *FACES IV manual*. Minneapolis, MN: Life innovations.

O'Neill, D., McGilloway, S., Donnelly, M., Bywater, T., & Kelly, P. (2013). A cost-effectiveness analysis of the Incredible Years Parenting programme in reducing childhood health inequalities. *The European Journal of Health Economics, 14*(1), 85–94.

Parke, R. D., Coltrane, S., Duffy, S., Buriel, R., Dennis, J., Powers, J., ... Widaman, K. F. (2004). Economic stress, parenting, and child adjustment in Mexican-American and European-American families. *Child Development, 75*, 1632–1656.

Peck, S. C., Brodish, A. B., Malanchuk, O., Banerjee, M., & Eccles, J. S. (2014). Racial/ethnic socialization and identity development in Black families: The role of parent and youth reports. *Developmental Psychology, 50*(7), 1897–1909.

Perrin, E. C., Sheldrick, R. C., McMenamy, J. M., Henson, B. S., & Carter, A. S. (2014). Improving parenting skills for families of young children in pediatric settings: A randomized clinical trial. *Journal of the American Medical Association Pediatrics, 168*(1), 16–24. doi:10.1001/jamapediatrics.2013.2919

Raven, C. C., Gershoff, E. T., & Aber, J. L. (2007). Testing equivalence of mediating models of income, parenting, and school readiness for White, Black, and Hispanic children in a national Sample. *Child Development, 78*(1), 96–115. doi:10.1111/j.1467-8624.2007.00987.x

Reese, E., Leyva, D., Sparks, A., & Grolnick, W. (2010). Maternal elaborative reminiscing increases low-income children's narrative skills relative to dialogic reading. *Early Education and Development, 21*(3), 318–342.

Reese, E., & Newcombe, R. (2007). Training mothers in elaborative reminiscing enhances children's autobiographical memory and narrative. *Child Development, 78*(4), 1153–1170.

Sanders, M. R. (2008). The Triple P—Positive Parenting Program—A public health approach to parenting support. *Journal of Family Psychology, 22*, 506–517.

Schwartz, D., McFadyen-Ketchum, S., Dodge, K. A., Petit, G. S., & Bates, J. E. (1999). Early problems as a predictor of later peer group victimization: Moderators and mediators in the pathways of social risk. *Journal of Abnormal Child Psychology, 27*, 191–201.

Sénéchal, M. (2006). Testing the home literacy model: Parent involvement in kindergarten is differentially related to grade 4 reading comprehension, fluency, spelling, and reading for pleasure. *Scientific Studies of Reading, 10*, 59–87.

Sénéchal, M., & LeFevre, J. (2002). Parental involvement in the development of children's reading skill: A five-year longitudinal study. *Child Development, 73*, 445–460.

Seymour, K. (2014). An integrated approach to the assessment of the refugee student. In A. Clinton (Ed.), *Integrated assessment of the bilingual child*. Washington, DC: American Psychological Association.

Silber, S. (1989). Family influences on early development. *Topics in Early Childhood Special Education, 8*(4), 1–23.

Silk, T. J., & Wood, A. G. (2011). Lessons about neurodevelopment from anatomical magnetic resonance imaging. *Journal of Developmental and Behavioral Pediatrics, 32*, 158–168.

Siqveland, T. S., Olafsen, K. S., & Moe, V. (2013). The influence of maternal optimality and infant temperament on parenting stress at 12 months among mothers with substance abuse and psychiatric problems. *Scandinavian Journal of Psychology, 54*(5), 353–362.

Smith, E. P., Atkins, J., & Connell, C. M. (2003). Family, school, and community factors and relationships to racial–ethnic attitudes and academic achievement. *American Journal of Community Psychology, 32*, 159–173.

Stacks, A. M. (2005). Using an ecological framework for understanding and treating externalizing behavior in early childhood. *Early Childhood Education Journal, 32*, 269–278.

Tamis-LeMonda, C. S., Uzgiris, I. C., & Bornstein, M. H. (2002). Play in parent-child interactions. In M.H. Bornstein (Ed.), *Handbook of parenting- second edition: Volume 5. Practical issues in parenting* (pp. 221–242). Mahwah, NJ: Lawrence Erlbaum Associates.

Theriot, J. A., Franco, S. M., Sisson, B. A., Metcalf, S. C., Kennedy, M. A., & Bada, H. S. (2003). The impact of early literacy guidance on language skills of 3-year-olds. *Clinical Pediatrics, 42*, 165–172.

UNICEF. (2007). *Progress for children: A world fit for children statistical review*. New York, NY: Author.

Valdés, G. (1996). *Con respeto: Bridging the distances between culturally diverse families and schools*. New York, NY: Teachers College Press.

van der Aalsvoort, G., Prakke, B., König, A., & Goorhuis, S. (2010). Preschool teachers' and students' attitudes towards playful preschool activities: A cultural comparison between Germany and the Netherlands. *International Journal of Early Years Education, 18*(4), 349–363.

Vygotsky, L. S. (1987). *Thinking and speech* (Vol. 1, N. Minick, Trans.). New York, NY: Plenum Press (Original work published 1934).

Wang, Q. (2006). Relations of maternal style and child self-concept to autobiographical memories in Chinese, Chinese immigrant, and European American 3-year-olds. *Child Development, 77*(6), 1794–1809.

Waylen, A., & Stewart-Brown, S. (2009). Factors influencing parenting in early childhood: A prospective longitudinal study focusing on change. *Child: Health, Care, and Development, 36*(2), 198–207.

Webster-Stratton, C. (2011). *The Incredible Years Parents, Teachers, and Children's Training Series. Program content, methods, research and dissemination 1980–2011*. Seattle, WA: Incredible Years Inc.

Webster-Stratton, C., & Reid, M. J. (2004). Strengthening social and emotional competence in young children—The foundation for early school readiness and success: Incredible years classroom skills and problem-solving curriculum. *Infants and Young Children, 17*, 96–113.

Webster-Stratton, C., Reid, M. J., & Beauchaine, T. P. (2011). Combining parent and child training for young children with ADHD. *Journal of Clinical Child and Adolescent Psychology, 40*(2), 1–13.

Williams, J. H., Davis, L. E., Johnson, S. D., Williams, T. R., Saunders, J. A., & Nebbitt, V. E. (2007). Substance use and academic performance among African American high school students. *Social Work Research, 31*(3), 151–161.

Chapter 9
Considering Individual Differences and Environmental Influences in the Assessment of Temperament, Self-regulation, and Social Skill Development in Young Children: A Framework for Practitioners

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Abstract The purpose of this chapter is to review existing research on the constructs of temperament, self-regulation, and social skills development in young children, and to discuss how these constructs can be assessed in clinical and school settings. Our premise is that, while each can be assessed independently, it is necessary to consider the interrelations and interactions among these characteristics in order to best understand the child's overall functioning. Moreover, the chapter also considers the connections of temperament, self-regulation, and social skills to environmental factors, such as parenting and educational environments. Following this discussion, we present an assessment model that encompasses these constructs and includes transactional influences. Lastly, the chapter provides information regarding specific tools that can be used to assess temperament, self-regulation, and related constructs in young children.

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A. Garro (ed.), *Early Childhood Assessment in School and Clinical Child Psychology*, DOI 10.1007/978-1-4939-6349-2_9

Keywords Temperament assessment · Self-regulation in children · Social skills development · Interactional model of temperament and environment · Effortful control · Behavioral inhibition · Parenting styles · Assessment of self-regulation in young children

Introduction

The purpose of this chapter is to review existing research on the constructs of temperament, self-regulation, and social skills development in young children, and to discuss how these constructs can be assessed in clinical and school settings. Our premise is that, while each can be assessed independently, it is necessary to consider the interrelations and interactions among these characteristics in order to best understand the child's overall functioning. Moreover, we submit that any assessment of these characteristics must also include consideration of environmental factors, and assessment of how the child's temperamental characteristics, self-regulation abilities, and social skills are affected by these factors. Before proceeding to examine these interrelationships, however, it is necessary to provide some understanding of each of these constructs and the role each plays in development. We will conclude by describing an assessment model that encompasses these ideas and discussing how specific assessment tools can be used to implement this model.

Literature Review

Temperament: A Brief Summary of Theories and Research

Rothbart and Jones (1998) define *temperament* as "[referring] to the relative strength of children's emotional reactions and related behaviors as well as their capacities for self-regulation" (p. 480). It is generally acknowledged (cf., Rothbart & Bates, 2008) that the term originated from Michael Rutter in response to the pioneering work of Thomas, Chess, Birch, Hertzig, and Korn (1963), who identified a number of characteristics of infants that can be used to describe their behavioral styles. It might be said that these early researchers focused on the "how" of behavior, or the child's patterns of responding to various stimuli in the environment. Their data led Thomas and colleagues to identify a number of dimensions of temperament that can be seen as individual aspects of *how* a child responds to his/her environment. These include: (a) *Activity Level*, involving the frequency and intensity of a child's motor behavior; (b) *Attention Span/Persistence*, or the duration and quality of the child's attention to tasks; (c) *Distractibility*, or the degree to which environmental factors impact persistence; (d) *Approach/Withdrawal*, or the

child's response when new people or objects are introduced into the child's environment; (e) *Mood*, including the balance between positive and negative moods and mood-related behaviors displayed by the child; (f) *Threshold*, or the level of stimulation required to evoke a response from the child; (g) *Intensity of Reaction*, assessed separately from the valence (i.e., positive or negative) of the reaction; and *Rhythmicity*, pertaining to the regularity of biologically-driven behaviors such as eating, sleeping and elimination.

More recently, Rothbart and Bates (2006) extended this work, using factor analytic techniques to develop a more parsimonious model that includes a somewhat different set of infant temperament dimensions: *Negative Affectivity*, *Extraversion/Surgency*, and *Effortful Control*. Rothbart (2007) noted that several of the dimensions identified by Rothbart and Bates align well with the "Big Five" personality traits (e.g., the Big Five trait of Neuroticism aligns with their construct of Negative Affectivity; Conscientiousness aligns with Effortful Control). Rothbart also posited that temperament can be described along two major domains: *Reactivity*, or the speed and intensity with which a child responds to environmental stimuli, and *Self-regulation*, or the child's ability to control reactions to environmental stimuli.

According to Henderson and Wachs (2007), early evidence suggested that temperament was heavily influenced by genetics and remained relatively stable over time. Indeed, there is a compelling and growing evidence base indicating that genetics play a significant role in temperament (e.g., Davies, Ciccetti, Hentges, & Sturge-Apple, 2013; Schmidt, Fox, Perez-Edgar, & Hamer, 2009), though environmental factors also come into play. However, this view of temperament has since shifted, leading Henderson and Wachs to assert that, "[g]iven [the] pattern of [research] findings, it is now more logical to expect only modest stability in temperament across different contexts and over time" (p. 398). Moreover, they posit that "with regard to context, we would expect to find greater stability in child temperament patterns within a given situation than across situations" (p. 399). Thus, it is important to recognize that, while there is relative stability of temperament characteristics in individual children based on genetic precursors, there are, at the same time, environmental and contextual variables that can influence temperamental expression across time (Rispoli, McGoey, Koziol, & Schreiber, 2013). As discussed in the model of temperament proposed at the end of this chapter, temperament assessment by practitioners should consider the reciprocal relationship between temperament and the environmental context in which it occurs.

Self-regulation and Emotional Control

According to Bronson (2000), *self-regulation* can be defined as a child's ability to respond appropriately to his or her environment. Like the construct of temperament, self-regulation is considered to be multidimensional. In addition, self-regulation can be conceptualized as having both cognitive and affective components (McClelland, Ponitz, Messersmith, & Tominey, 2010). Early self-regulation ability has been shown to relate

to children's later social-emotional development and academic achievement (von Suchodoletz, Trommsdorff, Heikamp, Wieber, & Gollwitzer, 2009). As Liew (2012) notes, "to successfully participate in and learn from everyday preschool and kindergarten activities, such as call and response or shared reading, young children need to demonstrate effortful control (i.e., attentional and inhibitory control)" (p. 106).

In addition to the domain of self-regulation, a number of researchers have also delineated the construct of emotional regulation. *Emotional regulation* has been defined by Eisenberg, Champion, and Ma (2004) as "the process of initiating, avoiding, inhibiting, maintaining, or modulating the occurrence, form, intensity, or duration of internal feeling states, emotion-related physiological, attentional processes, motivational states, and/or the behavioral concomitants of emotion in the service of accomplishing affect-related biological or social adaptation or achieving individual goals" (p. 338). Other theorists have defined emotional regulation as the ability to manage the intensity of one's own emotions and being able to apply the knowledge of appropriate displays of emotions within their social exchanges (Garner, 2010). A key component of emotional regulation is *effortful control*, the ability to inhibit a dominant response in order to perform a subdominant response (Simonds, Kieras, Rueda, & Rothbart, 2007). Effortful control involves the use of voluntary attentional, inhibitory, and executive control systems to alter or maintain negative emotional states (Davenport, Yap, Simmons, Sheeber, & Allen, 2011). Research suggests that temperamental characteristics in early childhood lay the groundwork for later development of effortful control. Eisenberg, Smith, and Spinrad (2011) have stressed the importance of effortful control in the development of conscience, empathy, and prosocial behavior as well as social competence and adjustment (see also Liew, 2012). While related to executive function, effortful control is generally conceptualized as a separate and distinct construct. Zhou, Chen, and Main (2012) assert that understanding of self-regulation requires integration of both effortful control and executive function; this conceptualization makes explicit both the temperamental and cognitive aspects of self-regulation.

Although there is less research regarding the development of emotional regulation during infancy, existing studies suggest that there is some degree of continuity as well as change (Crockenberg & Leerkes, 2006; Kagan, Snidman, & Arcus, 1998). During this early period, regulation is modulated through interactions with parents and other caregivers; it involves paying attention to external stimuli and engaging in approach and avoidance behaviors that are more automatic in nature. In toddlerhood, the ongoing maturation of attentional and executive networks in the brain enables children to develop the ability to direct attention to particular stimuli, inhibiting automatic responses in favor of volitional ones with increasing frequency. Nonetheless, caregiver modeling of situationally appropriate emotional expression and coping strategies remains important, as emotional regulation skills develop in context and in light of parenting behaviors and other environmental influences (Calkins, 2004, 2007; Lengua & Kovacs, 2005). In summary, self-control in early childhood tends to be regulated externally; over time, through a variety of interactions and experiences, including biological maturation and exposure to regulatory modeling by caretakers, the child internalizes self-regulatory mechanisms.

Other theory and research has noted the importance of language development to self-regulation and emotional control processes. For example, Cole, Armstrong, and Pemberton (2010) stated that, "[a]lthough relations between linguistic and self-regulation processes likely involve executive processes (e.g., attention control), difficulty in understanding and producing verbal information may make a unique contribution to emotion regulation" (p. 60). Cole et al. also emphasized the importance of self-directed speech, which can assist in the use of executive strategies that help children to regulate emotion. Aro, Eklund, Nurmi, and Poikkeus, (2012) conducted a longitudinal study examining the associations among language, behavioral regulation, and social skills in a sample of preschool- and early elementary-age children. Participants completed a variety of receptive and expressive language tasks at 2.5 and 5 years of age, while their parents provided information on familial risk for language difficulties (e.g., family history of dyslexia) and completed the BASC Rating Scales. Results indicated that social skills at age 8 measured by the BASC were predicted by language skills at age 5; familial risk for language problems did not impact this association. Language skills at age 5 also seemed to play a mediating role in the association between language skills at age 2.5 and social skills at age 8. In addition, participants who had parent-reported difficulties on the BASC Attention Problems, Aggression, and Hyperactivity subscales and difficulty with completing language tasks, especially receptive language, showed lower adaptability ratings at age 8 than participants, with or without language difficulties, who had no behavioral difficulties.

Relationships Among Temperament, Self-regulation, and Social Skills

The term *social skills* comprises a number of subordinate constructs, including cooperation, empathy, altruism, popularity, and social competence. The development of social skills is related to a variety of temperamental characteristics and to effortful control. For example, in a sample of children ranging in age from 4.5 to 8 years, Valiente et al. (2004) found that effortful control was a significant predictor of empathy responses. Berger (2011) related both effortful control and empathy to executive functioning, noting that "the relation between [effortful control] and empathy is in line, from a developmental perspective, with the coincidence in age between the maturation of [effortful control] and theory of mind, and with findings showing a positive correlation between them and children; that is, preschool children showing higher levels of [effortful control] also tend to do better on tests tapping theory of mind" (p. 101). In a longitudinal study of children's emotional regulation and social competencies, Spinrad et al. (2006) also found that effortful control was related to later social competence in children. Moreover, results of several studies have suggested that effortful control plays a role in children's development of conscience (e.g., Kochanska, Murray, Jacques, Koenig, & Vandegeest, 1996; Kochanska, Murray, & Coy, 1997; Kochanska, Murray, & Harlan, 2000).

Sanson et al. (2009) examined the relationships among early temperament characteristics and later social, behavioral, and academic difficulties using data from 2443 child participants in the Australian Temperament Project. Using cluster analysis, they identified groups of children with four different temperamental profiles: reactive/inhibited, nonreactive/outgoing, high attention regulation and poor attention regulation. Sanson et al. (2009) found significant differences among these groups in behavior problems, social skills, and school functioning. More specifically, children in the reactive/inhibited and poor attention regulation groups tended to show more behavior problems and weaker social skills and school functioning than children in the nonreactive/outgoing and high attention regulation groups. Furthermore, in longitudinal analyses, Sanson et al. found that, at 7–8 years of age, parents of children in these groups reported higher levels of aggression and hyperactivity than parents of children in the nonreactive/outgoing group. Similarly, at 11–12 years of age, children in the low attention regulation and reactive/inhibited groups were rated as having more behavioral problems across all areas; the latter group was also rated as having the poorest social skills. These results provide evidence that early temperament characteristics continue to play a role shaping children's social-emotional functioning over time.

Other studies have shown that early temperamental characteristics of the child are predictive of later self-regulation. This includes the work of Houck (1999), who found that temperamental difficulties in later infancy were related to lower social competence at 36 months as measured by the Adaptive Social Behavior Inventory (ASBI). Kochanska and Aksan (2006) examined the relationship between fearfulness and effortful control and found that "children's effortful control predicts their internalized conduct both concurrently and longitudinally from toddler age to early school age" (pp. 1600–1). They also found that fearfulness predicted internalized conduct, and that anxious arousal might act as a mediator linking fearfulness to behavior. In another study, Wilson (2006) examined the temperament characteristics of shyness, fearfulness and impulsivity and play behavior strategies in two groups of kindergarten and first-grade children, one rated as aggressive/rejected in status and the other as non-aggressive/popular. She found that higher levels of impulsivity predicted inappropriate play entry strategies (e.g., being demanding or disruptive). Wilson also found that higher shyness and fearfulness predicted the use of socially appropriate entry strategies, such as moving closer without being disruptive and offering help. The results indicated that, although higher levels of fearfulness are often linked to behavioral inhibition, fear may play a more complex role in children's responses to play and other social situations. For example, children who have greater fearfulness might be able to respond in a more adaptable manner to fear-eliciting events as they develop, as suggested by Rothbart, Ellis, Rueda, and Posner (2003).

Ursache, Blair, Stifter, and Voegtline (2013) examined the observed emotional reactivity and regulation of 1292 children from mostly low-SES communities at 7, 15, and 24 months. Parents completed an executive functioning measure when their children were 48 months of age. The researchers found that infants who displayed high levels of both emotional reactivity and emotional regulation showed high

levels of executive functioning as preschoolers. In contrast, children with high levels of emotional reactivity, but low levels of emotional regulation, showed lower levels of executive functioning skills in preschool. They also found that children in the former group were more likely to have parents that used positive parenting practices than were children in the latter group.

While this chapter focuses on young children, the importance of understanding temperament and self-regulation remains pertinent throughout the lifespan, as research suggests these factors might influence social functioning into adulthood. Several longitudinal studies have examined the relationships between temperamental characteristics at age 3 and functioning across social contexts in adulthood (i.e., at home, at work, in one's social network, and in romantic relationships). Newman, Caspi, Moffitt, and Silva (1997) found that children who were well-adjusted, reserved, and/or confident at age 3 generally functioned typically in all domains at age 21; children who were inhibited at age 3 had weaker affiliations within their social networks at age 21, but functioned typically at work and in romantic relationships; and children who were temperamentally under-controlled at age 3 demonstrated difficulties across all social domains at age 21. In more recent research, Rudasill, Reio, Stipanovic, and Taylor (2010) found that, in a sample of about 1100 children from the NICHD Study of Early Child Care and Youth Development, those with more difficult temperaments were more likely to report risky behaviors and to have conflictual relationships with teachers in adolescence.

Impact of Environmental Factors

Environment, temperament, and self-regulation: The impact of parenting. While it is clear that early temperament contributes to a variety of social-emotional outcomes for children, research also shows that temperament characteristics interact with parenting behaviors and characteristics to affect a variety of outcomes. A number of researchers have linked the development of self-regulation and emotional regulation skills to early attachment and/or parenting styles and practices. From birth through adolescence, parent responsiveness and support strongly predict development of emotional regulation skills and effortful attention control (Eisenberg, Spinrad, & Eggum 2010). During the preschool years, parental warmth and empathy, coupled with a gradual shift from direct regulatory behavior and toward increasingly indirect behavioral guidance, predicts later self-regulatory behavior in children (e.g., Houck & Lecuyer-Maus, 2004; Spinrad et al., 2004). In other words, authoritative parenting styles (Baumrind & Black, 1967) best predict good self-regulation skills in children, while permissive and authoritarian parenting styles can prevent children from having the opportunity to practice these behaviors due to lack of input and modeling or lack of autonomy. In a study which considered

these parenting behaviors in relation to young children's self-regulation, Calkins and Johnson (1998) focused on reaction to distress in the context of mother–toddler dyads. They found that, in dyads where mothers completed tasks for their children rather than letting the children do it themselves, toddlers were more likely to become distressed in response to a distracting task. The researchers noted that this result could be attributable to other factors, such as mothers anticipating frustration in children more prone to distress and intervening prior to the onset of distressed behavior.

Other research has focused on the characteristic of behavioral inhibition (BI), which often manifests in infancy or toddlerhood, in combination with parenting. In a longitudinal study, Williams et al. (2009) found that internalizing problems, such as anxiety, were highest in children with high BI who also experienced permissive parenting. Over time, higher levels of authoritative parenting were associated with less of an increase in internalizing problems. Surprisingly, this study showed that authoritarian parenting did have some positive effects, in that it was associated with greater decreases in externalizing problems as children became older. Cornell and Frick (2007) also looked at BI, specifically children who were both overly and under-inhibited, in combination with parenting practices. Results indicated that children who were high in BI were parent-rated as having more empathy and guilt regardless of type of parental discipline/practices in comparison to children who were low on inhibition. Children with low inhibition demonstrated different patterns, in that they were rated as lower on guilt and empathy when they experienced inconsistent discipline, but higher on guilt when they experienced authoritarian parenting.

Bradley and Corwyn (2008) found that the combination of difficult temperament in infancy and parenting characterized by low sensitivity or fewer opportunities for constructive activity resulted in higher levels of behavior problems in first grade as compared to children with average or easy temperaments. Kochanska and Kim (2013) looked at the characteristics of effortful control and anger proneness in two- and three-year old children in combination with maternal responsivity. They found that children who were low in effortful control and high on anger proneness at age 30 months and were parented by highly responsive mothers showed more compliance and lower levels of externalizing problems at age 40 months, whereas children with the same pattern of traits who were parented by non-responsive mothers showed less compliance and greater levels of externalizing problems. Similarly, Yaman, Mesman, van IJzendoorn, and Bakermans-Kranenburg (2010) studied young children with difficult temperaments at age 2 and found that those who experienced low positive parenting showed greater aggression at age 3 in comparison to peers with easy temperaments. However, the difficult children who experienced positive parenting did not show significantly lower aggression in comparison to easy-temperament peers.

Manian, Papadakis, Strauman, and Essex (2006) examined the contribution of parenting behaviors to children's development of two types of self-guides: *ideal* guides, pertaining to aspirational behaviors, and *ought* guides, pertaining to obligatory behaviors or responsibilities in the context of *regulatory focus theory* (RFT;

Higgins, 1997). This model proposes that ideal guides inform behavior that increases the likelihood of positive outcomes, while ought guides lead to behavior that prevents negative outcomes. Manian et al. found that maternal positive affectivity predicted nurturance, which, in turn, positively predicted development of ideal guides. The relationship among affectivity, punishment, control, and ought guide development was more complex. The researchers found that maternal negative affectivity predicted level of maternal control, but that control did not necessarily predict ought guide development; they hypothesized that control may need to co-occur with punishment in order to facilitate development of ought guides. The authors note that development and use of ideal guides in behavioral regulation is often viewed as a more positive outcome than the use of ought guides; however, they also point out that internalizing and having the capacity to independently implement both types of strategies might enable children to respond effectively in a wider variety of situations.

Kochanska and Aksan (2006) noted that increased power assertion by parents leads to less guilt, less mature use of internalized conduct, and/or less moral conduct by children, whereas a mutually responsive orientation (MRO) between parent and child seems to promote later prosocial conduct by increasing cooperative behavior by the child, as well as internalization of rules presented by parents. They noted that, for fearful children, gentle discipline is effective in creating sufficient anxious arousal to promote internalizing behavioral rules and subsequent self-regulation of behavior. However, fearless children do not respond the same way. For these children, it appears that MRO is a more important predictor of internalized conduct. In proposing directions for future research, they suggested that further investigation of the relationships among these constructs in other ecologies besides that of the family unit is important in order to determine how factors such as environmental change affect self-regulation, noting that "[a]n ecological framework will also allow us to ask whether the early temperament [and] relationship interactions that we have found within the family would also be found in other ecologies over the child's life course" (pp. 1608–9).

Self-regulation and social skills: The impact of educational environments. A number of studies have indicated that children who experience high levels of emotional support, instructional support, and teacher–child closeness in their preschool and early elementary classrooms show better social, behavioral, and self-regulation outcomes than peers in classes with more negative emotional climates (e.g., Mashburn et al., 2008; Perry, Donohue, & Weinstein, 2007; Silver, Measelle, Armstrong, & Essex, 2005). Merritt, Wanless, Rimm-Kaufman, Cameron, and Peugh (2012) examined the relationship between emotionally supportive teacher–child interactions in first-grade classrooms and social and self-regulatory outcomes for children. They found that emotionally supportive behavior by first-grade teachers predicted lower levels of aggressive behavior and higher levels of self-control at the end of the first-grade year. In a study of children's engagement in kindergarten and first grade, Cadima, Doumen, Verschueren, and Buyse (2015) found that temperament, as well as teacher relationship variables, predicted positive involvement. More specifically, good inhibitory control, closer

teacher–child relationships, and lower perceived teacher–child conflict were associated with good engagement in kindergarten, while these same variables in combination with well-organized first-grade classrooms were associated with positive engagement in first grade.

With respect to interaction between teacher variables and child risk variables, few studies have been conducted. Merritt et al. (2012) found no interaction between emotional support levels and sociodemographic risk factors (e.g., low maternal education, low family income); emotional support predicted similarly positive outcomes for children of all sociodemographic risk levels in their sample. However, other studies (e.g., Hamre & Pianta, 2005) have found that emotionally supportive classrooms are particularly important for children who have a number of sociodemographic risk factors.

In terms of specific educational programming in preschools, the PATHS curriculum (Domitrovich, Greenberg, Kusché, & Cortes, 2005) has demonstrated efficacy in randomized clinical trials. PATHS consists of 44 sessions that focus on development of: self-regulation skills; recognition and communication about emotions in self and others; and social-cognitive abilities that foster prosocial conduct and positive relationships with peers (Moore et al., 2015). PATHS not only involves direct instruction in the above areas, but also helps train teachers to develop positive classroom climates. Research has indicated that PATHS can generate a number of positive social-emotional outcomes for children, including those enrolled in Head Start (Domitrovich, Cortes, & Greenberg, 2007; Morris et al., 2014).

Rothbart and Jones (1998) noted that, while individual differences in temperament across individuals will impact goodness-of-fit between those children and classroom environments, certain aspects of temperament are likely to consistently impact children's performance in class; for example, they noted that experiencing punishment or failure can lead to avoidant, inhibited, defensive, or frustrated behavior for children regardless of specific temperamental features (see our discussion of environmental contingencies below). Rothbart and Jones identified negative emotionality, approach/positive affect, attentional persistence/effortful control, and activity level as important dimensions to be considered by teachers. Activity and approach/positive affect can be classified under the single category of surgency/extraversion. Under the category of negative emotionality, tendencies toward fear and irritability can interfere with performance on frustrating or anxiety-provoking tasks. Different children with different temperaments will process what is ostensibly the same classroom environment in different ways. However, all children have to deal with adult-directed activity for most of the school day. Rothbart and Jones thus noted that, while positive affect and approach seem to be linked to development of intrinsic, mastery-oriented motivation in school-age children, the ability to respond to extrinsic motivators, standards, and goals is also an important skill. They recommend a multidimensional approach to temperament-related assessment including: obtaining information from parents/caregivers; using measures such as the Children's Behavior Questionnaire

(CBQ; Rothbart, Ahadi, Hershey, & Fisher, 2001); assessing classroom environment; and remaining mindful of the impact of anxiety, inattention, and other temperament-linked traits that might interfere with performance.

Interactional Model of Temperament and Environmental Context

It is clear from the above discussion that successful social-emotional functioning is closely tied to the interrelationships and interactions of individual child characteristics with the surrounding environment. While the literature clearly suggests that children might be constitutionally predisposed to behave in certain ways, it is also clear that environmental factors contribute to children's self and emotional regulation, social skills and other primary areas of functioning. As previously noted, parents' responses to children's temperamental characteristics can affect later behavior. As pointed out by Guerin, Gottfried, and Thomas (1997), "if parents respond to children's difficult temperament in ways that make it difficult for them to adapt, 'poorness-of-fit' results, and the probability that a [behavior] problem will develop increases" (p. 86). Similarly, Feldman and colleagues (Feldman, 2007; Feldman, Greenbaum, & Yirmiya, 1999) have presented data suggesting that affective synchrony or attunement (i.e., the mother's and infant's mutual self-regulation) within the first year of life has been found to predict self-regulation later in childhood. Based on these findings, assessment of parental characteristics, as well as the degree of fit between parents and children, will provide valuable information that enhances understanding of children's behavior. One way to accomplish this is to specifically examine contingencies that are present in the child's environment and the social expectations to which the child is exposed.

Environmental contingencies. All children are exposed to environmental reinforcers and punishers. These environmental contingencies directly influence how children behave and, thus, are important factors to understand if we are to meaningfully assess children's social-emotional functioning. As an example, suppose that Ellis is a child who is temperamentally predisposed to be very reactive to his environment, but his parents value a calmer and more reflective way of responding. Thus, when Ellis behaves in an overly reactive manner, his parents tend to respond sternly. This punishing consequence inhibits Ellis's natural tendency to be reactive and might lead to more self-regulatory behavior on his part, particularly if his parents reinforce him for less reactive responding. In contrast, when at school, Ellis is seen by his teachers as a child who is enthusiastic and responsive to his learning environment; his reactive behaviors are reinforced, rather than punished. Because the contingency structure at school differs significantly from that at home, his patterns of self-regulation and expressed temperamental characteristics might differ across settings. Without assessing the different contingency structures to which children are exposed, we cannot fully understand their behaviors across contexts.

Expectations. Like contingencies, expectations are an integral aspect of any environment, and provide important setting events for children's behavior. Expectations might reflect cultural and societal norms as well as the belief systems of parents and teachers. Children learn to behave in accordance with environmental expectations, and, in doing so, are reinforced for behaviors that are deemed socially desirable. In Ellis's case, his parents and teachers show different expectations regarding his reactivity; in each environment, he is reinforced for acting in accordance with their expectations, resulting in behavioral variability across environments.

In short, treating clinicians who fail to gather information that addresses the contingencies and expectations in children's environments are likely to overlook and/or misunderstand key factors related to children's temperament, self-regulation, and social skills. It is also important to consider the reciprocal influences between children's individual characteristics and their environments. In order to develop effective interventions, we need to understand not only the individual characteristics of the child, and the expectations and contingencies of their environments, but also how these interact with and transform each other across time. Figure 9.1 illustrates the interrelationships among environmental variables, such as expectations and contingency structures, and individual variables, such as temperament, self-regulation, and the expression of social skills. It is hoped that this framework will be useful to practitioners who engage in assessment of social and emotional functioning in young children.

Implications for Practice

Assessment

The preceding literature review indicates that temperament, self-regulation skills, and social competence build upon each other, and that assessment of temperament and self-regulatory skills in infants, toddlers, and preschoolers can be used to predict later competencies. Additionally, environmental factors, including parenting styles and practices, teacher attributes/practices, and classroom ecology can impact each of the above constructs and, thus, create change in the developmental trajectories that link them. Finally, a number of studies have suggested that language and executive functioning abilities are also related to the development of appropriate self-regulatory and social skills. This suggests that, when assessing young children, practitioners should gather data on their temperament characteristics, self-regulatory skills, and social behaviors; examine the interactions between their individual characteristics and home and school environments; and consider other cognitive and linguistic factors that might contribute to successful functioning in these domains. In doing these assessments, however, it is also necessary to consider the contextual and transactional nature of development and how various environmental influences contribute to the manifestation of temperament, self-regulation, and, ultimately, social skills outcomes in young children. The table below summarizes tools and resources that are potentially useful to practitioners in assessing the constructs described above. This list is not intended to be

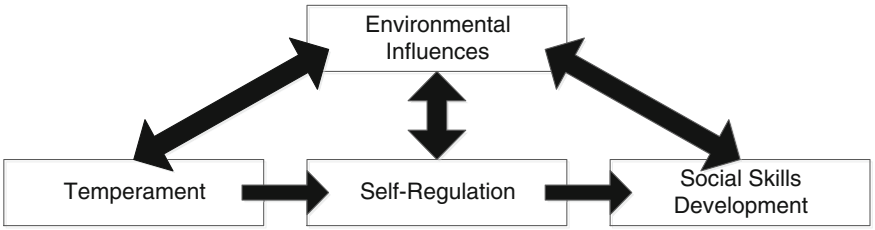

Fig. 9.1 Assumed relationships among environment, temperament, self-regulation, and social skill development

exhaustive; many other relevant instruments and/or techniques can be found in the peer-reviewed literature or purchased from test publishing companies. Additionally, while the instruments and assessment techniques listed in this table are empirically supported and/or are psychometrically adequate, they might not be appropriate for use with all individuals and/or populations.

Temperament Assessment

Name of assessment	Author(s) and dates	Age range	# of items	Format
Infant Behavior Questionnaire-Revised (IBQ-R)	Gartstein and Rothbart (2003)	3–12 months	191 items	Caregiver questionnaire
Early Childhood Behavior Questionnaire (ECBQ)	Putnam, Gartstein, and Rothbart (2006)	18–36 months	144 items	Caregiver questionnaire
ASEBA, preschool forms (CBCL-1 1/2-5 and C-TRF)	Achenbach and Rescorla (2000)	18 months–5 years	100 items	Caregiver questionnaire, teacher report
Toddler Behavior Assessment Questionnaire (TBAQ)	Goldsmith (1996)	18–38 months	108 items	Caregiver questionnaire

Self-regulation Assessment

Name of assessment	Author(s) and dates	Age range	# of Items	Format
Head-Toes-Knees-Shoulders (HTKS)	Ponitz, McClelland, Matthews, and Morrison (2009)	4–6 years	20 items	Structured behavioral observation

(continued)

(continued)

Name of assessment	Author(s) and dates	Age range	# of Items	Format
Children's Behavior Questionnaire (CBQ)	Rothbart et al. (2001)	3–7 years	195 items (standard form) 94 items (short form) 36 items (very short form)	Caregiver questionnaire
Peg Tapping	Diamond and Taylor (1996)	3–7 years	16 items	Structured behavioral observation

Executive Functioning Assessment

Name of assessment	Author(s) and dates	Age range	# of Items	Format
Behavior Rating Inventory of Executive Function (BRIEF)	Gioia, Isquith, Guy, and Kenworthy (2000)	5–18 years	86 items	Caregiver questionnaire, teacher questionnaire
Behavior Rating Inventory of Executive Function, Preschool version (BRIEF-P)	Gioia, Espy, and Isquith (2003)	2–6 years	63 items	Caregiver questionnaire, teacher/day care provider questionnaire
Comprehensive Executive Function Inventory (CEFI)	Naglieri and Goldstein (2013)	5–18 years	100 items	Parent questionnaire, teacher questionnaire, self-report (12–18 years)
NEPSY-II	Brooks, Sherman, and Strauss (2009)	3–16 years	32 subtests	Neuropsychological battery

The importance of authentic and ecologically valid assessment has been emphasized as it pertains to the assessment of literacy in young children (Thurman & McGrath, 2008); cognitive skills in general (Thurman & Kiepert, 2008); and working memory in particular (Levin, Thurman, & Kiepert, 2010). Ecological validity is equally important

to consider when assessing self-regulation and social skills. As Thurman and Kiepert (2008) assert, "using data gathered from the natural environment to assess various aspects of [psychological] functioning significantly enhances the ecological validity of the constructs under [consideration]" (p. 270). They elaborate on this idea by suggesting that "the 'artificial' demands required by an assessment tool must be reflective of the everyday environmental demands [experienced by] children" (p. 271). Assessment of environmental demands is a necessary prerequisite for understanding the impact of environmental variables on the expression of temperament in children, as well as the effects of context on self-regulation and the skills required for effective social interaction and problem solving. While a number of the assessment tools listed above have been shown to be useful in the assessment of temperament, self-regulation, and social skills, practitioners are advised to increase the authenticity and ecological validity of their assessments by supplementing these measures with observations in natural environments and by conducting interviews with parents, teachers and other relevant individuals who can provide insight into the child's "real life" functioning.

Case Study

Rowena is a 6 year old first grader who lives in a middle-class neighborhood with her parents and two older brothers (ages 9 and 11). As an infant and toddler, Rowena tended to be quiet and shy. She typically had difficulty transitioning between activities and with changes in her environment and routine. In contrast, her brothers have always been socially adept and flexible. Rowena's parents value social interaction and have been puzzled by their daughter's difficulties in this area. In her preschool classroom, Rowena gained pre-academic and school readiness skills quickly, but did not initiate interactions or appear to form relationships with other children. This pattern continued in kindergarten. Now, in first grade, Rowena will often isolate herself from other children. Her teacher expects students to work together and structures many classroom activities around social interaction. Rowena rarely spontaneously initiates verbal interactions with others and remains reluctant to do so, even when directly prompted by her teacher. She generally does not raise her hand or contribute during group activities or discussions. In social situations, she often shows overt signs of anxiety, and will cry easily if social demands are placed on her. Rowena does this so frequently that the other children have begun to tease her, which appears to exacerbate her anxiety.

Rowena's desk is always well-organized, and she prides herself in being neat. She is compliant when asked to complete assignments, but struggles with variation in the classroom routine (e.g., school assemblies, substitute teachers). At home, she willingly helps with chores, in contrast to her brothers, who complain and resist helping out. When her parents suggest that Rowena invite a friend over, she quickly changes the subject or states that she does not like anybody in her class. At a recent parent–teacher conference, Rowena's parents expressed concerns about her

apparent anxiety in social situations and her lack of friendships with children in her class. Rowena's parents and teacher concluded that it would be a good idea to gather some additional information.

Discussion Questions

Using the model presented earlier in this chapter and the information provided above, think about the following questions:

- What information in the case study is most pertinent?
- What other types of information would you want to gather?
- How might Rowena's current classroom placement and her teacher's expectations impact her social skill development?
- Is Rowena's current classroom placement being responsive to her temperamental characteristics?
- What characteristics of Rowena's family are most relevant in understanding her functioning?
- Do you think that Rowena might be a candidate for special education or other supportive services in the school setting? Why or why not?
- What advice would you have for Rowena's teacher and parents?

References

Achenbach, T. M., & Rescorla, L. A. (2000). *Manual for the ASEBA preschool forms and profiles*. Burlington, VT: University of Vermont, Research Center for Children, Youth & Families.

Aro, T., Eklund, K., Nurmi, J., & Poikkeus, A. (2012). Early language and behavioral regulation skills as predictors of social outcomes. *Journal of Speech, Language, and Hearing Research, 55*, 395–408.

Baumrind, D., & Black, A. E. (1967). Socialization practices associated with dimensions of competence in preschool boys and girls. *Child Development, 38*, 291–327.

Berger, A. (2011). *Self-regulation: Brain, cognition, and development*. Washington, DC: American Psychological Association.

Bradley, R. H., & Corwyn, R. F. (2008). Infant temperament, parenting, and externalizing behavior in first grade: A test of the differential susceptibility hypothesis. *Journal of Child Psychology and Psychiatry, 49*(2), 124–131.

Bronson, M. B. (2000). *Self-regulation in early childhood: Nature and nurture*. New York, NY: Guilford Press.

Brooks, B. L., Sherman, E. M., & Strauss, E. (2009). NEPSY-II: A developmental neuropsychological assessment. *Child Neuropsychology, 16*(1), 80–101.

Cadima, J., Doumen, S., Verschueren, K., & Buyse, E. (2015). Child engagement in the transition to school: Contributions of self-regulation, teacher-child relationships and classroom climate. *Early Childhood Research Quarterly, 32*, 1–12.

Calkins, S. D. (2004). Early attachment process and the development of self-regulation. In R. F. Baumeister & K. D. Vohs (Eds.), *Handbook of self-regulation: Research, theory, and applications* (pp. 324–339). New York, NY: Guilford Press.

Calkins, S. D. (2007). The emergence of self-regulation: Biological and behavioral control mechanisms supporting toddler competencies. In C. A. Brownell & C. B. Kopp (Eds.), *Socioemotional development in the toddler years: Transitions and transformations* (pp. 261–284). New York, NY: Guilford Press.

Calkins, S. D., & Johnson, M. C. (1998). Toddler regulation of distress to frustrating events: Temperamental and maternal correlates. *Infant Behavior and Development, 21*, 379–395.

Cole, P. M., Armstrong, L. M., & Pemberton, C. K. (2010). The role of language in the development of emotion regulation. In S. D. Calkins & M. A. Bell (Eds.), *Child development at the interface of emotion and cognition* (pp. 59–77). Washington, DC: American Psychological Association.

Cornell, A. H., & Frick, P. J. (2007). The moderating effects of parenting styles in the association between behavioral inhibition and parent-reported guilt and empathy in preschool children. *Journal of Clinical Child and Adolescent Psychology, 36*(3), 305–318.

Crockenberg, S. C., & Leerkes, E. M. (2006). Infant and maternal behavior moderate reactivity to novelty to predict anxious behavior at 2.5 years. *Development and Psychopathology, 18*, 17–34. doi: 10.1017/S0954579406060020

Davenport, E., Yap, M. B. H., Simmons, J. G., Sheeber, L. B., & Allen, N. B. (2011). Maternal and adolescent temperament as predictors of maternal affective behavior during mother-adolescent interactions. *Journal of Adolescence, 34*, 829–883.

Davies, P. T., Ciccetti, D., Hentges, R. F., & Sturge-Apple, M. L. (2013). The genetic precursors and the advantageous and disadvantageous sequelae of inhibited temperament: An evolutionary perspective. *Developmental Psychology, 49*(12), 2285–2300. doi: 10.1037/a0032312

Diamond, A., & Taylor, C. (1996). Development of an aspect of executive control: Development of the abilities to remember what I said and to "Do as I say, not as I do". *Developmental Psychobiology, 29*, 315–334.

Domitrovich, C. E., Cortes, R. C., & Greenberg, M. T. (2007). Improving young children's social and emotional competence: A randomized trial of the preschool "PATHS" curriculum. *Journal of Primary Prevention, 28*(2), 67–91.

Domitrovich, C. E., Greenberg, M. T., Kusché, C., & Cortes, R. (2005). *The preschool PATHS curriculum*. South Dearfield, MA: Channing Bete Publishing Company.

Eisenberg, N., Champion, C., & Ma, Y. (2004). Emotion regulation: An emerging construct. *Merrill-Palmer Quarterly, 50*, 236–259.

Eisenberg, N., Smith, C. L., & Spinrad, T. L. (2011). Effortful control: Relations with emotion regulation, adjustment, and socialization in childhood. In K. D. Vohs & R. F. Baumeister (Eds.), *Handbook of self-regulation: Research, theory, and applications* (2nd ed., pp. 263–283). New york, NY: Guliford Press.

Eisenberg, N., Spinrad, T. L., & Eggum, N. D. (2010). Emotion-related self-regulation and its relation to children's maladjustment. *Annual Review of Clinical Psychology, 6*, 495–525.

Feldman, R. (2007). Parent-infant synchrony biological foundations and developmental outcomes. *Current Directions in Psychological Science, 16*, 340–345.

Feldman, R., Greenbaum, C. W., & Yirmiya, N. (1999). Mother-infant affect synchrony as an antecedent of the emergence of self-control. *Developmental Psychology, 35*, 223–231.

Garner, P. W. (2010). Emotional competence and its influences on teaching and learning. *Educational Psychology Review, 22*, 297–321.

Gartstein, M. A., & Rothbart, M. K. (2003). Studying infant temperament via the revised infant behavior questionnaire. *Infant Behavior and Development, 26*, 64–86.

Gioia, G. A., Espy, K. A., & Isquith, P. K. (2003). *Behavior Rating Inventory of Executive Function, Preschool Version (BRIEF-P)*. Lutz, FL: Psychological Assessment Resources.

Gioia, G. A., Isquith, P. K., Guy, S. C., & Kenworthy, L. (2000). Test review Behavior Rating Inventory of Executive Function. *Child Neuropsychology, 6*, 235–238.

Goldsmith, H. H. (1996). Studying temperament via construction of the Toddler Behavior Assessment Questionnaire. *Child Development, 67*, 218–235.

Guerin, D. W., Gottfried, A. W., & Thomas, C. W. (1997). Difficult temperament and behaviour problems: A longitudinal study from 1.5 to 12 years. *International Journal of Behavioral Development, 21*, 71–90.

Hamre, B. K., & Pianta, R. C. (2005). Can instructional and emotional support in the first-grade classroom make a difference for children at risk of school failure? *Child Development, 76*, 949–967.

Henderson, H. A., & Wachs, T. D. (2007). Temperament theory and the study of cognition-emotion interactions across development. *Developmental Review, 27*, 396–427.

Higgins, E. T. (1997). Beyond pleasure and pain. *American Psychologist, 52*, 1280–1300.

Houck, G. M. (1999). The measurement of child characteristics from infancy to toddlerhood: Temperament, developmental competence, self-concept, and social competence. *Issues in Comprehensive Pediatric Nursing, 22*, 101–127.

Houck, G. M., & Lecuyer-Maus, E. A. (2004). Maternal limit setting during toddlerhood, delay of gratification, and behavior problems at age five. *Infant Mental Health Journal, 25*, 28–46.

Kagan, J., Snidman, N., & Arcus, D. (1998). Childhood derivatives of high and low reactivity in infancy. *Child Development, 69*, 1483–1493.

Kochanska, G., & Aksan, N. (2006). Children's conscience and self-regulation. *Journal of Personality, 74*(6), 1587–1617. doi: 10.1111/j.1467-6494.2006.00421.x

Kochanska, G., & Kim, S. (2013). Difficult temperament moderates links between maternal responsiveness and children's compliance and behavior problems in low-income families. *Journal of Child Psychology and Psychiatry, 54*(3), 323–332.

Kochanska, G., Murray, K., & Coy, K. C. (1997). Inhibitory control as a contributor to conscience in childhood: From toddler to early school age. *Child Development, 68*, 263–277.

Kochanska, G., Murray, K., Jacques, T. Y., Koenig, A. L., & Vandegeest, K. A. (1996). Inhibitory control in young children and its role in emerging internalization. *Child Development, 67*(2), 490–507.

Kochanska, G., Murray, K. T., & Harlan, E. T. (2000). Effortful control in early childhood: Continuity and change, antecedents, and implications for social development. *Developmental Psychology, 36*, 220–223.

Lengua, L. J., & Kovacs, E. A. (2005). Bidirectional associations between temperament and parenting and the prediction of adjustment problems in middle childhood. *Journal of Applied Developmental Psychology, 26*, 21–38.

Levin, D. S., Thurman, S. K., & Kiepert, M. H. (2010). More than just a memory: The nature and validity of working memory in educational settings. In G. M. Davies & D. B. Wright (Eds.), *Current issues in applied memory research* (pp. 72–95). New York, NY: Psychology Press.

Liew, J. (2012). Effortful control, executive functions, and education: Bringing self-regulatory and social emotional competencies to the table. *Child Development Perspectives, 6*, 105–111.

Manian, N., Papadakis, A. A., Strauman, T. J., & Essex, M. J. (2006). The development of children's ideal and ought self-guides: Parenting, temperament, and individual differences in guide strength. *Journal of Personality, 74*, 1619–1645. doi: 10.1111/j.1467-6494.2006.00422.x

Mashburn, A. J., Pianta, R. C., Hamre, B. K., Downer, J. T., Barbarin, O. A., Bryant, D., ... Howes, C. (2008). Measures of classroom quality in prekindergarten and children's development of academic, language, and social skills. *Child Development, 79*, 732–749.

McClelland, M. M., Ponitz, C. C., Messersmith, E. E., & Tominey, S. (2010). Self-regulation: Integration of cognition and emotion. In W. F. Overton & R. M. Lerner (Eds.), *The Handbook of Life-Span Development: Volume 1. Cognition, biology, and methods* (pp. 509–553). Hoboken, NJ: Wiley.

Merritt, E. G., Wanless, S. B., Rimm-Kaufman, S. E., Cameron, C., & Peugh, J. L. (2012). The contributions of teachers' emotional support to children's social behaviors and self-regulatory skills in first grade. *School Psychology Review, 41*, 141–159.

Moore, J. E., Cooper, B. R., Domitrovich, C. E., Morgan, N. R., Cleveland, M. J., Shah, H., ... Greenberg, M. T. (2015). The effects of exposure to an enhanced preschool program on the social-emotional functioning of at-risk children. *Early Childhood Research Quarterly, 32*, 127–138.

Morris, P., Mattera, S. K., Castells, N., Bangser, M., Bierman, K., & Raver, C. (2014). *Impact findings from the head start cares demonstration: National evaluation of three approaches to improving preschoolers' social and emotional competence*. OPREReport 2014-44. Washington, DC: Office of Planning, Research and Evaluation Administration for Children and Families, U.S. Department of Health and Human Services

Naglieri, J. A., & Goldstein, S. (2013). *Comprehensive Executive Function Inventory (CEFI)*. North Tonawanda, NY: Multi-Health Systems.

Newman, D. L., Caspi, A., Moffitt, T. E., & Silva, P. A. (1997). Antecedents of adult interpersonal functioning: Effects of individual differences in age 3 temperament. *Developmental Psychology, 33*(2), 206–217.

Perry, K. E., Donohue, K. M., & Weinstein, R. S. (2007). Teaching practices and the promotion of achievement and adjustment in first grade. *Journal of School Psychology, 45*, 269–292.

Ponitz, C. C., McClelland, M. M., Matthews, J. S., & Morrison, F. J. (2009). A structured observation of behavioral self-regulation and its contribution to kindergarten outcomes. *Developmental Psychology, 45*, 605.

Putnam, S. P., Gartstein, M. A., & Rothbart, M. K. (2006). Measurement of fine-grained aspects of toddler temperament: The early childhood behavior questionnaire. *Infant Behavior and Development, 29*, 386–401.

Rispoli, K. M., McGoey, K. E., Koziol, N. A., & Schreiber, J. B. (2013). The relation of parenting, child temperament, and attachment security in early childhood to social competence at school entry. *Journal of School Psychology, 51*, 643–658.

Rothbart, M. K. (2007). Temperament, development, and personality. *Current Directions in Psychological Science, 16*, 207–212. doi: 10.1111/j.1467-8721.2007.00505.x

Rothbart, M. K., Ahadi, S. A., Hershey, K. L., & Fisher, P. (2001). Investigations of temperament at three to seven years: The children's behavior questionnaire. *Child Development, 72*, 1394–1408.

Rothbart, M. K., & Bates, J. E. (2006). Temperament. In W. Damon, R. Lerner, & N. Eisenberg (Eds.), *Handbook of child psychology, sixth edition: Social, emotional, and personality development* (Vol. 3, pp. 99–106). New York, NY: Wiley.

Rothbart, M. K., & Bates, J. E. (2008). Temperament. In W. Damon & R. M. Lerner (Eds.), *Child and adolescent development: An advanced course* (pp. 54–65). New York, NY: Wiley.

Rothbart, M. K., Ellis, L. K., Rueda, M. R., & Posner, M. I. (2003). Developing mechanisms of temperamental effortful control. *Journal of Personality, 71*, 1113–1143.

Rothbart, M. K., & Jones, L. B. (1998). Temperament, self-regulation, and education. *School Psychology Review, 27*, 479–491.

Rudasill, K. M., Reio, T. G., Stipanovic, N., & Taylor, J. E. (2010). A longitudinal study of student-teacher relationship quality, difficult temperament, and risky behavior from childhood to early adolescence. *Journal of School Psychology, 48*(5), 389–412.

Sanson, A., Letcher, P., Smart, D., Prior, M., Toumbourou, J. W., & Oberklaid, F. (2009). Associations between early childhood temperament clusters and later psychosocial adjustment. *Merrill-Palmer Quarterly, 55*, 26–54.

Schmidt, L. A., Fox, N. A., Perez-Edgar, K., & Hamer, D. H. (2009). Linking gene, brain, and behavior: DRD4, frontal asymmetry, and temperament. *Psychological Science, 20*, 831–837.

Silver, R. B., Measelle, J. R., Armstrong, J. M., & Essex, M. J. (2005). Trajectories of classroom externalizing behavior: Contributions of child characteristics, family characteristics, and the teacher-child relationship during the school transition. *Journal of School Psychology, 43*, 39–60.

Simonds, J., Kieras, J. E., Rueda, M. R., & Rothbart, M. K. (2007). Effortful control, executive functioning, and emotional regulation in 7–10-year old children. *Cognitive Development, 22*, 474–488.

Spinrad, T. L., Eisenberg, N., Cumberland, A., Fabes, R. A., Valiente, C., Shepard, S. A., et al. (2006). Relation of emotion-related regulation to children's social competence: A longitudinal study. *Emotion, 6*, 498–510.

Spinrad, T. L., Eisenberg, N., Harris, E., Hanish, L., Fabes, R. A., Kupanoff, K., ... Holmes, J. (2004). The relation of children's everyday nonsocial peer play behavior to their emotionality, regulation, and social functioning. *Developmental Psychology, 40*, 67–80.

Thomas, A., Chess, S., Birch, H. G., Hertzig, M. E., & Korn, S. (1963). *Behavioral individuality in early childhood*. Oxford, England: New York University Press.

Thurman, S. K., & Kiepert, M. H. (2008). Issues and concerns in conducting applied cognitive research. In S. K. Thurman & C. A. Fiorello (Eds.), *Applied cognitive research in K-3 classrooms* (pp. 265–288). New York, NY: Routledge/Taylor & Francis Group.

Thurman, S. K., & McGrath, M. C. (2008). Environmentally based assessment practices: Viable alternatives to standardized assessment for assessing emergent literacy skills in young children. *Reading and Writing Quarterly: Overcoming Learning Difficulties, 24*, 7–24.

Ursache, A., Blair, C., Stifter, C., & Voegtline, K. (2013). Emotional reactivity and regulation in infancy interact to predict executive functioning in early childhood. *Developmental Psychology, 49*, 127–137.

Valiente, C., Eisenberg, N., Fabes, R. A., Shepard, S. A., Cumberland, A., & Losoya, S. H. (2004). Prediction of children's empathy-related responding from their effortful control and parents' expressivity. *Developmental Psychology, 40*, 911–926.

von Suchodoletz, A., Trommsdorff, G., Heikamp, T., Wieber, F., & Gollwitzer, P. M. (2009). Transition to school: The role of kindergarten children's behavior regulation. *Learning and Individual Differences, 19*, 561–566.

Williams, L. R., Degnan, K. A., Perez-Edgar, K. E., Henderson, H. A., Rubin, K. H., Pine, D. S., ... Fox, N. A. (2009). Impact of behavioral inhibition and parenting style on internalizing and externalizing problems from early childhood through adolescence. *Journal of Abnormal Child Psychology, 37*(8), 1063–1075. doi: 10.1007/s10802-009-9331-3

Wilson, B. (2006). The entry behavior of aggressive/rejected children: The contributions of status and temperament. *Social Development, 15*(3), 463–479.

Yaman, A., Mesman, J., van IJzendoorn, M. H., & Bakermans-Kranenburg, M. J. (2010). Parenting and toddler aggression in second-generation immigrant families: The moderating role of child temperament. *Journal of Family Psychology, 24*(2), 208–211.

Zhou, Q., Chen, S. H., & Main, A. (2012). Commonalities and differences in the research on children's effortful control and executive function: A call for an integrated model of self-regulation. *Child Development Perspectives, 6*, 112–121.

Chapter 10
Assessment Related to Developmental Disabilities and Psychological Disorders During Early Childhood

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Abstract This chapter focuses on the identification and assessment of suspected developmental disabilities and externalizing disorders during early childhood. It begins with a literature review and general background of developmental disabilities in young children and then describes general considerations for conducting psychological evaluations in this domain. Next, three of the most common developmental disabilities [e.g., Autism Spectrum Disorder (ASD), Attention Deficit Hyperactivity Disorder (ADHD), and Oppositional Defiant Disorder (ODD)] are described with respect to their presentation in young children. This is followed by an outline of general assessment guidelines and specific instruments and methods for the identification and diagnosis of these developmental disabilities. The chapter concludes with examples of young children who represent common referral concerns for case study discussion and assessment planning.

Keywords Early childhood developmental disabilities · Early assessment of autism spectrum disorder · Preschool ADHD · Early childhood oppositional defiant disorder · Autism screening measures · BASC-3 preschool · CBCL-preschool

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A. Garro (ed.), *Early Childhood Assessment in School and Clinical Child Psychology*, DOI 10.1007/978-1-4939-6349-2_10

Introduction

Young children exhibit aggression, disruptive behavior, hyperactivity, and impaired social interactions for different reasons. Children under six years of age can be expected to display these behaviors to some extent, particularly when under duress, tired, sick, scared, or when learning how to express frustration and assert independence. However, when young children experience more sustained difficulties managing their emotions or behavior, the quality of their relationships with caregivers or peers may suffer, and these difficulties might limit the ability to successfully engage in educational settings. Early identification and accurate assessment of developmental disabilities is critical so that targeted support and evidence-based interventions can be accessed to facilitate optimal development and functioning. While psychologists can consult with parents and caregivers about evidence-based strategies to support healthy social-emotional development and positive early relationships for any child who demonstrates challenging behaviors, a critical role for early childhood psychologists is to understand when these behaviors suggest a potential underlying disability and how to conduct accurate diagnostic assessments.

This chapter focuses on the identification and assessment of suspected developmental disabilities and externalizing disorders during early childhood. It begins with a description of general considerations for psychological evaluations of young children who demonstrate significant behavioral and social-emotional problems. Next, three of the most common developmental disabilities in early childhood [i.e., Autism Spectrum Disorder (ASD), Attention Deficit Hyperactivity Disorder (ADHD) and Oppositional Defiant Disorder (ODD)] are described. This is followed by an outline of general assessment guidelines and specific instruments and methods for the identification and diagnosis of these developmental disabilities. The chapter concludes with examples of young children who represent common referral concerns for case study discussion and assessment planning.

Literature Review

Background Related to Developmental Disabilities in Early Childhood

All young children demonstrate behaviors that might be of concern to parents at some point, including heightened emotionality and temper tantrums, aggression, defiance, and high levels of activity. However, an underlying disability or neurodevelopmental disorder might be present when the behaviors are more frequent, intense, sustained or persistent, or when they markedly interfere with a child's ability to engage in daily activities and appropriate social interactions. Psychologists who work with children under six years of age need to have a solid working knowledge of typical development and how to address parent concerns about social-emotional

development and challenging behaviors, including how to screen for developmental disabilities and externalizing disorders and how to conduct accurate diagnostic assessments when indicated. Children with developmental disabilities and those with disruptive or externalizing disorders are at increased risk for long-term social and academic difficulties (American Academy of Pediatrics, 2011). Early identification and participation in evidence-based interventions are key strategies to reduce and prevent problems, as well as to promote better health and functional outcomes for children with developmental disabilities. Obtaining an accurate diagnosis in a timely manner is important for treatment planning and can benefit children by allowing access to early intervention services and special education resources.

The Centers for Disease Control and Prevention (CDC) define developmental disabilities as a "group of conditions due to impairments in physical, learning, language, or behavior areas". Recent estimates suggest one in six children between the ages of 3 and 17 (15 %) has a developmental disability (CDC 2015a). National prevalence rates collected between 1997 and 2008 showed a 17 % overall increase in developmental disability rates reported by parents and documented "significant and successive" increases in both ASDs and ADHD, with those two diagnoses accounting for most of the change in rates (Boyle et al., 2011).

Behavioral manifestations of different developmental disabilities during early childhood can look similar. Not only are there shared behavioral concerns and common indicators among diagnoses, there is heterogeneity of the combinations of symptoms within each disability category. For example, aggressive, disruptive, and oppositional behaviors are frequently reported for young children with an ASD, ADHD, or ODD diagnosis. Within these disabilities, there are also overlapping symptoms that are present with anxiety, learning disorders, and intellectual disability. To further complicate accurate diagnosis, children might meet criteria for multiple diagnoses among developmental disabilities and psychological disorders. Problematic behaviors prompting an assessment referral might also be due to other factors including exposure to trauma, communication difficulties or other developmental delays. Child functioning is influenced by general health, temperament, disciplinary practices and other aspects of the family environment (e.g., family conflict, parent mental health status, etc.). Therefore, depending on the referral concerns presented, initial case conceptualization should consider differential diagnosis and dual diagnosis, as well as attempt to rule out other causes for behaviors such as trauma exposure and heightened family or situational stressors.

General Considerations for a Diagnostic Assessment of a Developmental Disability

Diagnosis is a complex process. Accurately identifying a developmental disorder in early childhood requires clinical judgment and the use of multiple measures and sources of information that consider history, context, and current functioning across

settings and over time. The cause of developmental disabilities, including autism and ADHD, is generally considered to be a combination of complex variables, some of which begin prenatally, including genetic factors, exposure to toxins, infection, and injury. For each of the disorders considered in this chapter, there is no known definitive cause, biological marker, or single test that can be used to diagnose a child. Further, there is heterogeneity of symptoms for each child who meets diagnostic criteria, as all children have a unique constellation of resources, family support, and individual strengths and limitations that influence functioning and ongoing development.

A comprehensive psychological evaluation begins with timely screening for common risk factors. Selecting and administering reliable and valid screening measures and collecting adequate background information from parents is often a first step to determine when a referral for an evaluation or diagnostic assessment should be made. While early childhood psychologists' roles in an initial developmental screening might vary, they should be able to understand and interpret screening measures and assessment methods for developmental disabilities. Once a referral for a diagnostic assessment is made, psychologists might be required to conduct the evaluation independently or as part of a multidisciplinary team. They will need to know both typical and atypical behavior during early childhood from infancy to school entry. Understanding typical development in early childhood will help to appropriately frame parent or caregiver concerns. It is also important for diagnostic decisions, as behaviors that indicate a developmental disability need to be markedly inconsistent with a child's age and developmental level. Psychologists need to know established diagnostic and differential diagnosis criteria; best practices in assessment, including selection of valid measures; and how to interpret results within a biopsychosocial framework that informs treatment planning and takes into account cultural background and environmental facilitators and barriers. For example, maternal psychosocial adversity has been associated with poorer emotion regulation for infants to children 5 years of age (Halligan et al., 2013).

There are a variety of standardized measures that are commonly employed as part of screening or diagnostic evaluations in young children. A number of these measures are broad-band, meaning that they cover a wide range of symptoms and problematic behaviors. Many of these are parent-report instruments, which pose both strengths and limitations as part of the evaluation process. Parental input is necessary and valuable to provide a comprehensive picture of the child's functioning, though parents might present a biased perspective. A sample of these measures is summarized in Table 10.1.

Autism Spectrum Disorders (ASDs)

ASDs are a group of neurodevelopmental disabilities characterized by pervasive and sustained impairments in social interaction, communication, and behavior. More specifically, symptoms involve problems in reciprocal communication and initiating

Table 10.1 General Measures of Social-Emotional and Behavioral Functioning in Young Children

Screening Measures	
Ages and Stages Questionnaires: Social-Emotional, Second Edition (ASQ: SE-2) (Squires et al., 2015)	• Parents complete this measure to identify social—emotional difficulties for children ages 1–72 months of age • 9 different age questionnaires, 30 items per questionnaire • Administration time 10–15 min
Brief Infant Toddler Social Emotional Assessment (BITSEA) (Briggs-Gowan & Carter, 2006b)	• The BITSEA scales and newly calculated BITSEA Autism score have good discriminative power to differentiate children with and without ASD (Kruizinga et al., 2014) • For children 12–36 months of age • Parent report, total problems score, competence score, autism composite • 7–10 min to complete • 12–36 month
The Devereux Early Childhood Assessment Preschool 2nd Edition (DECA-P2) (LeBuffe & Naglieri, 2012) **The Devereux Early Childhood Assessment for Infants and Toddlers (DECA-I/T)** (Mackrain, LeBuffe, & Powell, 2007)	**DECA-P2** **(DECA-I/T)** • Both are strengths based, standardized norm referenced behavior rating scales • Both have three key protective factors related to resilience: initiative, self-regulation and attachment/relationships both yield a total protective factors score • DECA-P2 is the parent report measure for children ages 3–5 years • DECA-P2 includes a behavior concerns screener score • DECA-I/T is for children ages 1 month–2 years
Strengths and Difficulty Questionnaire (SDQ)(Goodman, 2007)	• Parent or teacher completed questionnaire as a general psychosocial screening • 10 min to complete • For children ages 3–17 • 25 items; 5 scales (extended versions include items about impact) • Scales include: Emotional Symptoms, Conduct Problems, Hyperactivity/Inattention, Peer Relationship Problems and Prosocial Behavior Available for free at: http://www.sdqinfo.com/a0.html
Diagnostic Assessment Measures	
Behavior Assessment System for Children Third Edition (BASC-3) (Reynolds & Kamphaus, 2015)	• Norm referenced, standardized rating scale that assesses current level of social and emotional functioning. It assesses a wide range of child behavior problems and psychopathology, including attention

(continued)

Table 10.1 (continued)

	problems, hyperactivity, and aggression. The behavioral ratings are categorized as average (normal for age), at-risk, or clinically significant • The instrument includes several composite and scale scores including the Behavioral Symptoms Index (BSI), which is a Composite score suggesting overall level of behavioral problems • Describes the child's current behavior or behavior evidenced within the past six months • Ages 2–5 years (preschool); child (6–12 years) • Administration time 10–20 min
The Child Behavior Checklist (CBCL) 1.5-5 (Achenbach & Rescorla, 2001)	**1.5-5** • Part of the Achenbach System of Empirically Based Assessment (ASEBA) system • Children ages 1½–5 years • 99 items rated by parents and a teacher's/caregiver's form (Caregiver-Teacher Report Form, C-TRF); Language Development items for children 18–34 months of age • Assesses internalizing problems externalizing problems and sleep problems. 15–20 min for administration • There is also multicultural supplement to manual which describes development of multicultural norms and illustrates multicultural scoring
The Devereux Early Childhood Assessment Clinical (DECA-C) (LeBuffe & Naglieri, 2003)	**Supports early intervention to reduce or eliminate behavioral or social-emotional problems** • Used for children already showing social-emotional concerns • For children 2–5 years • Standardized, norm referenced behavior rating scale. Contains all of the resiliency and strength-based items found on regular DECA-P • Also contains four scales to assess problem areas including: Aggression, Attention Problems, Emotional Control Problems, and Withdrawal/Depression • Can be completed by parents or teachers
Infant Toddler Social Emotional Assessment (ITSEA) (Briggs-Gowan & Carter, 2006a)	• For young children ages 12–36 months • Administration time 25–30 min • Yields *T* scores for four broad domains, 17 specific subscales, and three index scores

and carrying out age-appropriate social interactions as well as behavioral patterns, and interests or activities that are restricted and/or repetitive. The primary symptom of an ASD is impaired social interaction (APA, 2013c). Symptoms are initially present in early childhood and profoundly impact daily functioning for a child.

During the last 20 years, the number of children diagnosed with an ASD has dramatically increased. In the 1980s, children were diagnosed at a rate of two to five in 10,000 (Kogan et al., 2009). Autism was once considered rare but has become one of the most common childhood disorders (Fombonne, 2008). According to the CDC, current rates of autism in the United States are now estimated at 1 in 68 children, with rates higher for boys (i.e., 1 in 42) as compared to girls (i.e., 1 in 189) (CDC, 2010). National estimates were derived from health and special education records in 2010 gathered from 11 states for children who were 8 years of age. These rates represent an almost 60 % rise as compared to 2006 and an almost 120 % rise since 2002.

Prevalence of ASD is a highly controversial topic. More specifically, controversy exists about the reason(s) for the increasing rates. Matson and Kozlowski (2011) identified several possible hypotheses, including true increases in prevalence, which might be attributable to a variety of factors; different research methodologies used to establish prevalence rates; new assessment instruments; inaccurate diagnosis; changing diagnostic criteria; diagnosis at earlier ages; and increased awareness and acceptance of ASD. One of the most significant recent changes in diagnostic protocols involves revision of the DSM. More specifically, in 2013, the fifth edition of the DSM collapsed four separate diagnoses (i.e., Autistic Disorder, Asperger's Disorder, Childhood Disintegrative Disorder and Pervasive Developmental Disorder, Not Otherwise Specified, also known as PDD-NOS) into one general ASD diagnosis with ratings for severity of symptoms. The DSM-5 diagnosis of ASD now includes two main behavior categories instead of three, since problems related to social interaction and communication are now grouped under one umbrella instead of two. The second main behavior category still involves restrictive, repetitive behaviors. The change from DSM-IV to DSM-5 was prompted by research indicating that the separate diagnoses, particularly Autistic Disorder and Asperger's Disorder, could not be reliably differentiated from each other as well as research demonstrating low validity for the separate diagnoses (see Frazier et al., 2012; Lord et al., 2012; Miller & Ozonoff, 2000; Macintosh & Dissanayake, 2004).

Children with ASD are also being diagnosed at earlier ages (Guthrie et al., 2013). Earlier diagnosis is occurring for a variety of reasons. There has been a decrease in average age of first diagnosis, as parents and professionals become more familiar with manifestations of early symptoms and where to receive professional help (Shattuck et al., 2009). Increased public awareness has been important in facilitating diagnosis, as national government and nonprofit organizations have led public campaigns, initiated advocacy efforts for early and universal screening, and provided information about signs and behavioral indicators during infancy and early childhood. In addition, research conducted over the past decade, from both retrospective and prospective studies, has begun to document discriminating behaviors in infancy, altogether indicating an increased need for diagnostic assessment of children early in life (Zwaigenbaum et al., 2009). The importance of

an early ASD diagnosis is highlighted by accumulating evidence demonstrating the effectiveness of early childhood intervention programs (e.g., Reichow, 2012). Further, the earlier the diagnosis of ASD, the more time for participation in interventions and services that can positively influence the functioning and developmental trajectory of affected children and provide supports for their families.

Although diagnosis is occurring earlier in life for many children with ASD, the average age of diagnosis is still not until almost 4 years of age. In 2010, the Autism and Developmental Disabilities Monitoring (ADDM) Network examined prevalence of ASD across 11 US states and found that the average age of participation in a comprehensive evaluation was 44 months. However, 36 % of children did not have a comprehensive evaluation until after 4 years of age even though the majority of families (i.e., 89 %) had developmental concerns before their children were three years of age (Baio, 2014). Despite the call and sound rationale for earlier diagnosis, early detection continues to present a number of challenges, especially in children younger than three. This is due to the fact that characteristic behaviors might be hard to identify until they become more prominent and distinctive from general developmental delay (Sunita & Bitszta, 2013).

Several researchers have examined diagnosis of autism in children as young as two (e.g., Kleinman et al., 2008; Zwaigenbaum et al., 2009). Early signs may be noted as early as 12 months, and are typically recognized by 24 months with appropriate screening and/or assessment. Signs that might be reported by parents at these young ages include a child's apparent inability to hear or lack of response to others, delays in language development, and low or diminished interest in social interactions. Parents may be concerned that a child loses communication skills or stops acquiring expressive language. According to the CDC 2015b, 40 % of children with autism will be nonverbal or have no expressive language and 25–30 % will have some words in infancy and lose them after 18 months. Below is a list of very early indicators or possible "red flags" that require evaluation by an expert.

- No babbling or pointing by age 1
- No single words by 16 months or two-word phrases by age 2
- Not responding to name by 12 months of age
- Not pointing at objects to show interest (e.g., pointing at an airplane flying over) by 14 months
- Loss of language or social skills
- Poor eye contact
- Excessive lining up of toys or objects
- No smiling or social responsiveness
- Not engaging in "pretend" games/activities (e.g., pretend to "feed" a doll) by 18 months

Behavioral indicators during toddlerhood include:

- Limited interest in social and reciprocal face-to-face interactions (unless interactions are also physical such as rocking, tickling, tossing in the air)
- Seeking physical comfort from parents infrequently

- Limited response to name
- Fleeting eye contact or eye contact that is not consistent with social interactions
- Communication that is scripted, repetitive, or with unusual pitch and intonation
- Limited creativity or pretend in play
- Uses few or no gestures
- Moving quickly between toys and objects, stereotypical play, or unusual sensory interest in exploring objects (e.g., licking toy, sniffing objects, rubbing toy on face)
- Motor mannerisms such as hand flapping, toe walking, repeatedly opening and closing doors
- Flat or inappropriate facial expressions

Later early childhood behavioral indicators include:

- Avoiding eye contact and wanting to be alone
- Having trouble understanding other people's feelings or talking about their own feelings
- Impaired ability to make friends or develop relationships with peers
- Impaired ability to initiate or sustain conversations with others
- Does not share interests with others
- Absence or impairment of imaginative and social play
- Stereotyped, repetitive, or unusual use of language
- Excessive use of repetitive words or phrases (echolalia)
- Giving unrelated answers to questions
- Restricted patterns of interest that are abnormal in intensity or focus
- Preoccupation with certain objects or topics
- Getting upset by minor changes
- Delayed speech and language skills
- Inflexible adherence to specific routines or rituals
- Having obsessive interests
- Does not understand jokes, sarcasm, or teasing

There are other common behavioral symptoms including temper tantrums, hyperactivity, aggression, unusual sleeping and eating patterns, sensory sensitivity, and either heightened fear or lack of fear in situations (CDC 2015b; Steiner et al., 2012). ASD is frequently associated with impairments in intellectual functioning and structural language disorder. The co-occurrence rate for ASD with other developmental, chromosomal, genetic, and psychiatric disorders is approximately 83 % (Levy et al., 2010). While anxiety is not a defining characteristic of ASD, prevalence rates for comorbid anxiety disorders and ASD range from 11 to 84 %, averaging around 40–50 % (White, Oswald, Ollendick, & Scahill, 2009).

Assessment guidelines and recommendations. A diagnosis of ASD often begins with a developmental screening at a pediatrician's office or early intervention center. According to recommendations of the American Academy of Pediatrics, all 18- and 24-month-old children should be screened for ASD (Zwaigenbaum et al., 2009). Early and accurate diagnosis of an ASD enables families to learn about their

child's developmental challenges, cope with caregiving demands, seek appropriate services, and obtain generic counseling (Shattuck et al., 2009). The American Academy of Pediatrics also recommends rescreening for children who are younger than 24 months of age. Children who are found to be at-risk on screening measures should be referred for comprehensive diagnostic evaluations consisting of multiple measures and methods. Referrals for genetic testing should be made if warranted.

Various screening instruments have been developed to help identify young children at risk for autism in primary care settings (Sunita & Bitszta, 2013). Table 10.2 provides a description of commonly used ASD screening measures. The most common ASD-specific screening tool used in primary care is the Modified-Checklist for Autism in Toddlers (M-CHAT; Robins, Fein, & Barton, 2009). It is available for free online: http://www.firstsigns.org/downloads/m-chat.PDF and in an electronic format (https://www.mchatscreen.com; https://www.autismspeaks.org/). The M-CHAT was modified from the Checklist for Autism in

Table 10.2 ASD Screening Measures

Modified Checklist for Autism in Toddlers (M-CHAT) (Robins, Fein, Barton, & Green, 2001)	• Parents answer 23 yes/no questions to screen for autism spectrum disorder (ASD) • For children ages 16–30 months • A follow-up interview is warranted if child "fails" the screen before referral to comprehensive autism evaluation (2 critical items or 3+ non-critical items)
Screening Tool for Autism in Toddlers and Young Children (STAT)™	• The STAT is "level 2 screen" a play-based interactive assessment designed to identify signs of ASDs in referred or at-risk children • 12 items; about 20 min to administer • For children between 24 and 36 months of age • Screening tool for autism in two-year-olds (STAT) • http://vkc.mc.vanderbilt.edu/vkc/triad/training/stat/ • http://stat.vueinnovations.com/about
The Modified Checklist for Autism in Toddlers, Revised with follow-up (M-CHAT-R/F) (Robins et al., 2009)	• Simplifies wording of the original M-CHAT • Two-stage screener with follow-up parental interview for positive screens • Available for free at: www.mchatscreen.com
Brief Infant Toddler Social Emotional Assessment (BITSEA) (Briggs-Gowan & Carter, 2006)	• The BITSEA scales and newly calculated Autism score have good discriminative power to differentiate children with and without ASD (Kruizinga et al., 2014) • For children 12–36 months of age • Parent report, total problems score, competence score, autism composite • 7–10 min to complete

Toddlers (CHAT) and has been recently revised as the M-CHAT-R/F (Robins, Fein, & Barton, 2009) as a two part-screener with simplified language, a few less items and recommended follow-up interview for positively screened children. The M-CHAT-R/F was designed and validated to address issues of sensitivity and high false positives from the M-CHAT. The addition of the parent interview with follow-up questions to the M-CHAT-R/F also follows recommended best practices and helps clinicians better understand parental responses (Zwaigenbaum et al., 2009). The most common early signs captured by the M-CHAT are impairments or delays in early emerging social communication behaviors, though sensory sensitivities or restricted play might also be early indicators of later ASD. Clinicians are cautioned about interpreting the early signs documented in the screening because these behaviors are not necessarily specific to ASD and might be representative of other neurodevelopmental disorders (Charman & Gotham, 2013). Having a parent expand upon the concerns they identified in the screening (e.g., what do they notice, when, how often, and under what circumstances) will provide necessary information to understand the child's functioning and determine if referral for a comprehensive psychological evaluation is warranted. Information about how the child interacts in other social environments (e.g., child care) should also be gathered when possible. Hearing should be assessed by an audiologist.

The CDC provides information about other common measures used in autism screening, including the Ages and Stages Questionnaire (ASQ), the Parents Evaluation of Developmental Status (PEDS) and the Screening Tool for Autism in Toddlers and Young Children (STAT) (See http://www.cdc.gov/ncbddd/autism/hcp-screening.html for information regarding these measures. In addition, there are instruments that aim to screen for ASD with infants. For example, The First Year Inventory (FYI; Baranek, Watson, Crais, & Reznick, 2003; Reznick, Baranek, Reavis, Watson, & Crais, 2007) is a parent-report measure that contains items in the social communication and sensory regulatory domains. Although the FYI is still only available for research purposes, the developers have conducted several validation studies, a retrospective study, and an outcomes study and translated the tool into several different languages, including Spanish, Hebrew, Dutch-Flemish, Italian, and Chinese.

Following a developmental screening, a child determined to manifest risk for autism should be referred for a diagnostic assessment. Diagnosis of an ASD is most valid and reliable when derived from a multifaceted assessment approach. Use of standardized measures as well as interviews, behavioral observations, and review of records are essential for accurate diagnosis. Interviews with parents and/or other caregivers should be thorough and cover information about pregnancy, delivery, medical history, and developmental milestones, as well as psychosocial stressors and trauma exposure, both to rule out other disorders and better understand the child's functioning. Behavioral observations should be conducted across settings to the greatest extent possible to provide information about the consistency of the child's skills and functioning in different contexts. Vision and hearing screens should be performed to understand sensory functions. Standardized cognitive, language, and motor tests should be administered. For children under age 3, the

Bayley Scales of Infant and Toddler Development (Bayley-III) can be used to assess these domains. Parents and teachers/caregivers should also complete standardized scales related to adaptive and social-emotional functioning. During the assessment, psychologists should note how the child responds to parents, new adults, and requested tasks, and should also carry out unstructured play activities while attending to nonverbal communication, shared attention and enjoyment, social interaction and sensory seeking behaviors. Clinical judgment is also necessary to interpret behavioral presentation and developmental history. Evaluations may be conducted in a multidisciplinary setting by a team of pediatric professionals including a psychologist, physician, speech-language pathologist, and occupational therapist. A psychologist might also be asked to conduct a comprehensive evaluation independently through private practice, outpatient behavioral health clinic in a hospital setting, or within a school to determine educational impact and eligibility for special education services.

As noted above, the DSM-5 (APA, 2013a) made major revisions related to autism. In addition to the collapsing of the former categories in the DSM-IV into one ASD diagnosis, other changes were made. For example, the DSM-5 indicates that a person must meet all three of the criteria under problems in social interaction and communication, which include deficits in: (a) social-emotional reciprocity, (b) nonverbal communication used in social interaction, and (c) development and maintenance of relationships. For each of these three, more specific behaviors are delineated. Under the category of restrictive, repetitive patterns of behavior, interests or activities, individuals must show at least two of the four symptoms listed. The DSM-5 also outlines three levels of severity specifiers for ASD symptoms, and severity level may change ìover time and across environments due to many factors including development, acquisition of new skills, and changes in environmental demand.

Autism-specific measures include standardized play-based direct assessment, parent questionnaires and interviews, and structured clinician observations. One of the most highly regarded instruments is the Autism Diagnostic Observation Schedule (ADOS). The most recent version is the ADOS-2 (Lord et al., 2012) which contains five modules, including the Module T (Toddler). This revision was done to address the limited utility of the ADOS-G (Lord et al., 2000) to assess young children. The ADOS-2 Model T was created for use with children under 30 months of age with a nonverbal mental age of at least 12 months. Module 1 of the ADOS-2 is better for children over 30 months unless the child has sufficient language for Module 2 (Luyster et al., 2009). It is important for clinicians to be aware of the behaviors of infants and toddlers in an unknown context with unknown adults and toys to determine if the behaviors are typical for the child; therefore, a parent or familiar caregiver is always in the room to confirm if the behavior is representative of other contexts and clinicians should attempt to explain the key observations to parents in behavioral terms (Luyster et al., 2009). Regarding clinician observation measures, the CARS is a popular instrument and the ADI-R is often used as a comprehensive parent interview (Lord et al., 1994). These measures are described briefly in Table 10.3.

Table 10.3 Autism Specific Measures

Autism Diagnostic Observation Schedule-Second Edition (ADOS-2) (Lord et al., 2012)	• The ADOS-2 is a semi-structured, standardized play-based assessment of ASD behaviors (Lord et al., 2012) • The measure includes separate (but overlapping) modules for individuals of different ages and language abilities • The ADOS-2 has 5 modules and takes between 40 and 60 min administration time • Administered in a child-friendly, small room. Each activity provides a hierarchy of presses for the examiner on a 3-point scale with higher scores indicating greater severity of symptoms
Autism Diagnostic Interview-Revised (ADI-R) (Rutter et al., 2003)	The ADI-R is a standardized, semi-structured parent interview that is administered face-to-face by a trained clinician in approximately 90–150 min • 93 items focusing on early development, language/communication, reciprocal social interactions, and restricted, repetitive behaviors and interests • The validity for young children is problematic (when mental age is under 18 months and it tends to over diagnose nonverbal children)
Childhood Autism Rating Scale, Second Edition (CARS2) (Schopler, Van Bourgondien, Wellman, & Love, 2010)	For Children 2 years of age and older The child is rated on 15 subscales based on observation with 5–10 min to complete the form after the observation 15 items rated
Social Responsiveness Scale Second Edition (SRS-2) (Constantino, 2012)	The SRS-2 identifies level of Social Impairment 65-item rating scale that is completed by parents/teachers Provides information about social functioning including social awareness, social reciprocal communication, social anxiety and stereotypic behavior/restricted interests Each item rated on a 4 point scale from "not true" to "always true" 15–20 min administration time For Ages 3 through 99 years

Attention Deficit Hyperactivity Disorder (ADHD)

ADHD is the most common neurobehavioral disorder of childhood (Hendriksen et al., 2015). Recent clinical estimates for prevalence of ADHD range from 5 % (APA, 2013b) to 6.69 % (Boyle et al., 2011). National data examining community samples have documented up to 11 % of children as ever having received this

diagnosis based upon parental report (Visser et al., 2014). ADHD can profoundly affect children's social interactions, interpersonal relationships, educational performance, and overall wellbeing (American Academy of Pediatrics, 2011). Common referral concerns for ADHD include behaviors such as high activity level, impulsivity, and poor attention. Most referrals for an evaluation and diagnosis occur between the ages of 7–9 years (Smith & Corkum, 2007) with the average age of diagnosis at 7 years of age. However, initial age of symptom onset often occurs earlier, between ages 3–4 (Smith & Corkum, 2007). Also, Visser et al. (2015) note that children who exhibit more severe symptoms are generally diagnosed earlier, usually around 4 years of age.

Although there is less information about ADHD in younger children, research suggests that prevalence rates for preschoolers are similar to those in older children (Egger & Angold, 2006; Egger, Kondo, & Angold, 2006). In addition, research indicates that preschoolers with ADHD show profiles of symptoms (e.g., high levels of inattention, impulsivity and overactivity) and deficits that are quite similar to those in school-age and older children with the disorder (Gadow & Nolan, 2002; Wahlstedt, Thorell, & Bohlin, 2008). Despite these factors, many researchers and practitioners often regard accurate diagnosis of ADHD in younger children as more difficult compared to diagnosis in school-age children and adolescents. Also, there is ongoing controversy regarding assessment and diagnosis of the disorder for younger children (Smith & Corkum, 2007). While the American Academy of Pediatrics guidelines (2011) suggest that children as young as four can be diagnosed with ADHD, many question why an increasing number of ADHD diagnoses are being given to preschool-age children each year and concerns remain about the use of stimulant medication with young children.

Some research has examined etiology of ADHD as well as trajectories of development. According to the research and conceptualizations of Larsson, Larsson, and Lichtenstein (2004) and Daley, Jones, Hutchings, and Thompson (2009), gene–environment interaction is the best predictive model in explaining ADHD. According to Daley et al., there are two specific theoretical models that have been examined to explain the development and maintenance of ADHD. One of these is the model of cognitive dysregulation espoused by Barkley (1997) as well as Thorell and Wahlstedt (2006). According to this model, children with ADHD show deficits in executive functioning, particularly problems when it comes to inhibiting responses. These deficits make it more likely for them to behave impulsively and become distracted by stimuli in their environment as compared to other children their age. The other primary model focuses on motivational processes and posits that children with ADHD behave impulsively and become fidgety and distractible because they are trying to avoid delay from preferred objects and activities in their environment (Sonuga-Barke, Houlberg, & Hall, 1994). Both of these models have received empirical support in studies of preschool children with ADHD (Kuntsi, Oosterlaan, & Stevenson, 2001; Sonuga-Barke, Dalen, & Remmingtom, 2003; Thorell & Wahlstedt, 2006).

One of the primary challenges with diagnosis in the preschool period is difficulty differentiating true ADHD symptoms from behavior that would be considered

typical in younger children. For example, younger children are often quite active, so practitioners might be hesitant to state that a three- or four-year old is showing an excessive activity level, which is one of the possible symptoms of ADHD. Similarly, from a developmental perspective, preschoolers do not have the same attention span as school-age children, and teachers, parents, and clinicians might have difficulty delineating a clear line as to what constitutes attentional difficulties. Therefore, it is important for psychologists and mental health professionals to know how to understand appropriate age-based behaviors; parent concerns about attention and activity level are common during early childhood. One general guideline that clinicians should apply in assessing ADHD in a younger child is to ask: Is this behavior more frequent or intense than what is seen in other children of the same age. This guideline requires knowledge and experience working with younger children to understand what is considered typical and atypical.

According to Mahone (2012) **early signs of possible ADHD include**:

- Dislikes or avoids activities that require paying attention for more than a few minutes
- Loses interest and moves on to another activity after engaging in an activity quickly
- Talks more and makes more noise compared to same age peers,
- Climbs on things even when told not to
- Not able to hop on one foot by age 4
- Almost always restless (e.g., consistently moving feet, twisting around in seat, insisting on getting up from seat)
- Fearlessness results in getting into dangerous situations
- Warms up too fast to strangers
- Frequently aggressive with peers; has been removed from preschool/daycare for aggression
- Receives injuries because of moving too fast or running when told not to do so

According to Nass (2006) **characteristics of preschool children with ADHD include**:

- Rushes through tasks and pays little attention to details
- Difficulty paying attention to tasks or play activities appropriate for chronological age
- Not seeming to listen
- Shifts frequently from one activity to another
- Difficulty organizing activities that other children can organize
- Avoids doing tasks that require mental effort
- Frequently or easily loses items
- More easily distracted than other children the same age
- Is forgetful
- Fidgets or squirms
- Has difficulty remaining seated

- Runs about or climbs on things when asked not to
- Has difficulty playing quietly
- Always on the go
- Talks excessively
- Blurts out answers before the question is complete
- Shows difficulty waiting for his/her turn or taking turns
- Interrupts people or disrupts group activities

Assessment guidelines and recommendations. The DSM-5 defines ADHD as a persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development. Symptoms must negatively impact functioning in social, school/academic or occupational domains (APA, 2013b). There are three presentation types: Inattentive, Hyperactive-Impulsive, and Combined Inattentive/Hyperactive-Impulsive. Inattention includes difficulty sustaining focus, disorganization, high distractibility, and poor persistence with tasks. Hyperactivity is excessive motoric activity that is inappropriate for the situation/environment. Impulsivity reflects actions without forethought. There is a higher probability for potential harm with behaviors that are impulsive. Impulsive behaviors are often prompted by desire for immediate gratification. Symptom manifestation must be present in more than one setting; however symptom presentation may vary across settings. In the DSM-5, symptoms are grouped under the two main categories of Inattention and Hyperactivity and Impulsivity. Children must demonstrate six or more symptoms listed under one or both categories, and symptoms must be present for at least 6 months. The DSM-5 highlights that "symptoms are not solely a manifestation of oppositional behavior, defiance, hostility, or failure to understand tasks or instructions" (American Psychiatric Association, 2013b). Clinicians must also document the level of severity of ADHD as "mild," "moderate," or "severe" (see DSM-5 for definitions). A review of diagnostic criteria can also be found at http://www.cdc.gov/ncbddd/adhd/diagnosis.html.

Diagnosis is a multi-step process. Assessment of ADHD in preschoolers needs to be a careful, multifaceted process that involves a variety of methods and measures (Smith & Corkum, 2007; CDC, 2016). There is no one test of ADHD, but a comprehensive evaluation should include parent/caregiver interviews, including gathering of a medical and developmental history; standardized behavioral rating scales; and behavioral observations. For many children, direct assessment of cognitive, language, and motor functioning is helpful for understanding the child's symptoms and functioning and also for purposes of differential diagnosis and establishing co-morbid diagnoses. On cognitive measures, children with ADHD may show lower performance on Working Memory and Processing Speed Indices. Academic or pre-academic testing might be beneficial for some children. This can help identify co-occurring learning problems and/or examine the potential impact of inattention and other symptoms on educational performance.

The diagnostic assessment should begin with an intake interview to obtain background information about parent concerns and description and chronicity of behaviors. In fact, the history/intake interview has been referred to as the

"cornerstone of diagnostic assessment" for ADHD (Nass, 2006). Information about medical and developmental history including pregnancy, birth, and hospitalizations, chronic health conditions, medications, sleep and early education or caregiving environments should be obtained. Prenatal, perinatal, and other early environmental factors that may increase risk for ADHD include maternal smoking and/or alcohol/drug use during pregnancy, prematurity and/or low birthweight, brain injury, and exposure to lead or pesticides (Froehlich, 2011). In addition, clinicians should ask about family health history, recent stressors, including potential exposure to trauma, and other psychosocial risks (e.g., financial strains, family conflict, etc.). While these are not considered causal factors in the development of ADHD, they can impact how symptoms are manifested and how the family responds to symptoms. In addition, in some cases, young children show behaviors that seem characteristic of ADHD but are connected to other psychological problems. For example, anxiety may cause restlessness that is interpreted as hyperactivity, and chronic worrying may cause a child to be inattentive.

A comprehensive evaluation should also include measures that are designed to document behaviors and functioning that reflect diagnostic criteria for ADHD. Parents and other caregivers, such as preschool teachers, should complete standardized behavioral ratings scales. These may be general (e.g., CBCL) or ADHD specific (e.g., Conners). It is helpful for initial evaluations to include both general and specific measures to inform an initial diagnosis, rule out other disorders, and/or make a dual diagnosis. Diagnosis of ADHD requires problematic behaviors over time in more than one setting, so it is crucial to gather information from multiple informants. Results from rating scales should be compared to assess functioning across different environments. It is important to note that differences in results across informants might be due to varying perspectives of teachers, parents, and other caregivers or due to actual differences in how the child behaves in these contexts.

Table 10.4 describes measures that are commonly used in the assessment of ADHD. All of these standardized instruments can be used to aid the diagnostic process, but none of them should be used in isolation to make a diagnosis.

Table 10.4 Instruments for Assessing ADHD in Young Children

Conners Early Childhood (Conners EC) (Conners, 2007)	• Goal is to "aid in the identification of behavioral, social and emotional problems" • For children ages 2–6 years • 15 min to complete; administered online or paper-pencil • Spanish version available; parent version (190 items) and teacher/child care provider version (186 items) • There are also Conners EC developmental milestones and Conners early childhood behavior forms when milestones have been met

(continued)

Table 10.4 (continued)

The Behavior Rating Inventory of Executive Function-Preschool Version (BRIEF-P) (Gioia, Isquith, Guy, & Kenworthy, 2000)	• Standardized measure of executive functioning for children ages 2–5 years • Can serve as a screening tool for possible executive function difficulties • 63 items that produce scores for five scales that form the Global Executive Composite (GEC) (i.e., inhibit, shift, emotional control, working memory, and plan/organize) • Three overlapping summary indexes (i.e., Inhibitory Self-Control Index (ISCI), which consists of the Inhibit and Emotional Control scales, the Flexibility Index (FI), Emergent Metacognition Index (EMI), which is composed of Working Memory and Plan/Organize scales
Behavior Assessment System for Children-Third Edition (BASC-3) (Reynolds & Kamphaus, 2015)	• BASC-3 is a broad-band instrument and is not a specific ADHD diagnostic instrument • Parent Report Scale-Preschool (PRS-P) and Teacher Rating Scale-Preschool (TRS-P) are applicable to children ages 2–5 years • Both PRS-P and TRS-P have the following composites: (a) Externalizing problems (b) Internalizing problems (c) Adaptive skills (d) Behavioral symptoms index • Externalizing Problems composite includes Hyperactivity and Aggression scales, both of which can be applicable to assessment for ADHD • Internalizing Problems composite includes Anxiety, Depression, and Somatization scales • Adaptive Skills composite of both PRS-P and TRS-P includes Adaptability, Social Skills, and Functional Communication scales; on the PRS-P this composite also includes Activities of Daily Living scale • Behavioral Symptoms Index includes the Attention Problems, Atypicality, Withdrawal, Depression, Hyperactivity and Aggression scales • Includes a new Parenting Relationship Questionnaire (PRQ) designed to assess the parent's perspective on relationship with child • Structured Developmental History (SDH) can be completed by clinician or parent to provide specifics about child's medical and developmental history and can provide useful information for ADHD assessment

(continued)

Table 10.4 (continued)

The Child Behaviour Checklist (CBCL 1.5-5) (Achenbach & Rescorla, 2001)	• Includes *DSM oriented scales* for ADHD, ASD, depressive problems, anxiety problems, and ODD problems which can contribute to diagnostic process • The Externalizing Problems Scale contains subscales for Attention Problems and Aggression which can also help inform clinical diagnosis

Oppositional Defiant Disorder (ODD)

At certain stages of a child's development the exhibition of oppositional behavior is normal. Increased sense of autonomy and experience, developing cognitive abilities and refining motoric and language skills equate to more strong-willed behavior in early childhood. So how do we distinguish between developmental norms and atypical oppositional behavior? Key considerations in distinguishing between behaviors that are normative and symptoms of ODD include frequency and persistence of problematic behaviors, number of diagnostic criteria met over the preceding 6 month period, and identifying whether or not there is a pattern of problematic interactions with others. There has been an increased focus on externalizing behaviors in early childhood due, in part, to the limited effectiveness of treatment for older children diagnosed with conduct disorder (Shaw, Owens, Giovannelli, & Winslow, 2001).

According to the American Academy of Child and Adolescent Psychiatry (AACAP, 2009) estimates of prevalence rates for children and adolescents with ODD range from 1 to 16 %. However, rates for preschool children are difficult to establish due to lack of confirmatory information for this age group. Regarding predictive validity of an early childhood ODD diagnosis, Keenan et al. (2011) examined the stability of this diagnosis for a group of 223 preschoolers referred to a child psychiatric clinic. About half had been referred due to problems with temper, aggression and defiance and the other half were recruited from pediatric offices. The researchers found evidence for some stability in diagnosis. Among those children diagnosed with ODD, 72 % met criteria for diagnosis one year later, 66.3 % met criteria at a two-year follow-up and 51.7 % of children continued to meet the diagnosis for ODD at the three-year follow-up. It has been hypothesized that externalizing disorders, such as ODD and ADHD, are influenced by under-regulation of negative affect as emotion regulatory deficits have been found to precede externalizing problems (Halligan et al., 2013).

ODD is in the category of Disruptive, Impulse-control and Conduct disorders in the DSM-5. The common thread and unique feature is that ODD involves emotional and/or behavioral regulation difficulties *and* behaviors that "violate the rights of others" causing significant conflict in the child's various environments (e.g., home,

school, society) (APA, 2013d). ODD is characterized by a pattern of excessive anger/irritability/; defiance or argumentative behavior, and/or vindictive conduct. ***Symptoms of ODD may include*** (American Academy of Child and Adolescent Psychiatry, 2013):

Frequent temper tantrums
Excessive arguing with adults
Questioning rules often
Active defiance and refusal to comply with adult requests
Deliberate attempts to annoy or upset others
Blaming another person for his or her mistakes or misbehavior
Often touchy or easily annoyed by others
Frequent anger and displays of resentment
Mean and hateful talk when upset
Spiteful attitude and revenge seeking
High level of negativity

Assessment guidelines and recommendations. As is the case with ADHD, diagnosis of ODD in younger children often presents challenges. This is due to the fact that some of its associated behaviors/symptoms (e.g., defiance, temper tantrums) are often commonly seen in toddlers and preschoolers. However, accurate diagnosis of ODD in younger children requires that the behaviors show greater intensity and/or frequency than what is usually seen in children of the same age. Therefore, clinicians must have knowledge and understanding of typical and atypical behavior in younger children. It is also crucial that they be able to gather comprehensive information from parents, other caregivers, and teachers, if applicable, to understand if the child's behavior constitutes a pattern. The symptoms must also negatively impact one or more areas of functioning or cause distress for the child or someone in his/her immediate context (e.g., parents, teachers, etc.). Interviews can also be beneficial in understanding triggers, after-effects and impact of the child's behaviors.

The DSM-5 criteria for diagnosis of ODD include both emotional and behavioral symptoms that are categorized into (a) Angry and irritable mood (b) Argumentative and defiant behavior, and (c) Vindictiveness. Children younger than five years of age must exhibit the behaviors on most days for a time period lasting at least 6 months and to an extent more often than is typical for same age peers (American Psychiatric Association, 2013d). Symptoms of ODD are almost always present prior to early teen years, and can present as early as preschool age. Clinicians must specify the severity of ODD (i.e., mild, moderate, or severe) based upon the number of settings where symptoms are present.

Similar to ADHD, ODD evaluations should include broad measures of behavior and social-emotional functioning completed by multiple informants such as the BASC and CBCL, which can inform whether ratings are normative or behaviors fall within a clinical range. Clinicians should carefully assess child developmental history and psychosocial risk factors, with a focus on parent–child relationship and

conflicted interactions. In addition, measures such as the DECAI/T, or DECA-C include both protective factors (e.g., attachment to parents) and problem factors to provide better understanding of parent–child relationships. Functional Behavioral Assessments (FBAs) can be beneficial for both diagnostic assessment and intervention planning. Documenting the antecedents and consequences of behavior will provide information about what might be reinforcing problematic behaviors, which helps inform environmental adaptations/interventions as well as parent education and training. As noted previously, there is a high rate of co-morbidity of ADHD for children diagnosed with ODD. Evaluating for dual diagnosis and differential diagnosis is important. Several factors can help differentiate diagnosis for young children, including duration and intensity of anger, triggers for temper tantrums, mood symptoms, and peer conflict. For children with ODD, destructiveness or misbehavior is generally a result of anger rather than carelessness or accident as seen in children with ADHD. A child with ADHD may also have temper tantrums as a result of sensory or affective overstimulation (e.g., transitions) rather than be generally triggered by limit setting and conflict with authority.

Implications for Practice: Linking Assessment to Intervention

Training and competency in the assessment of early childhood developmental disabilities and externalizing disorders enable psychologists to positively contribute to early identification and involvement in early intervention/treatment which, in turn, can prevent secondary conditions and improve long-term outcomes for children. Comprehensive and informed assessment is necessary to differentiate among common disability diagnoses that have overlapping symptoms and diagnostic criteria. It requires a multifaceted approach to understand functioning across settings and the use of valid and reliable measures, keen observational skills, and thorough interviewing of important caregivers. All assessment data should be carefully integrated and used to make targeted recommendations for treatment or intervention. Intervention plans should follow a biopsychosocial framework. Consider the individual child, family, culture, resources, and circumstances. Examining environmental barriers and facilitators to optional health and functioning is important for understanding a child and intervention planning. Functional assessments and treatment planning using a biopsychosocial framework can be enhanced with the use of the International Classification of Functioning, Disability, and Health for Children and Youth (ICF-CY) (http://www.who.int/classifications/icf/en/; www.ICF-CYDevelopmentalCodeSets.com).

There are several empirically supported interventions for young children with ASD, ADHD, and ODD. A list of resources is displayed below in Table 10.5. While medication may be prescribed for children with these disabilities, interventions that include parent–child relationship work and behavioral strategies are

Table 10.5 Resources for Intervention Planning

	Interventions
ASD	For evidence-based interventions see http://autismpdc.fpg.unc.edu/sites/autismpdc.fpg.unc.edu/files/2014-EBP-Report.pdf Wong et al. (2014) https://www.autismspeaks.org/family-services/tool-kits/asperger-syndrome-and-high-functioning-autism-tool-kit/interventions-and-t http://autismguidelines.dmh.mo.gov/documents/Interventions.pdf http://www.apa.org/monitor/2012/10/autism.aspx http://www.firstsigns.org
ADHD	http://effectivechildtherapy.org/content/behavior-therapy-adhd) http://www.cdc.gov/ncbddd/adhd/guidelines.html http://www.nasponline.org/resources/handouts/05-1_S8-05_ADHD_Classroom_Interventions.pdf http://www.apa.org/pi/families/resources/child-medications.pdf http://www.nichq.org/childrens%20health/adhd/resources/adhd%20toolkit
ODD	https://www.aacap.org/App_Themes/AACAP/docs/practice_parameters/odd_practice_parameter.pdf
Parenting and parent–child relationship interventions	Parent Child Interaction Therapy (PCIT): http://www.pcit.org https://www.aacap.org/aacap/Families_and_Youth/Resource_Centers/Oppositional_Defiant_Disorder_Resource_Center/Home.aspx The Incredible Years: http://incredibleyears.com Triple P: http://www.triplep-parenting.net/glo-en/home/ http://www.triplep.net/glo-en/home/ http://www.promisingpractices.net/programs.asp

essential to promoting optional development and functional outcomes for children. Factors such as parent depression and maladaptive parenting practices should also be targeted, particularly during screening and referral when prevention and reduction of significant behavioral problems can occur.

Case Study 1

Referral: Charlie is a four-year-old boy who was referred for a comprehensive psychological evaluation by his parents to address persistent behavioral concerns including hyperactivity, impulsivity, aggression, and noncompliance.

Background: Charlie's parents, Mr. and Mrs. Roberts reported an uncomplicated pregnancy and delivery. Charlie has had no hospitalizations but does have a history of asthma and ear infections. His developmental milestones were reportedly achieved within the expected age ranges. Family psychiatric health history is remarkable for paternal anxiety and ADHD and maternal depression, as well as learning disabilities and substance abuse issues in his extended family. As a toddler, Charlie was observed to exhibit extreme temper tantrums that included kicking, hitting, throwing objects, biting, and head banging. During parental interview, Mr. and Mrs. Roberts stated that he has a history of explosiveness and rapid escalation of anger as well as physical aggression, including kicking peers at his former daycare and physical fights with his older sister. Charlie is described as frequently negative and angry; much of his anger is directed at his mother. Mr. and Mrs. Roberts indicated that they have received reports from his preschool teachers that he is very active and has very low frustration tolerance.

Discussion Questions:

1. What diagnoses are you considering based on the referral concerns and background information?
2. What domains will need to be assessed?
3. What other background information will you need to collect to understand behavioral concerns?
4. Describe the measures and methods you will use as part of a diagnostic assessment process.

Behavioral Observations: Charlie presented as an active and social young boy. He demonstrated appropriate eye contact, warmed quickly to the examiner and easily shared stories about activities he enjoyed. His interactions with his parents during the intake interview were minimal and he chose to play alone with toys. He ignored repeated requests by his mother to clean up before testing began; she picked up the toys and grabbed his arm, expressing with frustration "he never listens." During the evaluation, his engagement and level of compliance varied by assessment task; at times, he was highly engaged and excited to participate as well as celebrate his accomplishments. Other times, Charlie refused to perform items, particularly when tasks seemed more difficult. He impulsively touched items on the table and had a hard time sitting still during the cognitive tasks, often choosing to stand. To complete all of the standardized assessment activities, Charlie required frequent breaks, as well as the implementation of a reward system with stickers.

Scores on Standardized Measures: Charlie's full-scale IQ (FSIQ) on the WPPSI-IV was 124, which falls in the 95th percentile compared to same age peers. On the Bracken Basic Concept Scale-Third edition: Receptive Form, he obtained a standard score of 118, which falls in the high average range compared to same age peers. On the Drawing subtest from the Wide Range Assessment of Visual Motor Ability (WRAVMA), Charlie's visual-motor skills fell within the Average range (Standard Score = 101; 55th percentile). Information obtained from parent questionnaires revealed significant, persistent impairments in social-emotional

functioning. On the *BRIEF-P*, Mr. and Mrs. Roberts indicated that Charlie has significant difficulties with Inhibition and Emotional Control (99th percentile and 92nd percentile, respectively). Ratings by Charlie's preschool teacher were consistent with parent ratings. Charlie's parents and teacher also completed the *BASC-3*. On this measure, parents endorsed items resulting in clinically significant elevations (i.e., standard *T* scores greater than 70) on the following scales: Hyperactivity ($T = 90$, 99th percentile), Aggression ($T = 73$, 97th percentile), Externalizing Problems ($T = 84$, 99th percentile), Atypicality ($T = 73$, 97th percentile), and Attention Problems ($T = 71$, 98th percentile). Ratings from his teacher indicated somewhat less problematic behavior in this environment compared to home, although he obtained elevated scores on the Hyperactivity ($T = 87$, 99th percentile) and Attention Problems ($T = 71$, 98th percentile) scales.

On the DECA-C, Mr. and Mrs. Roberts reported significant concerns about Charlie across all clinical scales. Specifically, scores for Attention problems fell within the 99th percentile, suggesting that Charlie displays difficulty focusing on a task and ignoring noise or other stimuli in his environment and has significantly higher levels of distractibility, impulsivity, and hyperactivity than other same age children. He was rated to have frequent problems associated with: temper tantrums, becoming easily frustrated, high distractibility, short attention span, squirming, and fidgeting. Parents rated Charlie as having low protective factors with respect to Self-Control and Attachment but close to the normative range for Initiative.

Discussion Questions

1. Based upon the additional data, what would you describe as Charlie's most problematic areas of functioning? What are his strengths/areas of asset?
2. What information supports a diagnosis of ADHD and/or ODD?
3. What other diagnoses would you consider based on the referral concerns? What additional information do you need to make a diagnosis?

Case Study 2

Liam is a three-year-old boy who was referred for an intake consultation by his primary care pediatrician due to parent concerns about a suspected ASD. Parents described persistent behavioral and sensory concerns, including problems with sleep and eating, recently observed repetitive motor movements and limited social interactions with peers. They reported that problems with feeding and sleep started in infancy. Liam's mother described her pregnancy as a highly stressful time, which included the family's move between states and her husband beginning a new job. Liam was born at 35 weeks gestation. His early health history is remarkable for

chronic otitis media. Liam received several rounds of antibiotics from 18 months to 30 months of age. His sleep issues include frequent waking during the night and difficulty falling asleep. Liam's parents report that he more readily engages with them and little with peers. Liam's preschool teacher also has concerns about a perceived lack of social interest and peer play. Liam started preschool two months prior to his referral without participation in any other formal childcare on a regular basis. Early motor and language developmental milestones were reported as delayed. Liam did not begin speaking words until close to age of 2 years. He began walking at 18 months of age. Liam's current expressive language skills are described by both his parents and teacher as limited. He does not use sentences and tends to mix real words with other language that is garbled. Liam's receptive language skills are not as limited, but still below age expectations. He can point to a range of pictures of common objects and events. Liam is inconsistent in following directions. He cannot follow commands that are more than one step. Liam's parents indicate that he continues to show "clumsiness" and resistance to performing complex fine motor tasks.

Discussion Questions

1. What developmental domains do you need to assess for an autism evaluation?
2. What background information is important?
3. How would you determine if Liam met criteria in the DSM-5 for an ASD?

References

Achenbach, T., & Rescorla, L. (2000). *Manual for the ASEBA preschoool forms and profiles*. Burlington, VT: University of Vermont, Research Centre for Children, Youth, & Families

American Academy of Child and Adolescent Psychiatry. (2009). *ODD: A guide for families by the American Academy of Child and Adolescent Psychiatry*. Retrieved January 18, 2015 from http://www.aacap.org/App_Themes/AACAP/docs/resource_centers/odd/odd_resource_center_odd_guide.pdf

American Academy of Child and Adolescent Psychiatry. (2013). *Facts for families: Children with oppositional defiant disorder*. Retrieved January 18, 2015 from http://www.aacap.org/AACAP/Families_and_Youth/Facts_for_Families/Facts_for_Families_Pages/Children_With_Oppositional_Defiant_Disorder_72.aspx

American Academy of Pediatrics (2011). ADHD: Clinical practice guideline for the diagnosis, evaluation, and treatment of attention-deficit/hyperactivity disorder in children and adolescents. SUBCOMMITTEE ON ATTENTION-DEFICIT/HYPERACTIVITY DISORDER, STEERING COMMITTEE ON QUALITY IMPROVEMENT AND MANAGEMENT. *Pediatrics* (originally published online October 16, 2011). doi:10.1542/peds.2011-2654

American Psychiatric Association. (2013a). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Association. doi:10.1176/appi.books.9780890425596.295735

American Psychiatric Association. (2013b). Attention-deficit hyperactivity disorder. In *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Association. doi:10.1176/appi.books.9780890425596.295735

American Psychiatric Association. (2013c). Autism spectrum disorder. In *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Association. doi:10.1176/appi.books.9780890425596.295735

American Psychiatric Association. (2013d). Oppositional defiant disorder. In *Diagnostic and statistical manual of mental disorders* (5th ed.). doi:10.1176/appi.books.9780890425596.295735

Baio, J. (2014). Prevalence of autism spectrum disorder among children aged 8 years—Autism and developmental disabilities monitoring network, 11 Sites, United States, 2010. Surveillance Summaries of the Morbidity and Mortality Weekly Report (MMWR) of the Centers for Disease Control and Prevention, *63*(SS02), 1–21. Retrieved February 12, 2015 from https://www.cdc.gov/mmwr/preview/mmwrhtml/ss6302a1.htm

Barkley, R. A. (1997). Behavioural inhibition, sustained attention, and executive function: Constructing a unifying theory of ADHD. *Psychological Bulletin, 121*, 65–94.

Baranek, G, T., Watson, L. R., Crais, E., & Reznick, S. (2003). *First-Year Inventory* (FYI) 2.0. Chapel Hill, NC: University of North Carolina.

Boyle, C. A., Boulet, S., Schieve, L. A., Cohen, R. A., Blumberg, S. J., Yeargin-Allsopp, Y., ... Kogan, M. D. (2011). Trends in the prevalence of developmental disabilities in US children, 1997–2008. *Pediatrics*, *127*(6). doi:10.1542/peds.2010-2989

Briggs-Gowan, M. J., & Carter, A. S. (2006a). *Infant-toddler social and emotional assessment examiners manual*. San Antonio, TX: PsychCorp, Harcourt Assessment.

Briggs-Gowan, M. J., & Carter, A. S. (2006b). *Brief infant-toddler social and emotional assessment (BITSEA) manual*. San Antonio, TX: PsychCorp, Harcourt Assessment.

Centers for Disease Control and Prevention (CDC). (2015a). *Facts about developmental disabilities*. Retrieved March 2, 2015 from http://www.cdc.gov/ncbddd/developmentaldisabilities/facts.html

Centers for Disease Control and Prevention (CDC). (2015b). *Autism spectrum disorder-signs and symptoms*. Retrieved May 2, 2015 from http://www.cdc.gov/ncbddd/autism/signs.html

Centers for Disease Control and Prevention (CDC). (2016). *Attention-deficit/hyperactivity disorder (ADHD)*. Retrieved from http://www.cdc.gov/ncbddd/adhd/data.html

CDC. (2010). Prevalence of autism spectrum disorder among children aged 8 years—Autismand developmental disabilities monitoring network, 11 sites, United States. *MMWR 2014*, 63(SS2), 1–2.

Charman, T., & Gotham, K. (2013). Measurement issues: Screening and diagnostic instruments for autism spectrum disorders—Lessons from research and practice. *Child and Adolescent Mental Health, 18*(1), 52–64. doi:10.1111/j.1475-3588.2012.00664.x

Cohen, I. L. *The PDD Behavior Inventory (PDDBI) [PowerPoint slides]*. Retrieved from www4.parinc.com/webuploads/ppt/pddbi.ppt

Connors, K. (2007). *Using the Conners 3 and Conners CBRS: Identification and intervention [PowerPoint slides]*. Retrieved from http://www4.parinc.com/webuploads/ppt/POWERPOINTConners3CBRS-Using_0609.ppt

Constantino, J. N. (2012). *Social Responsiveness Scale—Second Edition (SRS-2)*. Los Angeles, CA: Western Psychological Service.

Daley, D., Jones, K., Hutchings, J., & Thompson, M. (2009). Attention deficit hyperactivity disorder in pre-school children: Current findings, recommended interventions and future directions. *Child: Care, Health and Development, 35*(6), 754–766. doi:10.1111/j.1365-2214.2009.00938.x

Del Gaudio Weiss, A., & Fantuzzo, J. W. (2001). Multivariate impact of health and caretaking risk factors on the school adjustment of first graders. *Journal of Primary Prevention, 15*, 247–260.

Egger, H. L., & Angold, A. (2006). Common emotional and behavioral disorders in preschool children: Presentation, nosology, and epidemiology. *Journal of Child Psychology and Psychiatry, 47*, 313–337.

Egger, H., Kondo, D., & Angold, A. (2006). The epidemiology and diagnostic issues in preschool attention-deficit/hyperactivity disorder: A review. *Infants and Young Children, 19*(2), 109–122. doi:10.1097/00001163-200604000-00004

Eyberg, S. *Parent-child interaction therapy [PowerPoint slides]*. Retrieved from https://www.google.com/webhp?sourceid=chrome-instant&ion=1&espv=2&ie=UTF-8#q=Parent+child+interaction+therapy+power+point

Fenstermacher, K., & Tsandes, N. (n.d). *Ages and stages questionnaires: Social-emotional [PowerPoint slides]*. Retrieved from https://www.google.com/webhp?sourceid=chrome-instant&ion=1&espv=2&ie=UTF-8#q=ages+and+stages+questionnaire+powerpoint

Fombonne. (2008). Is autism getting commoner? *British Journal of Psychiatry, 193,* p. 59.

Frazier, T. W., Youngstrom, E. A., Speer, L., Embacher, R., Law, P., Constantino, J., ... Eng, C. Validation of proposed DSM-5 criteria for autism spectrum disorder. *Journal of the American Academy of Child and Adolescent Psychiatry, 51*(1), 28–40.

Froehlich, T. E. (2011). Update on environmental risk factors for attention-deficit/hyperactivity disorder. *Current Psychiatry Reports, 13*(5), 333–344.

Gadow, K., & Nolan, E. (2002). Differences between preschool children with ODD, ADHD, and ODD & ADHD symptoms. *Journal of Child Psychology and Psychiatry, 43*, 191–201.

Gioia, G. A., Isquith, P. K., Guy, S. C., & Kenworthy, L. (2000) *Behavior Rating Inventory of Executive Function*. Odessa, FL: Psychological Assessment Resources.

Guthrie, W., Swineford, L. B., Nottke, C., & Wetherby, A. M. (2013). Early diagnosis of autism spectrum disorder: Stability and change in clinical diagnosis and symptom presentation. *Journal of Child Psychologt and Psychiatry, 54,* 582–590.

Halligan, S. L., Cooper, P. J., Fearon, P., Wheeler, S. L., Crosby, M., & Murray, L. (2013). The longitudinal development of emotion regulation capacities in children at risk for externalizing disorders. *Developmental Psychopathology, 25*(2), 391–406. doi:10.1017/S0954579412001137

Keenan, K., Boeldt, D., Chen, D., Coyne, C., Donald, R., Duax, J., ... Hill, C. (2011). Predictive validity of DSM-IV oppositional defiant and conduct disorders in clinically referred preschoolers. *The Journal of Child Psychology and Psychiatry, 52*(1), 47–55. doi:10.1111/j.1469-7610.2010.02290.x

Kleinman, J. M., Ventola, P. E., Pandey, J., Verbalis, A. D., Barton, M., Hodgson, S., ... Fein, D. (2008). Diagnostic stability in very young children with autism spectrum disorders. *Journal of Autism and Developmental Disorders, 38*(4), 606–615.

Kogan, M. D., Blumberg, S. J., Schieve, L. A., Boyle, C. A., Perrin, J. M., Ghandour, R. M., ... van Dyck, P. C. (2009). Prevalence of parent-reported diagnosis of autism spectrum disorder among children in the US, 2007. *Pediatrics, 124*(5), 1395–1403. doi:10.1542/peds.2009-1522

Kruizinga, I., Visser, J. C., van Batenburg-Eddes, T., Carter, A. S., Jansen, W., & Raat, H. (2014). Screening for autism spectrum disorders with the brief infant-toddler social and emotional assessment. *PLoS ONE, 9*(5), e97630. doi:10.1371/journal.pone.0097630

Kuntsi, J., Oosterlaan, J., & Stevenson, J. (2001) Psychological mechanisms in hyperactivity: I response inhibition deficit, working memory impairment, delay aversion, or something else? *Journal of Child Psychology and Psychiatry, 42*, 199–210.

Larsson, J. O., Larsson, H., & Lichtenstein, P. (2004). Genetic and environmental contributions to stability and change of ADHD symptoms between 8 and 13 years of age: A longitudinal twin study. *Journal of the American Academy of Child and Adolescent Psychiatry, 43*, 1267–1275.

LeBuffe, P. A., & Naglieri, J. A. (2003). *The Devereux Early Childhood Assessment Clinical Form (DECA-C): A measure of behaviors related to risk and resilience in preschool children*. Lewisville, NC: Kaplan.

LeBuffe, P. A., & Naglieri, J. A. (2012). *The Devereux Early Childhood Assessment for Preschoolers, Second Edition (DECA-P2): Technical manual, and user's guide*. Lewisville, NC: Kaplan.

Levy, S. E., Giarelli, E., Lee, L. C., Schieve, L. A., Kirby, R. S., Cunniff, C., ... Rice, C. E. (2010). Autism spectrum disorder and co-occurring developmental, psychiatric, and medical conditions

among children in multiple populations of the United States. *Journal of Developmental and Behavioral Pediatrics, 31*(4), 267–275.

Lord, C., Petkova, E., Hus, V., Gan, W., Lu, F., Martin, D. M., ... Algermissen, M. (2012). A multi-site study of the clinical diagnosis of different autism spectrum disorders. *Archives of General Psychiatry, 69*, 306–313.

Lord, C., Risi, S., Lambrecht, L., Cook Jr, E. H., Leventhal, B. L., DiLavore, P. C., ... Rutter, M. (2000). The autism diagnostic observation schedule-generic: A standard measure of social and communication deficits associated with the spectrum of autism. *Journal of Autism and Developmental Disorders, 20*(3), 205–223.

Lord, C., Rutter, M., & Couteur, A. L. (1994). Autism diagnostic interview-revised: A revised version of a diagnostic interview for caregivers of individuals with possible pervasive developmental disorders. *Journal of Autism and Developmental Disorders, 24*(5), 659–685.

Luyster, R., Gotham, K., Guthrie, W., Coffing, M., Petrak, R., Pierce, K., ... Richler, J. (2009). The autism diagnostic observation schedule—Toddler module: A new module of a standardized diagnostic measure for autism spectrum disorders. *Journal of Autism and Developmental Disorders, 39*(9), 1305–1320.

Macintosh, K. E., & Dissanayake, C. (2004). Annotation: The similarities and differences between autistic disorder and Asperger's disorder: A review of the empirical evidence. *Journal of Child Psychology and Psychiatry, 45*(3), 421–434.

Mackrain, M., LeBuffe, P. A., & Powell, G. (2007). *The Devereux Early Childhood Assessment for Infants and Toddlers (DECA-I/T), technical manual, and user's guide*. Lewisville, NC: Kaplan.

Mahone, E. M. (2012). *Is it ADHD or typical toddler behavior? Ten early signs of ADHD risk in preschool age children.* Retrieved October 13, 2015 from http://www.kennedykrieger.org/overview/news/it-adhd-or-typical-toddler-behavior-ten-early-signs-adhd-risk-preschool-age-children

Matson, J. L., & Kozlowski, J. M. (2011). The increasing prevalence of autism spectrum disorders. *Research in Autism Spectrum Disorders, 5*, 418–425.

Miller, J. N., & Ozonoff, S. (2000). The external validity of Asperger disorder: Lack of evidence from the domain of neuropsychology. *Journal of Abnormal Psychology, 109*(2), 227–238. doi:10.1037//0021-843X.109.2.227

Nass, R. D. (2006). Evaluation and assessment issues in the diagnosis of attention deficit hyperactivity disorder. In *Seminars in pediatric neurology* (Vol. 12(4), pp. 200–216). Philadelphia: WB Saunders.

Oliver, W. (n.d.). Early childhood assessment tools. Miami, FL: Florida International University. Retrieved from http://www2.fiu.edu/~aip/documents/AssessmentTools.pdf

Pearson. (n.d.). *Brief Infant Toddler Social Emotional Assessment (BITSEA)*. Retrieved from http://www.pearsonclinical.com/childhood/products/100000150/brief-infant-toddler-social-emotional-assessment-bitsea.html

Pearson. (n.d.). *Infant toddler social emotional assessment (ITSEA)*. Retrieved from http://www.pearsonclinical.com/childhood/products/100000652/infant-toddler-social-emotional-assessment-itsea.html

Psychological Assessment Resources (PAR). (n.d.). *Pediatric Behavior Rating Scale (PBRS)*. Retrieved from http://www4.parinc.com/Products/Product.aspx?ProductID=PBRS

Reichow, B. (2012). Overview of meta-analyses on early intensive behavioral intervention for young children with autism spectrum disorders. *Journal of Autism and Developmental Disorders, 42*, 512–520. doi:10.1007/s10803-011-1218-9

Reynolds, C., & Kamphaus, R. (2015). *Behavioral Assessment System for Children—Third edition (BASC-3)*.

Reznick, J. S., Baranek, G. T., Reavis, S., Watson, L. R., & Crais, E. R. (2007). A parent-report instrument for identifying one-year-olds at risk for an eventual diagnosis of autism: The first year inventory. *Journal of Autism and Developmental Disorders, 37*(9), 1691–1710.

Robins, D., Fein, D., & Barton M. (n.d.). *M-CHAT general information*. Retrieved from https://m-chat.org/about.php

Robins, D. L., Fein, D., & Barton, M. (2009). *The Modified Checklist for Autism in Toddlers, Revised with Follow-up (M-CHAT-R/F)*. Self-published

Robins, D. L., Fein, D., Barton, M. L., & Green, J. A. (2001). The Modified Checklist for Autism in Toddlers: An initial study investigating the early detection of autism and pervasive developmental disorders. *Journal of Autism and Developmental Disorders, 31*, 131–144.

Shattuck, P. T., Durkin, M., Maenner, M., Newschaffer, C., Mandell, D. S., Wiggins, L., ... Baio, J. (2009). Timing of identification among children with an autism spectrum disorder: Findings from a population-based surveillance study. *Journal of the American Academy of Child and Adolescent Psychiatry, 48*(5), 474–483. doi:10.1097/CHI.0b013e31819b3848

Shaw, D. S., Owens, E. B., Giovannelli, J., & Winslow, E. B. (2001). Infant and toddler pathways leading to early externalizing disorders. *Journal of the American Academy of Child and Adolescent Psychiatry, 40*(1), 36–43.

Smith, K. G., & Corkum, P. (2007). Systematic review of measures used to diagnose attention-deficit/hyperactivity disorder in research on preschool children. *Topics in Early Childhood Special Education, 27*(3), 164–173. doi:10.1177/02711214070270030701

Sonuga-Barke, E. J. S., Houlberg, K., & Hall, M. (1994). When is impulsiveness not impulsive—The case of hyperactive children's cognitive style. *Journal of Child Psychology and Psychiatry, 35*, 1247–1253.

Sonuga-Barke, E. J. S., Dalen, L., & Remmingtom, B. (2003). Do executive deficits and delay aversion make independent contributions to preschool attention-deficit/hyperactivity disorder? *Journal of the American Academy of Child and Adolescent Psychiatry, 42*, 1335–1342.

Squires, J., Bricker, D., & Twombly, E. (2015). *Ages and Stages Questionnaires: Social-emotional*. Baltimore, MD: Paul H Brookes Publishing.

Sunita, & Bitszta, J. L. C. (2013). Early identification of autism: A comparison of the checklist for autism in toddlers and the modified checklist for autism in toddlers. *Journal of Pediatrics and Child Health, 49*(6), 438–444. doi:10.1111/j.1440-1754.2012.02558.x

Thorell, L. B., & Wahlstedt, C. (2006). Executive function deficits in relation to symptoms of ADHD and/or ODD in preschool children. *Infant and Child Development, 15*, 503–518.

Triple P. *Triple P in a nutshell*. Retrieved from http://www.triplep.net/glo-en/find-out-about-triple-p/triple-p-in-a-nutshell/

Visser, S. N., Bitslco, R. H., Danielson, M . L., Gandhour, R., Blumberg, S. J., Schieve, L., ... Cuffe, S. (2015). Treatment of attention-deficit/hyperactivity disorder among children with special health care needs. *Journal of Pediatrics* published online April 1, 2015.

Visser, S. N., Danielson, M. L., Bitsko, R. H., Holbrook, J. R., Kogan M. D., Ghandour, R. M., ... Blumberg, S. J. (2014). Trends in the parent-report of health care provider-diagnosed and medicated attention-deficit/hyperactivity disorder: United States, 2003–2011, *Journal of the American Academy of Child & Adolescent Psychiatry, 53*(1) 34–46.

Wahlstedt, C., Thorell, L. B., & Bohlin, G. (2008). ADHD symptoms and executive function impairment: Early predictors of later behavioral problems. *Developmental Neuropsychology, 33*(2), 160–178. doi:10.1080/87565640701884253

White, S. W., Oswald, D., Ollendick, T. H., & Scahill, L. (2009). Anxiety in children and adolescents with autism spectrum disorders. *Clinical Psychology Review, 29*, 216–229.

Wong, C., Odom, S. L., Hume, K. A., Cox, A. W., Fettig, A., Kucharczyk, S., ... Schultz, T. R. (2014). *Evidence-based practices for children, youth, and young adults with autism spectrum disorder*. Chapel Hill, NC: The University of North Carolina, Frank Porter Graham Child Development Institute, Autism Evidence-Based Practice Review Group

Zwaigenbaum, L., Bryson, S., Lord, C., Rogers, S., Carter, A., Carver, L., et al. (2009). Clinical assessment and management of toddlers with suspected autism spectrum disorder: Insights from studies of high-risk infants. *Pediatrics, 123*(5), 1383–1391.

Chapter 11
Assessment of Anxiety Disorders, PTSD, OCD, and Depression in Young Children

Adrienne Garro

Abstract This chapter examines assessment of anxiety and related disorders in young children. It begins with description of risk factors for these disorders, including temperament characteristics and parent/family influences. Next, the chapter provides general background regarding anxiety and related problems in younger children. The author covers research literature and diagnostic and classification information for specific problems including fears/phobias, separation anxiety disorder/school refusal, selective mutism, PTSD, obsessive-compulsive disorder, and depression. In addition, specific measures/instruments for these problems are discussed. The chapter concludes with a discussion of implications for practitioners, including a summary of assessment principles and links to interventions.

Keywords Preschool anxiety, selective mutism · Separation anxiety disorder · Early childhood depression · Assessment of early childhood anxiety · Obsessive-compulsive disorder in young children · Posttraumatic stress disorder in young children · Fears and phobias in young children · Risk factors for anxiety in children

Introduction

As is the case with other psychological problems in young children, anxiety, depression, and related disorders are often difficult to assess. Accurate and valid assessment of these problems not only requires consideration of the rapid developmental changes during early childhood. It also calls for understanding of and

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A. Garro (ed.), *Early Childhood Assessment in School and Clinical Child Psychology*, DOI 10.1007/978-1-4939-6349-2_11

sensitivity to the distinct ways they are manifested. Although researchers and clinicians continue to debate the validity and necessity of the internalizing versus externalizing distinction, it is clear that some psychological problems and disorders involve symptoms that are less visible and disruptive to other people (e.g., withdrawal, loneliness). Given the less advanced language abilities of young children, it is more difficult and, sometimes, impossible for them to verbally express these internal symptoms. At the same time, young children who are experiencing significant depression, anxiety, or trauma also exhibit outward changes in their behavior which may be mistaken for a "behavior problem" or a diagnosis that is more externalizing in nature (e.g., ADHD). Thus, these children often present with mixed combinations or heterogeneous profiles of symptoms which must be carefully evaluated in context to arrive at effective diagnosis and intervention planning. As an additional complication, there continues to be resistance among professionals, as well as the general public, about identifying young children with potentially stigmatizing diagnoses.

Despite the challenges in assessing emotional problems in young children, there is increasing interest, research, and advocacy in this area. This is related to the confluence of several factors. One primary factor is increasing recognition that emotional and behavioral problems in young children often show stability over time. Thus, affected children are at continued risk for a pattern of impairment that extends into later childhood and adolescence. In a study of children who were screened at kindergarten for behavioral and emotional problems and subsequently assessed in grades, 1, 3, and 5, Essex et al. (2009) found that children with recurrent comorbid symptoms had the highest levels of negative outcomes, including functional impairments in school, health problems, and service use. The researchers also concluded that there was solid support for accurately identifying at-risk children as early as first grade. The continuing trajectory from early history of behavioral and emotional problems to childhood disorders has not only informed the areas of diagnosis and identification, but also highlighted the importance of early intervention. The prospect for effective early intervention is even more pronounced when we consider brain plasticity in young children and the opportunities to shape major contexts of their development. A third factor contributing to the rising interest in early identification of internalizing problems is greater availability and feasibility of appropriate assessment procedures. As described in several chapters of this text, clinicians now have access to broadband and even some specific measures to assess emotional problems and clinical disorders in young children. In addition, since it is often difficult as well as developmentally inappropriate to apply many traditional diagnostic criteria to infants and young children, early childhood professionals also have the opportunity to apply adapted ones that are more suitable for this population.

Literature Review

Risk Factors

To begin, a discussion of risk factors related to anxiety, depression, and related disorders is pertinent to clinicians, especially from the standpoint of prevention and early intervention. One of the most substantial and well-studied risk factors is temperament. The research literature points to a distinct set of temperament traits that have been linked to psychological problems that are more internalizing in nature, even during the period of early childhood. Some recent research which has found connections between behavioral inhibition (BI) and anxiety symptoms or disorders in young children include the work of Pahl, Barrett, and Gullo (2012), Volbrecht and Goldsmith (2010) and Hudson, Dodd, Lyneham, and Bovopoulos (2011). Mian, Wainwright, Briggs-Gowan, and Carter (2011) examined an ecological risk model for early childhood anxiety and found that child temperament, including negative emotionality and BI, and early anxiety at age 3 were the strongest predictors of child anxiety at age 6 and 8.

In discussing temperament, it is clear that there is an interaction between this factor and environmental variables. For example, there is evidence that temperament interacts with parenting behaviors, such as maternal over-involvement, also known as intrusive parenting, to influence childhood anxiety. Hudson et al. (2011) studied BI and different aspects of family environment in children at age 4, and then again 2 years later. Their results indicated that BI, maternal anxiety, and maternal over-involvement at age 4 were significant risk factors for child anxiety at age 6. They also found that maternal over-involvement was significantly associated with BI at age 6. Feng, Shaw, and Silk (2008) looked at developmental trajectories for boys' anxiety symptoms across early and middle childhood and found that maternal overcontrol was associated with increasing levels of anxiety. The researchers posited that parental overcontrol contributes to increases in children's anxiety by "decreasing their sense of mastery over their environment and self-efficacy in coping with stressful and emotional situations."

Parent characteristics in their own right have direct connections to child anxiety and depression. For example, Meadows, McLanahan, and Brooks-Gunn (2007) found that maternal anxiety and/or depression was linked to higher likelihood of anxious or depressed behavior in a sample of 3-year-old children. Muris, van Brakel, Arntz, and Schouten (2011) found that maternal anxiety was associated with child anxiety over time. Bayer, Sanson, and Hemphill (2006a) found that combined parental anxiety/depression scores at age 2 significantly predicted early childhood internalizing difficulties at age 4, as did higher levels of over-involved/protective parenting and lower levels of warm/engaged parenting. In a meta-analytic review of research focusing on connections between parent and child anxiety and parental control, van der Bruggen, Stams, and Bogel (2008) found a significant association ($d = 0.58$) between child anxiety and parental control. Maternal depression has also been examined and found to be related to depression

symptoms and other internalizing problems in young children (Dawson et al., 2003; Garstein & Bateman, 2008; Trapolini, McMahon, & Ungerer, 2007). Although maternal psychopathology has been most widely studied, there is also evidence that depression in fathers can increase risk (Hanington, Ramchandani, & Stein, 2010).

There are a number of potential mechanisms to explain the role of parent depression in children's internalizing difficulties. For example, mothers who are depressed might be less responsive to children's needs, contributing to the development of passive coping styles and/or learned helplessness (Downey & Coyne, 1990). Some have posited that parental depression contributes to a negative, critical interactional style which places children at greater risk for internalizing problems (Downey & Coyne; Murray & Cooper, 2003; Murray, Fiori-Cowley, & Hooper, 1996). Field, Hernandez-Reif, and Diego (2006) described two potential pathways, one of which involves withdrawn maternal behavior contributing to under-stimulation of infants, who are then less responsive to various environmental stimuli. The other involves greater maternal intrusion and over-stimulation, which, in turn, results in reduced opportunities for infants to acquire new skills and independence. Other studies have found more complex relationships between child temperament characteristics and parent depression (e.g., Olino, Klein, Dyson, Rose, & Durbin, 2010). Such research emphasizes the need to consider multiple aspects of temperament and to look beyond one-way influences in the development of childhood internalizing problems. In addition, the relationship between parent depression and child internalizing problems may also be partially explained by genetic factors, which contribute to a greater predisposition to psychopathology that is manifested in early temperament characteristics. Aside from parental psychopathology, research suggests that other family factors are associated, either directly and/or through mediating relationships, with child internalizing difficulties. These include harsh discipline and negative beliefs about parenting (Laskey & Cartwright-Hatton, 2009); life stress (Hopkins, Lavigne, Gouze, LeBailly, & Bryant, 2013); parenting stress (Anthony et al., 2005; Viaux-Savelon et al., 2010), and family violence or conflict (Viaux-Savelon; Roberts, Campbell, Ferguson, & Crusto, 2013). Conversely, some research suggests that positive parenting may serve as a protective factor against internalizing difficulties in young children (Bayer et al., 2006a; Koblinsky, Kuvalanka, & Randolph, 2006).

Anxiety and Related Disorders in Young Children: General Background

Although there has been sparse research focusing specifically on anxiety disorders in preschoolers, existing studies suggest that they are fairly prevalent. For example, in a community sample of 541 3-year old children, Dougherty et al. (2013) found that 19.6 % met criteria for at least one anxiety disorder based upon parent interview with the Preschool Age Psychiatric Assessment (PAPA). Specific DSM-IV

diagnoses included specific phobia (9.1 % of sample); separation anxiety disorder (SAD) (5.4 %); social phobia (4.4 %); GAD (3.9 %); agoraphobia (3.5 %); selective mutism (1.5 %); and panic disorder (0.2 %). Paulus, Backes, Sander, Weber, and Gontard (2015) conducted a population-based study with 1342 young children ages 4–7 years to examine prevalence of anxiety disorders and their association with BI. Using the DISYPS-II (Döpfner, Görtz-Dorten, & Lehmkuhl, 2008), a German parent questionnaire based upon ICD-10 and DSM-IV criteria, they found that the total prevalence of anxiety disorders was 22.2 %.

Aside from BI, other factors have been studied in connection with anxiety disorders. For example, research indicates that SAD, as an overall syndrome, is strongly heritable, but is also influenced by non-shared environmental factors (e.g., differences in parenting practices, experiences outside the home, etc.) (Bolton et al., 2006). With respect to fear and phobia symptoms, Lichtenstein and Annas (2000) found that genetic factors make a modest contribution to phobias and also contribute to the tendency to show specific fears. Their results also indicated that shared environmental influences contributed significantly to phobias and fears and to a general vulnerability to fearfulness, while non-shared environment also played a role. Other variables receiving some attention in the research literature are cognitive biases. These include attention bias, which is the tendency to focus more on threatening stimuli in the environment, and interpretation bias, which is the tendency to interpret neutral stimuli as harmful or threatening. In a prospective study beginning with children ages 3 to 4, Dodd, Hudson, Morris, and Wise (2012) found that there were significantly higher levels of interpretation bias in children who met criteria for an anxiety disorder versus those who did not. They also found that interpretation bias predicted anxiety symptoms at 1 year follow-up but not later follow-ups. Waters, Bradley, and Mogg (2014) looked at biased attention to threat as a potential mechanism to distinguish between children with diagnoses of principal fear disorders (i.e., specific phobia, social phobia, or SAD), those with a principal distress disorder (i.e., GAD), and those with no diagnosis. Consistent with their hypotheses, they found that, compared to the control group, the GAD group showed greater attention toward angry versus neutral faces; and the principal fear group demonstrated attention bias away from angry versus neutral faces.

Fears and Phobias

With respect to phobias, there is relatively little literature to guide assessment and diagnosis for younger children. This is due in part to the fact that fears are considered common and developmentally appropriate in young children, particularly preschoolers. For clinicians, it is extremely important to distinguish between fears in early childhood which are typical and generally transitory and those which require treatment. Some factors which can assist in this differentiation are the level of fear and/or anxiety expressed by the child and the degree of impairment generated by her or his symptoms. As an example, a 4 year old child who has been

bitten by a dog and, subsequently, screams when in close proximity to dogs but is able to walk on the other side of a street from them is not likely to meet criteria for a specific phobia. In contrast, a 5-year-old child whose fear of the dark is so intense that she insists on having multiple night lights, tantrums if the lights go off for brief periods of time, and repeatedly wakes her parents up is more likely to fit within the diagnostic parameters for a specific phobia. According to the DSM-5, two major elements should be examined when diagnosing specific phobia in children. One of these is explicitly stated in the criteria, namely that the fear or anxiety may be manifested as crying, clinging behavior, freezing up, or tantrums (American Psychiatric Association (APA), 2013a). Second, many children, particularly younger children, do not have the cognitive capacities to understand the concept of avoidance of a feared object or situation. Because of this factor, clinicians must be comprehensive in gathering information from parents, other family members, teachers, etc. who can shed light on the nature, degree, frequency and duration of the child's symptoms (APA).

In one of the few studies focusing on younger children (ages 1 to 7), Evans, Gray, and Leckman (1999) considered developmental factors related to fears and differentiated between those that are prepotent/early onset and those that were later onset. Prepotent fears are more likely to be dominant across all individuals and have a species-specific or evolutionary component, in that they help protect against general threats, unfamiliar stimuli, and other environmental harm. The results indicated that, in children younger than four, repetitive, compulsive-like behaviors were associated with overall levels of fearfulness and prepotent fears (e.g., fear of strangers). In contrast, children age four and older showed a wider range of fears that were more specific and contextual, (e.g., fears of contamination, death), and these were associated with "just right," compulsive-type behaviors, such as the need to have certain toys or activities arranged a certain way.

Separation Anxiety Disorder (SAD) and School Refusal

One of the biggest changes related to anxiety disorders in the DSM is that the age of onset for SAD is no longer confined to the period of childhood and adolescence. This change does not deflect from the fact that SAD continues to cause significant impairment in many children. As is the case with phobias, it is extremely important to assess SAD in a developmentally appropriate context when working with younger children. Stranger anxiety is expected and considered typical during infancy and toddlerhood and may continue into the early childhood years. Given that this behavior and a desire to be close to parents/caregivers when there is healthy attachment are expected and typical for young children, the earliest time-frame for diagnosis of SAD is generally not until preschool years. Even for preschoolers, diagnosis can be difficult and complicated by initial transition to preschool, a change which will naturally elicit some degree of anxiety in young children. There is little research focusing on SAD alone as a disorder. In one study

examining early predictors in German children, Lavalee et al. (2011) compared a sample of with SAD to a healthy sample and found that parents of the former group retrospectively reported a more intense period of stranger anxiety. The researchers also found that more intense stranger anxiety remained a significant predictor of SAD, even after controlling for maternal depression. This study and other research (e.g., Bron, Van Rijen, Van Abeelen, & Lambregtse-Van den berg, 2012) suggests that high levels of certain early behaviors in infancy are important to monitor as potential risk factors in the development of anxiety and other emotion regulation problems. In assessing for SAD, Pacholec et al. (2013) discussed the importance of looking at behavioral symptoms, including avoidance; emotional symptoms (e.g., irritability as well as worry), which can overlap with physical/bodily complaints; and cognitive symptoms (e.g., distortions, biases). The latter are more difficult to assess in younger children since they might not be able to fully or accurately express their thoughts and fears related to separation. SAD also needs to be assessed in light of a family's cultural background, since cultures vary with respect to their values and expectations regarding physical and emotional boundaries and interpersonal proximity within families (Pacholec).

SAD is significant not only as its own anxiety syndrome, but also due to its overlap with school refusal and school phobia. According to Heyne, King, and Tonge (2004), between 30 and 38 % of children who refuse to attend school met criteria for SAD, and Farris and Jouriles (1993) noted that 33–50 % of SAD cases were associated with school phobia. Although the terms school phobia and school refusal are sometimes used interchangeably, they are not the same. True school phobia involves intense fear of school, while school refusal might not involve fear. Kearney, Chapman, and Cook (2005) describe school refusal as a "child-motivated refusal to attend school and/or difficulty remaining in classes for an entire day." For younger children, school refusal may manifest when they attend daycare, preschool, kindergarten, or other structured environments outside of home. According to Kearney et al., it is important to consider the possible functions that might be served by school refusal behavior including: (a) pursuing attention from parents/significant others; (b) avoiding school-based events and other stimuli that trigger negative emotions; (c) pursuing tangible reinforcement outside of school (e.g., preferred activities at home); and (d) escaping difficult and unpleasant school-based social and/or evaluative situations (i.e., those that may be related to social anxieties.). When assessing school refusal behavior in young children, there are several factors and guidelines to consider. In line with Kearney et al.'s work, it is important to consider underlying function(s) served by the behavior, which requires interviews with parents, teachers and, perhaps, other central figures in the child's life to determine potential triggers and reactions/consequences. Family dynamics, such as enmeshment or low independence (Kearney et al.), might play an integral role in the development and maintenance of school refusal. Therefore, clinicians need to employ sensitive questioning to examine the potential role of these patterns. Kearney et al. also emphasized the need to assess attention-seeking, demanding, and oppositional behaviors since many children with school refusal demonstrate this conduct as a constellation of related symptoms. Among young children who are

transitioning to child care for the first time, it is imperative to look at potential precursors to full-blown school refusal; this might serve as a form of prevention. More specifically, for young children who already have risk factors related to temperament, existing anxiety, and/or family history of anxiety, variables in the child care or early school environment can make a difference in adjustment to these settings. Thus, clinicians or personnel in early child care environments can work with families to try to ensure good child/teacher fit and, if this is not possible, to monitor the child's status for early signs of refusal.

Selective Mutism

The update to DSM-5 resulted in selective mutism (SM) being classified as an anxiety disorder. The prevalence of SM is estimated to be less than 1 % (APA, 2013b). There has been no published research focusing exclusively on younger children (age 5 and under) with SM, but it is generally accepted that symptoms emerge during early childhood. According to Muris and Ollendick (2015), the mean age of onset is between 2 and 5 years. The new classification of SM as an anxiety disorder does have considerable research support. This includes research showing: (a) strong family history of anxiety-related problems/disorders in children with SM (e.g., Chavira, Shipon-Blum, Hitchcock, Cohan, & Stein, 2007; Cohan, Price, & Stein, 2006) and (b) presence of high level of anxiety symptoms, including social anxiety, in children with SM (e.g., Carbone et al., 2010; Levin-Decanini, Connolly, Simpson, Suarez, L., & Jacob, 2013). Muris and Ollendick (2015) noted that the etiology of SM is comparable to that of other child anxiety disorders in that, genetic factors, some environmental influences (e.g., high parental control) and temperament factors, such as high BI, are associated with the syndrome. However, more empirical evidence is needed to establish sound linkages and pathways between specific etiological factors and the development of SM.

As is the case with other anxiety disorders, when assessing SM in younger children, there are a number of unique considerations. First, while the research literature notes that diagnosis often does not take place until children are in school or even later, it is clear that signs often emerge before formal schooling. In addition to some of the risk factors described above, there is research suggesting that children with SM show lower social competencies in comparison to those without SM (e.g., Carbone et al., 2010; Cunningham, McHolm, & Boyle, 2006). Some research indicates that the prevalence of SM is higher in children from immigrant families (Elizur & Perednik, 2003; Manassis et al., 2007). This might be related to problems with language acquisition, cultural differences, in terms of social interaction, and/or processes of acculturation. However, more research is needed to determine reasons why immigrant children have higher rates of SM. Another developmental and risk consideration for younger children is the presence of communication problems. This can be a point of confusion due to the fact that, in order to receive a DSM-5 diagnosis of SM, the child's failure to speak in the

required situation(s) must not be **primarily** attributable to a lack of knowledge or comfort with the language being used. Because of this, clinicians might assume that a child cannot have communication deficits or delays and also be diagnosed with SM. However, this is not the case unless lack of language knowledge/skill is the primary reason for not speaking. In fact, several studies have documented the presence of language/communication problems in children with SM (e.g., Manassis et al., 2007; McInnes, Fung, Manassis, Fiksenbaum, & Tannock, 2004). Given the above factors, psychologists and other professionals should attend more closely to younger children who present with multiple risks and also educate personnel in early childhood environments with respect to best practices. In addition, teachers and, even physicians, might not recognize early signs of SM.

Posttraumatic Stress Disorder

In DSM-5, PTSD is now housed under the umbrella of trauma- and stressor-related disorders instead of being classified as an anxiety disorder. While anxiety symptoms might be seen in PTSD, the new diagnostic criteria recognize that affected individuals can show a range of reactions to traumatic stressors, and some people do not show "intense fear, helplessness, or horror," as was specified in the DSM-IV (APA, 2013c). The most significant DSM-5 change is the inclusion of the subtype: Posttraumatic Stress Disorder for Children 6 Years and Younger, which takes into account differences in how younger children might manifest symptoms and is also developmentally sensitive to their feeling states and cognitions. The new subtype recognizes that types of traumatic events in younger children might be different from those experienced by older children and adults. This means that witnessing events experienced by others can qualify as trauma. For example, witnessing violence against primary caregivers might be uniquely distressing for young children because of their greater dependence on them. Other events which might be more likely to trigger traumatic reactions in younger children include invasive medical procedures, which can be experienced as out of the child's control, and dog or other animal attacks (APA, 2013c).

The new PTSD subtype also references potential changes in play activities as distinctive symptoms in children under 6. For example, spontaneous and/or intrusive memories might be expressed as play; dissociative reactions and/or trauma-specific reenactment might manifest in play; and restriction of play might signify symptoms related to "negative alterations in cognition" (APA, 2013c). With respect to intrusion symptoms, children under 6 might not be distressed by intrusive memories of the trauma, and, if they have dreams that are upsetting, it might be difficult to make the cognitive connection between the content of these dreams and the trauma they have experienced. Another difference seen in the younger subtype involves the criterion of alterations in arousal and reactivity. More specifically, the younger subtype notes that children under 6 might show extreme temper tantrums as a sign of irritability or anger (APA, 2013c).

Since the relatively recent publication of the DSM-5, data is still being gathered regarding the validity of the new preschool subtype. In a 2015 study, Gigengack, van Meijel, Alisic, Lindauer looked at diagnostic outcomes in a sample of almost 100 children ages 0–7 years who suffered accidental injuries using: (a) the new DSM-5 PTSD Preschool subtype; (b) Scheeringa's (2002) alternative algorithm for PTSD in young children (PTSD-AA), which helped inform changes for the DSM; and (c) the DSM-IV PTSD criteria. Their results suggested that the DSM-5 subtype and Scheeringa's algorithm were more suitable than the older DSM-IV criteria in identifying posttraumatic stress symptoms in this sample. Similarly, in earlier studies, Scheeringa, Myers, Putnam, and Zeanah (2012) and De Young, Kinardy, and Cobham (2011) found empirical support for developmentally sensitive PTSD criteria, which contributed to the new preschool subtype in DSM-5. From a practical standpoint, clinicians assessing for potential PTSD in younger children should become knowledgeable regarding the range of symptoms that might be manifested, including: (a) more subtle avoidance behaviors (e.g., looking away from trauma reminders); (b) changes in cognition (e.g., withdrawal from social interactions, constriction of play) that are not easily apparent, especially since younger children have less sophisticated language skills; and (c) changes in arousal/reactivity (e.g., irritability, outbursts, poor concentration), which are sometimes mistaken for other disorders (De Young et al.). In addition, De Young et al. and Scheeringa et al. note that younger children might manifest other features of trauma: increased clinginess or separation anxiety, regression in development, new fears, or new onset of aggression. Based upon the above, it is important for clinicians to adopt a more comprehensive framework in assessing PTSD and trauma symptoms in younger children. Questionnaires should be supplemented with interviews and observations as much as possible. In addition, clinicians need to monitor young children who have been exposed to traumatic events, do not meet full criteria for PTSD, but demonstrate subthreshold levels of symptoms.

Obsessive-Compulsive Disorder

In the DSM-5, Obsessive-Compulsive Disorder (OCD) is no longer in the same chapter as anxiety disorders, though clinicians and researchers still acknowledge overlap between the two. While most research related to pediatric OCD has been conducted with children ages 8 and up, there is a small, but growing body of literature focusing on younger children. According to Garcia et al. (2009), OCD has been documented in children as young as 2–3 years old. "Early childhood OCD" is often used to refer to OCD with onset of symptoms before age 8. In a study of 58 children with early childhood OCD, Garcia et al. found that the mean age of onset was 4.95 years. Seventy-five percent of the sample reported multiple obsessions, with the most common being contamination, followed by themes related to aggression or catastrophe, religious or moral obsessions (also known as scrupulosity), and somatic obsessions. Ninety-six percent of the sample reported multiple

compulsions, with the most common being checking, washing, rituals involving other people, and repeating in some form. In this same study, the researchers found that 20 % of the children had a first degree relative with OCD and 32 % had such a relative with some other type of anxiety disorder. Garcia et al. noted that their sample showed lower rates of depression in comparison to older children with OCD. However, a key similarity is that the young sample showed full-blown symptoms, not just beginning stages or partial symptoms. Other research has also found that early childhood OCD is associated with family history and is characterized by significant impairment (Coscun, Zoroglu, & Ozturk, 2012; Nakatani et al., 2011). Some research has noted that OCD in younger children may, in fact, be more impairing due to longer illness duration, higher levels of comorbid tics, and greater psychosocial difficulties (Nakatani et al., 2011). In addition, child-onset OCD in general may be more impairing than later onset OCD, since it can interfere with the attainment of major developmental tasks (Valderhaug & Ivarsson, 2005).

When it comes to assessment for early childhood OCD, there are some unique developmental considerations. One of these is that children may have difficulty talking about or even recognizing cognitions that are repetitive, unusual, etc. since metacognitive skills are less developed in this age range. If children are unable to identify or express their obsessions to others, compulsions are more likely to be prominent as symptoms to parents, teachers, and others. However, at the same time, these behaviors may not be well understood if the child cannot explain them. Even as children become aware of obsessive thoughts, they may not be able to distinguish them from other types of recurring thoughts or images or to make the connection between their obsessions and their compulsive behaviors (Choate-Summers et al., 2008). Choate-Summers also described difficulties discriminating between compulsive behavior and tics or other repetitive behaviors. This might be related to young children having a hard time describing the fear behind their compulsions, which contributes to the impression that they are more automatic behaviors. Also, young children's compulsions might involve the need to touch or tap items until certain sensations are attained. Given this sensory aspect, such compulsions are often difficult to differentiate from tic behaviors. In addition, it is vital to discern OCD symptoms from ritualized behaviors that have been incorporated into a young child's routine. Parents and families are encouraged to establish routines early in children's lives to establish a sense of stability and organization. However, some routines might become overly rigid due to child temperament, parent personality, or variables in the home/family environment. To distinguish between more typical developmental routines and OCD, Choate-Summers et al. recommend that clinicians examine duration of behaviors, the roles/functions they serve in the child's life, and the degree of interference and distress they generate. Families might reinforce or otherwise contribute to OCD in young children through unhealthy problem solving or coping techniques, exemplifying anxious ways of thinking about or interpreting situations, and accommodating to OCD symptoms. There are no specific measures for assessing OCD in younger children. However, Freeman, Flessner, and Garcia (2011) and Cook, Freeman Garcia, Sapyta, and Franklin (2015) examined use of the Children's Yale-Brown Obsessive Compulsive Scale

(CY-BOCS; Scahill et al., 1997) with 5–8 year old children instead of older children. Results indicated good internal consistency and test-retest reliability for the total scale. However, there was poor internal consistency for the Obsessions subscale and the Compulsions subscale has received mixed empirical support. Both of the above studies found solid evidence for the convergent validity of the total CY-BOCS score, but there were mixed results for discriminant validity.

Depression in Young Children

While there have been recent advances in assessment of depression in young children, the field is emerging and complex. In addition, controversy still exists regarding time of diagnosis. When focusing on infancy, there are no standardized instruments for assessing depression. If clinicians do suspect depression in an infant, they are typically relying on information gathered through observation and parent/caregiver report. Several studies suggest that symptoms related to depression can be identified as early as 2–3 years of age (Garstein & Bateman, 2008; Luby, Si, Belden, Tandon, & Spitznagel, 2009). Luby et al. examined a sample of children ages 3 to 6 years (including subsamples of healthy, disruptive, and depressed children) and interviewed their parents. Their results indicated that significant symptoms of depression may develop as early as age 24 months, and aspects of negative self-concept in toddlers were the strongest predictors of preschool depression.

As noted above, temperament factors are strongly emphasized when considering a young child's general risk for psychopathology, and this applies to depression itself. As the construct of emotion regulation (ER) has gained greater recognition, both clinically and empirically, it is clear that it plays a role in many psychological disorders, including early depression. Bron et al. (2012) looked at young children who were classified with an ER difficulty between birth and 3 years of age. They found that 39–69 % of them had scores above the clinical cutoff range for internalizing, externalizing, and total problems as measured by the CBCL in comparison to 16 % of children without some form of ER difficulty. In a research review, Eisenberg, Sprinrad, and Eggum (2010) indicated that a range of studies (e.g., Dennis, Brotman, Huang, & Gouley, 2007; Feldman, 2009) found significant inverse relationships between various aspects of ER (e.g., effortful control, attentional control, positive reward anticipation) and internalizing difficulties in young children. Given the empirically supported link between low ER in young children and internalizing difficulties, the assessment of ER early in a child's life, even during infancy, is an important step. Such assessment most typically involves structured observations and tasks.

Beyond infancy, during the preschool years, as children's behavioral and emotional patterns become more visible and they develop greater language skills, assessment of depression is more feasible. In line with these changes, some

researchers have developed more structured techniques and models of assessment. For example, both Luby et al. (2002) and Scheeringa et al. (2002) proposed modifications to the DSM-IV that were focused on making the criteria for diagnosis of depression more developmentally appropriate and valid in younger children. Luby placed an emphasis on the symptoms of sad OR irritable mood, anhedonia, eating and/or sleeping difficulties, low energy, and low self-esteem. Both Luby and Scheeringa proposed changes in the duration requirement for Major Depressive Disorder (MDD) diagnosis in children, such that symptoms of depressed or irritable mood did not have to be continuously present for a two-week period. Thirdly, both Luby and Scheeringa indicated that preoccupation with death can be conceptualized as a symptom of depression in young children, but suggested that it might not be expressed verbally. Instead, young children's play should be examined for potential signs, which may include themes of characters, dolls, etc. being seriously hurt, injured, or dying. Studies by Luby and colleagues (e.g., Luby et al., 2002, 2003) provide some support for the concurrent and predictive validity of Scheeringa's RDC-PA for diagnosing MDD in children ages 3 to 5.

Instruments/Measures

Several standardized tools have gained prominence in assessing psychological problems in younger problem. This section will be devoted to measures that are most applicable to children below age 7.

The Children's Moods, Fears, and Worries Questionnaire (CMFWQ; Bayer, Sanson, & Hemphill, 2006b) is a parent-report questionnaire designed to assess internalizing difficulties in toddlers and preschoolers. The original sample included 112 parents of 2-year-olds drawn from an Australian community who were followed until the children were 4 years old. Bayer et al. noted that most parents were Anglo-Australian but showed a mix of cultural, educational, and employment backgrounds. After pilot testing and further revision, the current version consists of 35 items for 2-year-olds; 38 items for 4-year-olds and 34 items for 7-year olds. Items are answered on a five-point frequency scale ranging from 1 = Almost never to 5 = Almost always. For a sample ages 18 months–7 years, Andrijic, Bayer, and Bretherton (2013) found that a cutoff score of 2.87 was useful in delineating true positives and negatives for children with anxiety diagnoses. Early factor analyses of the CMFWQ generated two main factors: (a) internalizing difficulties, consisting of items tapping anxiety, depression and BI and (b) solitary play with peers. However, Broeren and Muris (2008) examined a 60-item version of the CMFWQ which yielded three factors, including fear and anxiety problems, inhibition/solitary play, and mood problems. Both Broeren and Muris and Bayer et al. (2006b) found high internal consistencies for the total scale, with Cronbach's alphas over 0.90. Broeren and Muris also found strong internal consistencies for the three subscales they generated, with Cronbach's alphas ranging from 0.88 to 0.92. Test-retest reliability over a 2-year period was strong (r = 0.56).

The Preschool Anxiety Scale-Revised (PAS-R; Edwards, Rapee, Kennedy, & Spence, 2010) is a parent-report measure specifically devoted to the assessment of a range of anxiety symptoms in young children. The original PAS was developed using a large community sample of young children ages 2½–6½ in Australia. The PAS-R consists of 30 items rated on a five-point scale from 0 (not at all true) to 4 (very often true). Based upon the revised items, the authors derived four factors: generalized anxiety, social anxiety, separation anxiety, and specific fears. Internal consistency was solid, with an alpha of 0.92 for the total scale and alphas ranging from 0.72 to 0.89 for the component scales. In addition, Edwards et al. reported good stability over 1 year, with test-retest reliabilities ranging from 0.60 to 0.75; moderate to high agreement between mother versus father informants; and moderate to high correlations with other measures/indicators of anxiety.

The Picture Anxiety Test (PAT; Dubi & Schneider, 2009) was developed on a Swiss sample to measure anxiety symptoms in children ages 4–8 years. It obtains information from the child's perspective and was developed to be aligned with the cognitive and verbal skills of younger children. The PAT includes 17 items, each of which consists of two color illustrations, portraying two different reactions of a child in a potentially fearful or anxiety-provoking situation. The examinee is asked to pick which picture would most closely correspond to him or her. The examiner also asks the child to indicate his/her degree of both fear and avoidance for each illustration, and these reactions are assessed on a five-point-scale ranging from "not at all" (0) to "very much" (3). The examiner can adjust these ratings based upon clinical judgment. The PAT provides a total anxiety score, a total avoidance score, and a composite score (anxiety + avoidance). The PAT also assesses symptoms related to separation anxiety disorder, generalized anxiety disorder, and social phobia. Dubi, Lavalee, and Schneider (2012) examined psychometric properties of the PAT in a community sample and found strong internal consistency for the three main scores, with Cronbach's alphas ranging from 0.77 to 0.88 and adequate test-retest reliability over a 4–6 week period with r values ranging from 0.65 to 0.71. For inter-rater reliability, there was strong agreement between raters, with Cohen's Kappas ranging from 0.83 to 1.0 for anxiety ratings and 0.79 to 1.0 for avoidance ratings. Evidence for the convergent validity of the PAT has been mixed (Dubi, Lavelle & Schneider; Dubi & Schneider).

The Preschool Feelings Checklist is a 16 item checklist, answered by parents in a "yes"/"no" format, that is used to screen for depression in young children (PFC; Luby, Heffelfinger, Mrakotsky, & Hildebrand, 1999). The PFC is available online as a PDF: http://www2.tulane.edu/som/tecc/upload/Preschool-feelings-checklist.pdf and takes 2–3 min to complete. It was developed using a sample of 174 children ages 3–0 through 5–6 recruited from community pediatric settings (77 % of sample) and young child mental health clinics (23 % of sample). Internal consistency for the PFC was fairly strong with a Cronbach's alpha of 0.76. The sensitivity and sensitivity of the PFC were assessed by Luby, Heffelfinger, Koenig-McNaught, Brown, and Spitznagel (2004), who concluded that a total PFC cutoff score of 3 provided maximal ability to correctly differentiate youngsters with depression from those without (sensitivity) and to not incorrectly identify children who did not have

a psychiatric disorder (specificity). The greatest limitation of the PFC is the small sample used to examine its psychometric properties. There has been additional research using the PFC. Luby, Si, Belden, Tandon, and Spitznagel (2009) used it to screen a sample of approximately 300 children ages 3 to 6 years and concluded that clinical-level symptoms of depression arise as early as 24 months for some children. Fuhrmann, Equit, Schmidt, and von Gontard (2014) studied a sample of 653 children in Germany at school entry, with a mean age of 6.2 years. Using the cutoff score of three or higher, they found that 5.7 % of the sample had depression symptoms "of clinical relevance."

When it comes to assessment of trauma in young children, one of the most widely used instruments is the Trauma Symptom Checklist for Young Children (TSCYC; Briere, 1999), which is a parent-report questionnaire containing 90 items that is intended for children ages 3–12 years. The most common application of the TSCYC is with abused and traumatized children as a measure assessing overall trauma reaction, including trauma symptomatology and comorbid conditions. The TSCYC includes eight clinical scales: (a) posttraumatic stress (PTS)-Intrusion, which reflects distress related to intrusive thoughts, memories, etc.; (b) PTS-Avoidance, which reflects behaviors/symptoms related to escaping from or trying to get away from stimuli associated with the trauma; (c) PTS-Arousal, which reflects symptoms related to reactivity and sensitivity; (d) Sexual Concerns, which reflects sexual distress and preoccupation; (e) Anxiety, which encompasses general aspects of anxiety and worry as well as specific fears; (f) Depression, which captures depressive feelings and thoughts and related symptoms; (g) Dissociation, which reflects degree of detachment from the environment; and (h) Anger/Aggression. It also includes two validity scales: (a) Response Level, which assesses the general tendency to deny typical, minor behavior problems in one's child and is, thus, related to under-reporting of symptoms and (b) Atypical Response, which assesses the parent's tendency to endorse a set of very unusual and unrelated behaviors (Briere, 1999).

The TSCYC was normed on 750 children matched to the U.S. Census with 42.3 % having experienced a highly upsetting or traumatic event. According to Briere et al. (2001), the TSCYC shows solid internal reliability, with an overall alpha of 0.94, and the clinical scales demonstrate good internal reliability, with coefficient alphas ranging from 0.73 to 0.91. There is some evidence for the construct validity of the TSCYC, and several studies have demonstrated the instrument's convergent validity specifically (Gilbert, 2004; Wherry, Graves, & King, 2008). Wherry, Corson, and Hunsaker (2013) developed a short form of the TSCYC consisting of 32 items loading onto the eight factors described above. Though additional research is warranted, this short form showed evidence of good convergent validity when compared to other measures. Although the TSCYC does have a self-report counterpart, the Trauma Symptom Checklist for Children (TSCC; Briere, 1996) the minimum age range for the TSCC is 8 years, making it inappropriate for preschoolers. Despite this, it is valuable to gain input of preschoolers through other means such as observations. Clinicians also need to make distinctions in the type of assessment that is warranted. For example, in some cases it may be unclear if a young child was exposed to a traumatic event and this warrants careful investigation.

For these situations, parent- and/or child-report measures, such as the Trauma Exposure Symptom Inventory-Parent Report Revised (TESI- PRR; Ghosh-Ippen et al., 2002), the Violence Exposure Scale for Children-Preschool Version (VEX-PV; Fox & Leavitt, 1995), etc. are warranted. If a child has been exposed, it is imperative to understand the nature, degree and impact of their symptoms. Young children who have been exposed to traumatic events might or might not meet criteria for a PTSD diagnosis, but still need intervention for subthreshold symptoms.

When it comes to broadband instruments, the parent and teacher/caregiver rating scales of the BASC-3 (PRS and TRS) (Reynolds & Kamphaus, 2015) and the ASEBA (Achenbach & Rescorla, 2000) have early childhood versions. The PRS and TRS of the BASC-3 cover ages 2-5 years, with specific norms for this age group, and it generates an Internalizing Problems composite score that is relevant to many of the concerns discussed in this chapter. These BASC rating scales also produce Clinical Scale scores for Anxiety and Depression and Content Scale scores for several areas related to internalizing type problems (e.g., Emotional Self-Control and Negative Emotionality). Given the recent release of the BASC-3, there has not yet been any published research focusing on its use with preschool populations. The preschool version of the ASEBA covers ages 1 ½-5 years using the Child Behavior Checklist (CBCL) and the Caregiver-Teacher Report Form (C-TRF). These measures yield an Internalizing problems score as well as scores for Syndrome scales (e.g., Anxious/Depressed and Emotionally Reactive). There is some research to support the validity of these Syndrome scales (e.g., Ivanova et al., 2010, 2011). Some research has examined the score profiles and/or factor structure of the CBCL for 1½–5 year olds across different race or ethnicity groups and income levels. For example, Gross et al. (2006) concluded that the CBCL is appropriate to use with parents of low-income children from African American and Latino backgrounds but also found that there were differences in some Internalizing Scale scores based upon income and parent race/ethnicity, suggesting the need to interpret these scores with caution.

The Diagnostic and Infant Preschool Assessment (DIPA; Scheeringa, 2004) is a diagnostic interview for parents/caregivers of children who are six and younger. It incorporates both structured aspects (i.e., initial probe questions are detailed and should be read exactly as they are) and unstructured aspects (i.e., the interviewer follows scripted probes with questions to obtain examples). Each disorder of the DIPA has its own set of questions (module), corresponding to a symptom from the DSM-5. Each module can be administered individually. The DIPA was updated in February 2014 to align with the DSM-5. The DIPA and its manual can be accessed online: http://www.infantinstitute.org/measures-manuals/. According to Scheeringa, the DIPA can be used with parents/caregivers of infants up to age 6 years. The DIPA operates under the assumption that interviewees have some frame of reference of what is normal and abnormal. This represents a potential limitation since parents might not feel knowledgeable about this, especially if the target child is a first and/or only child. Follow-up questions for each DIPA module involve assessment of onset, frequency, and duration of symptoms and functional impairment. According to Scheeringa and Haslett (2010), the original DIPA showed good test-retest reliability and concurrent validity; psychometric properties of the updated DIPA were not yet available at the time of this writing.

The Preschool Age Psychiatric Assessment (PAPA; Egger & Angold, 2004) is a structured interview for diagnosing psychiatric disorders in children ages 2–5. The PAPA is administered to parents/caregivers and focuses on problems and symptoms that have occurred within the 3 months prior to the interview. The PAPA includes modules related to a variety of syndromes including, but not limited to, depression, separation anxiety, anxious affect, and posttraumatic stress syndrome. The interview also assesses disability resulting from symptoms, family environment and relationships, family psychosocial problems, and life events. As described by Egger et al. (2006), the PAPA involves a highly structured protocol with mandatory questions and probes. Interviewers must be knowledgeable when it comes to ensuring that interviewees understand the questions and when providing examples about behaviors and feelings that relate to symptoms. It also requires interviewers to document frequency, duration, onset, setting and context of symptoms. In a study of the reliability and utility of the PAPA, Egger et al. noted that it showed diagnostic utilities comparable to those of interviews for older children and adolescents. In addition, reliability did not differ significantly based upon gender, age, or race of the child (African–American vs. non-African–American). The PAPA has been effectively used to assess depression as well as anxiety in young children (Bufferd, Dougherty, Carlson, & Klein, 2011; Wichstrøm, 2012).

Historically, the assessment of psychopathology in younger children has involved adult informants based upon the assumption that children under age 6 cannot serve as reliable informants of their own symptoms due to limitations in cognitive and linguistic skills. However, research has found significant differences in parent and child reports of emotional and behavioral problems (Kolko & Kazdin, 1993; Wu et al., 1999), and there is also increasing evidence that young children can provide valid self-assessments of their symptoms, especially when it comes to more internalizing types of difficulties which might not be accurately detected by adults (Luby, Belden, Sullivan, & Spitznagel, 2007).

One of the more well-studied instruments for young children's self-reports of anxiety and depression is the Berkeley Puppet Interview (BPI; Measelle, Ablow, Cowan, & Cowan, 1998; Morris et al., 2002). The BPI is an interactive technique, which involves engaging the child in conversation by having two puppets make opposing statements (e.g., "I am a sad child" and "I am not a sad child") and then asking the child "What about you?" The BPI can be used with children ages 4–6 years through 8 years and taps children's self-perceptions across academic, social, and emotional domains (Measelle et al., 1998). The BPI allows children to respond with full or partial verbal statements or nonverbally. Children's responses are coded on a 7-point scale, with a seven representing the greatest absence of problems and a one representing a strong presence of a problem (Stone et al., 2014).

The BPI consists of more than 25 scales, and interviewers can choose the scales they want to administer. Eight of these are Symptomology Scales (BPI-S) (Ringroot et al., 2013). Three of these eight (depression, anxiety, and separation anxiety) contribute to the overall Internalizing scale, and three contribute to the overall Externalizing scale. The two additional symptomology scales—acceptance and rejection by peers and being bullied—are considered part of the Peer Relations

scale. The psychometric properties of the BPI have been examined in several studies. For example, Stone et al. (2014) found evidence of congruent and concurrent validity and satisfactory inter-rater reliability for the instrument. Ablow et al. (1999) found that test-retest reliability for the overall BPI was 0.60 with an interval of 7–10 days. This study also provided some support for the construct validity of the internalizing and externalizing dimensions and for the discriminant validity of the instrument since clinic-referred children scored in the expected directions as compared to a community sample. Luby et al. (2007) focused specifically on the utility and validity of BPI depression and anxiety items. Their results indicated that self-reports of basic BPI depression and anxiety symptoms significantly correlated with other measures concurrently and at 6 month follow-up. However, the researchers found that symptoms that were more complex or abstract for young children were less likely to be significantly associated with data from parent measures. Ringroot et al. (2013) conducted confirmatory factor analysis of the BPI in a large community sample of Dutch children (n = 6375). They found adequate internal consistencies for the three problem domains of internalizing, externalizing, and peer relations, with Cronbach's alphas of 0.72, 0.79 and 0.68, respectively, but not all of the individual scales. Ringroot et al. also reported that higher scores on many of the BPI scales were linked to non-Western ethnicity and lower maternal education and family income. Thus, ethnicity and SES factors might influence children's responses to the BPI and warrant further exploration.

Implications for Practice

The following is a summary of guidelines and key points for practitioners who are assessing young children for possible anxiety or other clinical diagnoses described above. They are intended not only to provide a framework for conducting evaluations with these children and their families, but also to serve as a meaningful link to effective intervention strategies. As a general guideline, clinicians should be mindful that prevention of clinically significant anxiety and other psychological problems has multiple levels. Selective prevention for young children with known risk factors and indicated prevention for those with early signs/symptoms of disorders are most applicable in early childhood settings. In these contexts, psychologists can collaborate with families and other care providers to reduce risks and use evidence-based strategies to optimize child and family functioning.

- Early identification and intervention have potential to prevent internalizing problems in early childhood. Clinically significant anxiety and depression can occur in children as young as two or three.
- Temperament characteristics are reliable indicators of risk for anxiety in early childhood, particularly high BI and negative affectivity and low effortful control.

- Some research indicates that speech/language and motor problems are risk factors for early childhood depression, suggesting the need for increased monitoring in this population.
- Parental depression and anxiety show clear evidence as risk factors for early childhood internalizing problems. Parenting behaviors, most notably, overprotection and harsh discipline, are also risk factors. All of the above should be considered when assessing social-emotional functioning in young children.
- Assessment with families is crucial. Interviews provide information regarding symptoms and context and also enable clinicians to gather family history. Based upon the above risk factors, clinicians need to examine specific temperament characteristics and parenting practices.
- A number of standardized tools are available to assess depression, anxiety and related problems in young children. Many measures are parent-report, but input from affected children should also be incorporated into assessment protocols. Structured observation tasks are also useful to gather information regarding young children's reactions, responses and temperament. For a review of preschool narrative tools, meaning those that are intended to elicit verbal accounts from young children about their feelings, thoughts, etc., the reader is directed to Bettman and Lundahl (2007).

The following list summarizes information related to treatment:

- Given the connections between parents' and young children's anxiety, treatment of this condition in parents might be beneficial in addressing child symptoms. There is some evidence that parental anxiety management is helpful in treating young children's anxiety (Cobham, Dadds, Spence, & McDermott, 2010).
- Preventive interventions show positive effects for young children at risk for clinical anxiety. *Cool Little Kids* is a prevention-based program focusing on child inhibition and overprotective parenting (Kennedy, Rapee, & Edwards, 2009). This intervention has the most empirical support as a form of early intervention.
- Modified cognitive-behavioral therapy, involving parents/families and using cartoons, drawings, etc., shows promise in treating PTSD & anxiety disorders in younger children (Hirshfeld-Becker, Micco, Mizursky, Bruette, & Henin, 2011). Modified Parent–Child Interaction Therapy (PCIT; Bell & Eyberg, 2002) also has some research support in treating anxiety and depression in this age group. For a more extensive review, readers are referred to the work of Luby (2013).
- When selective mutism is suspected, functional behavioral observation (FBO) is recommended as a form of assessment (Shriver, Segool, & Gortmaker, 2011). This includes examination of the child's quality of communication, setting events, and environmental variables (including people the child does and does not communicate with), and antecedents and consequences. FBO can be used to inform interventions including contingency management to reinforce speaking, shaping techniques, and stimulus procedures (e.g., prompting, introducing, and then fading new conversants into child's environment).

- In young children, selective mutism is most likely to be effectively addressed through a team approach which incorporates behavior principles, such as contingency management (e.g., rewarding verbalizations/speaking), stimulus fading, systematic desensitization, modeling, and shaping (Ponzurick, 2012; Viana, Beidel, & Rabian, 2009). With greater age and cognitive abilities, children with selective mutism may also benefit from cognitive-behavioral interventions, such as role playing, guided imagery, relaxation techniques, and graduated exposure to real situations.
- There is little data regarding effective treatment for OCD in young children. However, Lewin et al. (2014) found positive effects for family-based exposure and response-prevention therapy, as compared to a control group, in a small sample of young children. This therapy involved psychoeducation for parents and children; use of behavioral principles such as development of appropriate rewards, differential reinforcement, extinction of OCD behaviors, and modeling; and exposure to cues/stimuli that trigger OCD with associated prevention of OCD symptoms.
- Similarly, there is little information related to evidence-based treatment of school refusal in young children. Kearney et al. have noted that parent-based treatments are often indicated due to separation anxiety, attention-seeking, and other family factors that contribute to symptoms.

Case Study—Anxiety in a Young Child

Emma is an almost 5 year old girl who lives at home with both parents, Mr. and Mrs. Mason, who work full-time outside the home. She was born full-term and reached early language and motor milestones within normal limits. Emma is described by her parents and preschool teacher as reserved, but not excessively shy. She has several friends in her classroom. However, it does take her a long time to get used to new situations or environments. For example, Emma has been attending the same small child care facility since infancy, and, whenever she has transitioned up to an older classroom, she becomes extremely upset and throws tantrums. Since she was a baby, Emma has shown difficulty when it comes to trying new activities. Mr. and Mrs. Mason have tried to get her involved in dance and swimming lessons. Emma initially expressed interest in doing these activities. However, when her parents brought her to them, she was clingy, withdrew from the other children, and did not want to participate. Mr. and Mrs. Mason have tried to talk to Emma and coax her into participating. They have also stayed with her during new activities to try to get her comfortable with them. This has not worked, and Emma's parents note that she only winds up crying and refusing to leave their side. Emma is about to enter kindergarten, and her district holds a special event for prospective students to come to the elementary school, meet their teacher, and ride the school bus; parents are also expected to attend. Mrs. Mason took time off and accompanied

Emma. Prior to the "move-up" day, Emma expressed resistance about going, but her mother was able to convince her. Throughout the move-up activities, Emma cried and clung to her mother. When Mrs. Mason tried to leave briefly to take a tour of the school with the other parents while the children stayed with their prospective teachers, Emma threw a tantrum involving screaming, crying and some physical aggression.

Following this incident, Mr. and Mrs. Mason spoke to their pediatrician who recommended that they have a mental health consultation. The Mason's, with Emma, go to see a psychologist, Dr. Anderson, who specializes in emotional/behavioral difficulties in younger children. Through parental interview, Dr. Anderson finds that both parents have a history of anxiety problems; Mrs. Mason also has a history of depression. The Mason's responses to questions about parenting strategies indicate they often give Emma a lot of attention when she cries or expresses frustration because they have difficulty tolerating these emotions. Dr. Anderson spends time alone with Emma and finds that she is initially shy about playing without her parents present. Dr. Anderson is able to engage Emma in pretend play which reveals frequent themes of dolls being afraid to do different activities. Dr. Anderson administers the CMFWQ to Emma's parents. Mrs. Mason's total score for Emma was 18, while Mr. Mason's score was 16. Both of these scores exceed the suggested clinical cut-off score of 2.87. Both parents rated Emma higher for the Internalizing Difficulties subscale, which captures a variety of symptoms related to anxiety, withdrawal, depression, etc., than the Solitary Play subscale.

Discussion Questions

1. Describe additional assessment information that Dr. Anderson should gather.
2. What are specific anxiety disorders/diagnoses that might apply to Emma?
3. Based upon the information provided in the scenario, what might be considered the best strategies and targets for treatment for Emma's anxiety problems?
4. In considering treatment, in what ways should home and Emma's future school be specifically involved?

References

Ablow, J. C., Measelle, J. R., Kraemer, H. C., Harrington, R., Luby, J., Smider, N., ... Essex, M. J. (1999). The MacArthur Three-City Outcome Study: Evaluating multi-informant measures of young children's symptomatology. *Journal of the American Academy of Child and Adolescent Psychiatry, 38*, 1580–1590.

Achenbach, T. M., & Rescorla, L. A. (2000). Manual for the ASEBA preschool forms & profiles. Burlington, VT: University of Vermont, Research Center for Children, Youth, & Families.

American Psychiatric Association. (2013a). Separation anxiety disorder. In *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Author.

American Psychiatric Association. (2013b). Selective Mutism. In *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Author.

American Psychiatric Association. (2013c). Posttraumatic stress disorder. In *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Author.

Andrijic, V., Bayer, J., & Bretherton, L. (2013). Validity of the children's moods, fears and worries questionnaire in a clinical setting. *Child and Adolescent Mental Health, 18*(1), 11–17. doi:10.1111/j.1475-3588.2012.00655.x

Anthony, L. G., Anthony, B. J., Glanville, D. N., Naiman, D. Q., Waanders, C., & Shaffer, S. (2005). The relationships between parenting stress, parenting behavior and preschoolers' social competence and behavior problems in the classroom. *Infant and Child Development*, *14*(2), 133–154. doi:10.1002/icd.385

Bayer, J. K., Sanson, A. V., & Hemphill, S. A. (2006a). Parent influences on early childhood internalizing difficulties. *Journal of Applied Developmental Psychology, 27*, 542–559.

Bayer, J. K., Sanson, A. V., & Hemphill, S. A. (2006b). Children's moods, fears, and worries: Development of an early childhood parent questionnaire. *Journal of Emotional Behavioral Disorders, 14*(1), 41–49.

Bell, S. K., & Eyberg. S. M. (2002). Parent-child interaction therapy. In L. VandeCreek, S. Knapp, & T. L. Jackson (Eds.), *Innovations in clinical practice: A source book* (Vol. 20, pp. 57–74). Sarasota, FL: Professional Resource Press.

Bettman, J. E., & Lundahl, B. W. (2007). Tell me a story: A review of narrative assessments for preschoolers. *Child and Adolescent Social Work Journal, 24*, 455–475. doi:10.1007/s10560-007-0095-8

Bolton, D., Eley, T. C., O'Connor, T. G., Perrin, S., Rabe-Hesketh, S., Rijsdijk, F., & Smith, P. (2006). Prevalence and genetic and environmental influences on anxiety disorders in 6-year-old twins. *Psychological Medicine, 36*, 335–344.

Briere, J. (1996). *The Trauma Symptom Checklist for Children*. Psychological Assessment Resources (PAR).

Briere, J. (1999). *The Trauma Symptom Checklist for Young Children*. Psychological Assessment Resources (PAR).

Briere, J., Johnson, K., Bissada, A., Damon, L., Crouch, J., Gil, E., ... Ernst, V. (2001). The Trauma Symptom Checklist for Young Children (TSCYC): Reliability and association with abuse exposure in a multi-site study. *Child Abuse and Neglect, 25*, 1001–1014.

Broeren, S., & Muris, P. (2008). Psychometric evaluation of two new parent-rating scales for measuring anxiety symptoms in young Dutch children. *Journal of Anxiety Disorders*, *22*(6), 949–958.

Bron, T. I., Van Rijen, E. H. M., Van Abeelen, A. M., & Lambregtse-Van den berg, M. P. (2012). Development of regulation disorders into specific pathology. *Infant Mental Health Journal, 33* (2), 212–221. doi:10.1002/imhj.21325

Bufferd, S. J., Dougherty, L. R., Carlson, G. A., & Klein, D. N. (2011). Parent-reported mental health in preschoolers. Findings using a diagnostic interview. *Comprehensive Psychiatry, 52* (4), 359–369. doi:10.1016/j.comppsych.2010.08.006

Carbone, D., Schmidt, L. A., Cunningham, C. C., McHolm, A. E., Edison, S., Pierre, J. S., et al. (2010). Behavioral and socio-emotional functioning in children with selective mutism: A comparison with anxious and typically developing children across multiple informants. *Journal of Abnormal Child Psychology, 38*(8), 1057–1067.

Chavira, D. A., Shipon-Blum, E., Hitchcock, C., Cohan, S., & Stein, M. B. (2007). Selective mutism and social anxiety disorder: All in the family? *Journal of the American Academy of Child and Adolescent Psychiatry, 46*, 1464–1472.

Choate-Summers, M. L., Freeman, J. B., Garcia, A. M., Coyne, L., Przeworski, A., & Leonard, H. L. (2008). Clinical considerations when tailoring cognitive behavioral treatment for young children with obsessive compulsive disorder. *Education and Treatment of Children, 31*(3), 395–416.

Cobham, V. E., Dadds, M. R., Spence, S. H., & McDermott, B. (2010). Parental anxiety in the treatment of childhood anxiety: A different story three years later. *Journal of Clinical Child and Adolescent Psychology, 39*(3), 410–420. doi:10.1080/15374411003691719

Cohan, S. L., Price, J. M., & Stein, M. B. (2006). Suffering in silence: Why a developmental psychopathology perspective on selective mutism is needed. *Journal of Developmental and Behavioral Pediatrics, 27*, 341–355.

Cook, N., Freeman, J., Garcia, A., Saptya, J., & Franklin, M. (2015). Assessment of obsessive compulsive disorder in young children: Psychometric properties of the children's yale brown obsessive compulsive scale. *Journal of Psyhopathology and Behavioral Assessment, 37*(3), 432–441.

Coscun, M., Zorogulu, S., & Ozturk, M. (2012). Phenomenology, psychiatric comorbidity and family history in referred preschool children with obsessive-compulsive disorder. *Child and Adolescent Psychiatry and Mental Health, 6*(36), 1–9. doi:10.1186/1753-2000-6-36

Cunningham, C. E., McHolm, A. E., & Boyle, M. H. (2006). Social phobia, anxiety, oppositional behavior, social skills, and self-concept in children with specific selective mutism, generalized selective mutism, and community controls. *European Child and Adolescent Psychiatry, 15*, 245–255.

Dawson, G., Ashman, S. B., Panagiotides, H., Hessl, D., Self, J., Yamada, E., et al. (2003). Preschool outcomes of children of depressed mothers: Role of maternal behavior, contextual risk, and children's brain activity. *Child Development, 74*(4), 1158–1175.

Dennis, T. A., Brotman, L. M., Huang, K. Y., & Gouley, K. K. (2007). Effortful control, social competence, and adjustment problems in children at risk for psychopathology. *Journal of Clinical Child and Adolescent Psychology, 36*(3), 442–454.

De Young, A. C., Kinardy, J. A., & Cobham, V. E. (2011). Diagnosis of posttraumatic stress disorder in preschool children. *Journal of Clinical Child and Adolescent Psychology, 40*(3), 375–84. doi:10.1080/15374416.2011.563474

Dodd, H. F., Hudson, J. L., Morris, T. M., & Wise, C. K. (2012). Interpretation bias in preschool children at risk for anxiety: A prospective study. *Journal of Abnormal Psychology, 121*(1), 28–38.

Döpfner, M., Görtz-Dorten, A., & Lehmkuhl, G. (2008). DISYPS-II. Retrieved from http://franke-stendal.de/WS0910/M.Sc.I.4-2009-2010/DISYPS-II%20Referat.pdf

Dougherty, L. R., Tolep, M. R., Bufferd, S. J., Olino, T. M., Dyson, M., Traditi, J., ... Klein, D. N. (2013). Preschool anxiety disorders: Comprehensive assessment of clinical, demographic, temperamental, familial, and life stress correlates. *Journal of Clinical Child and Adolescent Psychology, 42*(5), 577–589. doi:10.1080/15374416.2012.759225

Downey, G., & Coyne, J. C. (1990). Children of depressed parents: An integrative review. *Psychological Bulletin, 108*, 50–76.

Dubi, K., Lavallee, K., & Schneider, S. (2012). The Picture Anxiety Test (PAT): Psychometric properties in a community sample of young children. *Swiss Journal of Psychology, 71*(2), 73–81. doi:10.1024/1421-0185/a000073

Dubi, K., & Schneider, S. (2009). The Picture Anxiety Test (PAT): A new pictorial assessment of anxiety symptoms in young children. *Journal of Anxiety Disorders, 23*(8), 1148–1157.

Edwards, S. L., Rapee, R. M., Kennedy, S. J., & Spence, S. H. (2010). The assessment of anxiety symptoms in preschool-aged children: The Revised Preschool Anxiety Scale. *Journal of Clinical Child and Adolescent Psychology, 39*(3), doi:10.1080/15374411003691701

Egger, H. L., & Angold, A. (2004). The Preschool Age Psychiatric Assessment (PAPA): A structured parent interview for diagnosing psychiatric disorders in preschool children. In R. Delcarmen-Wiggens & A. Carter (Eds.), *Handbook of infant and toddler mental health assessment* (pp. 223–246). New York, NY: Oxford University Press.

Egger, H. L., Erkanli, A., Keeler, G., Potts, E., Walter, B. K., & Angold, A. (2006). Test-retest reliability of the Preschool Age Psychiatric Assessment (PAPA). *Journal of the American Academy of Child and Adolescent Psychiatry, 45*(5), 538–549.

Eisenberg, N., Spinrad, T. L., & Eggum, N. D. (2010). Emotion-related self-regulation and its relation to children's maladjustment. *Annual Review in Clinical Psychology, 6*, 495–525.

Elizur, Y., & Perednik, R. (2003). Prevalence and description of selective mutism in immigrant and native families: A controlled study. *Journal of the American Academy of Child and Adolescent Psychiatry, 42*, 1451–1459.

Essex, M. J., Kraemer, H. C., Slattery, M. J., Burk, L. R., Thomas Boyce, W., Woodward, H. R., et al. (2009). Screening for childhood mental health problems: Outcomes and early identification. *Journal of Child Psychology and Psychiatry, 50*(5), 562–570. doi:10.1111/j.1469-7610.2008.02015.x

Evans, D. W., Gray, F. L., & Leckman, J. F. (1999). The rituals, fears and phobias of young children: Insights from development, psychopathology and neurobiology. *Child Psychiatry and Human Development, 29*(4), 261–276.

Farris, A. M., & Jouriles, E. N. (1993). Separation anxiety disorder. In A. S. Bellack & M. Hersen (Eds.), *Handbook of behavior therapy in the psychiatric settings* (pp. 407–426). New York, NY: Plenum Press.

Feldman, R. (2009). The development of regulatory functions from birth to 5 years: Insights from premature infants. *Child Development, 80*(2), 544–561.

Feng, X., Shaw, D. S., & Silk, J. S. (2008). Developmental trajectories of anxiety symptoms among boys across early and middle childhood. *Journal of Abnormal Psychology, 117*, 32–47.

Field, T., Hernandez-Reif, M., & Diego, M. (2006). Intrusive and withdrawn depressed mothers and their infants. *Developmental Review, 26*, 15–30.

Fox, N. A., & Leavitt, L. A. (1995). *The Violence Exposure Scale for Children-VEX (Preschool version)*. College Park, MD: Department of Human Development, University of Maryland.

Freeman, J. B., Flessner, C. A., & Garcia, A. M. (2011). The Children's Yale-Brown Obsessive Compulsive Scale: Reliability and validity for use among 5 to 8 year olds with obsessive compulsive disorder. *Journal of Abnormal Child Psychology, 39*(6), 877–883

Fuhrmann, P., Equit, M., Schmidt, K., & von Gontard, A. (2014). Prevalence of depressive symptoms and associated developmental disorders in preschool children: A population-based study. *European Child and Adolescent Psychiatry, 23*, 219–224. doi:10.1007/s00787-013-0452-4

Garcia, A. M., Freeman, J. B., Himle, M. B., Berman, N. C., Ogata, A. K., Ng, J., ... Leonard, H. (2009). Phenomenology of early childhood onset obsessive compulsive disorder. *Journal of Psychopathology and Behavioral Assessment, 31*, 104–111. doi:10.1007/s10862-008-9094-0

Garstein, M. A., & Bateman, A. E. (2008). Early manifestations of childhood depression: Influences of infant temperament and parental depressive symptoms. *Infant and Child Development, 17*, 223–248.

Ghosh-Ippen, C., Ford, J., Racusin, R., Acker, M., Bosquet, K., Rogers, C., et al. (2002). Trauma Events Screening Inventory-Parent Report Revised. *San Francisco: The Child Trauma Research Project of the Early Trauma Network and The National Center for PTSD*. Dartmouth Child Trauma Research Group.

Gigengack, M. R., van Meijel, E. P. M., Alisic, E., & Lindauer, R. J. L. (2015). Comparing three diagnostic algorithms of posttraumatic stress in young children exposed to accidental trauma: An exploratory study. *Child and Adolescent Psychiatry and Mental Health. 9*(14). doi:10.1186/s13034-015-0046-7

Gilbert, A. (2004). *The psychometric properties of the Trauma Symptom Checklist for Young Children (TSCYC)* (Unpublished doctoral dissertation). Alliant International University, San Diego, CA.

Hanington, L., Ramchandani, P., & Stein, A. (2010). Parental depression and child temperament: Assessing child to parent effects in a longitudinal population study. *Infant Behavior and Development, 33*(1), 88–95. doi:10.1016/j.infbeh.2009.11.004

Heyne, D., King, N. J., & Tonge, B. (2004). School refusal. In T. H. Ollendick & J. S. March (Eds.), *Phobic and anxiety disorders in children and adolescents: A clinician's guide to effective psychosocial and pharmacological interventions* (pp. 236–271). New York, NY: Oxford University Press.

Hirshfeld-Becker, D. R., Micco, J. A., Mizursky, H., Bruette, L., & Henin, A. (2011). Applying cognitive-behavioral therapy for anxiety to the younger child. *Child and Adolescent Psychiatric Clinics of North America, 20*, 349–368. doi:10.1016/j.chc.2011.01.008

Hopkins, J., Lavigne, J. V., Gouze, K. R., LeBailly, S. A., & Bryant, F. B. (2013). Multi-domain models of risk factors for depression and anxiety symptoms in preschoolers: Evidence for common and specific factors. *Journal of Abnormal Child Psychology, 41*, 705–722. doi:10.1007/s10802-013-9723-2

Hudson, J. L., Dodd, H. F., Lyneham, H. J., & Bovopoulos, N. (2011). Temperament and family environment in the development of anxiety disorder: Two-year follow-up. *Journal of American Academy of Child and Adolescent Psychiatry, 50*(12), 1255–1264. doi:10.1016/j.jaac.2011.09.009

Ivanova, M. Y., Achenbach, T. M., Rescorla, L. A., Harder, V. S., Ang, R. P., Bilenberg, N., ... Dobrean, A. (2010). Preschool psychopathology reported by parents in 23 societies: Testing the seven-syndrome model of the Child Behavior Checklist for ages 1.5–5. *Journal of the American Academy of Child and Adolescent Psychiatry, 49*(12), 1215–1224.

Ivanova, M. Y., Rescorla, L. A., Bjarnadottir, G., Dias, P., Doepfner, M., Frigerio, A., ... Achenbach, T. M. (2011). Syndromes of preschool psychopathology reported by teachers and caregivers in 14 societies using the Caregiver-Teacher Report Form (C-TRF). *Journal of Early Childhood and Infant Psychology*, *7*, 87–103.

Kearney, C. A., Chapman, G., & Cook, L. C. (2005). School refusal behavior in young children. *International Journal of Behavioral and Consultation Therapy, 1*(3), 216–222.

Kennedy, S. J., Rapee, R. M., & Edwards, S. E. (2009). A selective intervention program for inhibited preschool-aged children of parents with an anxiety disorder: Effects on current anxiety disorders and temperament. *Journal of the American Academy of Child Psychiatry, 48*, 602–609.

Koblinsky, S. A., Kuvalanka, K. A., & Randolph, S. M. (2006). Social skills and behavior problems of urban, African American preschoolers: Role of parenting practices, family conflict, and maternal depression. *American Journal of Orthopsychiatry, 76*(4), 554–563. doi:10.1037/0002-9432.76.4.554

Kolko, D. J., & Kazdin, A. E. (1993). Emotional/behavioral problems in clinic and non-clinic children: Correspondence among child, parent and teacher reports. *Journal of Child Psychology and Psychiatry, 34*, 991–1006.

Laskey, B. J., & Cartwright-Hatton, S. (2009). Parental discipline behaviours and beliefs about their child: Associations with child internalizing and mediation relationships. *Child: Care, Health and Development, 35*(5), 717–727. doi:10.1111/j.1365-2214.2009.00977.x

Lavallee, K., Herren, C., Blatter-Meunier, J., Adornetto, C., In-Albon, T., & Schneider, S. (2011). Early predictors of separation anxiety disorder: Early stranger anxiety, parental pathology and prenatal factors. *Psychopathology, 44*, 354–361. doi:10.1159/000326629

Levin-Decanini, T., Connolly, S. D., Simpson, D., Suarez, L., & Jacob, S. (2013). Comparison of behavioral profiles for anxiety-related comorbidities including ADHD and selective mutism in children. *Depression and Anxiety, 30*, 857–864.

Lewin, A. B., Park, J. M., Jones, A. M., Crawford, E. A., De Nadai, A. S., Menzel, J., ... Storch, E. A. (2014). Family-based exposure and response prevention therapy for preschool-aged children with obsessive-compulsive disorder: A pilot randomized controlled trial. *Behavior Research and Therapy, 56*, 30–38.

Lichtenstein, P., & Annas, P. (2000). Heritability and prevalence of specific fears and phobias in childhood. *Journal of Child Psychology and Psychiatry, 41*(7), 927–937.

Luby, J. L. (2013). Treatment of anxiety and depression in the preschool period. *Journal of the American Academy of Child and Adolescent Psychiatry, 52*(4), 346–358.

Luby, J. L., Belden, A., Sullivan, J., & Spitznagel, E. (2007). Preschoolers' contribution to their diagnosis of depression and anxiety: Uses and limitations of young child self-report of symptoms. *Child Psychiatry and Human Development, 38*, 321–338.

Luby, J. L., Heffelfinger, A., Koenig-McNaught, A. L., Brown, K., & Spitznagel, E. (2004). The Preschool Feelings Checklist: A brief and sensitive screening measure for depression in young children. *Journal of the American Academy of Child and Adolescent Psychiatry, 43*(6), 708–717.

Luby, J. L., Heffelfinger, A., Mrakotsky, C., & Hildebrand, T. (1999). *Preschool Feelings Checklist*. St. Louis, MO: Washington University. Retrieved from http://www2.tulane.edu/som/tecc/upload/Preschool-feelings-checklist.pdf

Luby, J. L., Heffelfinger, A. K., Mrakotsky, C., Hessler, M. J., Brown, K. M., & Hildebrand, T. (2002). Preschool major depressive disorder: Preliminary validation for developmentally modified DSM-V criteria. *Journal of the American Academy of Child and Adolescent Psychiatry, 41*, 928–937.

Luby, J. L., Mrakotsky, C., Heffelfinger, A., Brown, K., Hessler, M., & Spitznagel, E. (2003). Modification of DSM-IV criteria for depressed preschool children. *American Journal of Psychiatry, 160*, 1169–1172. doi:10.1176/appi.ajp.160.6.1169

Luby, J. L., Si, X., Belden, A. C., Tandon, M., & Spitznagel, E. (2009). Preschool depression: Homotypic continuity and course over 24 months. *Archives of General Psychiatry, 66*(8), 897–905.

Manassis, K., Tannock, R., Garland, E. J., Minde, K., McInnes, A., & Clark, S. (2007). The sounds of silence: Language, cognition, and anxiety in selective mutism. *Journal of the American Academy of Child and Adolescent Psychiatry, 46*, 1187–1195.

McInnes, A., Fung, D., Manassis, K., Fiksenbaum, L., & Tannock, R. (2004). Narrative skills in children with selective mutism: An exploratory study. *American Journal of Speech Language Pathology, 13*, 304–315.

Meadows, S. O., McLanahan, S. S., & Brooks-Gunn, J. (2007). Parental depression and anxiety and early childhood behavior problems across family types. *Journal of Marriage and Family, 69*(5), 1162–1177. doi:10.1111/j.1741-3737.2007.00439.x

Measelle, J. R., Ablow, J. C., Cowan, P. A., & Cowan, C. P. (1998). Assessing young children's views of their academic, social, and emotional lives: An evaluation of the self-perception scales of the Berkeley Puppet Interview. *Child Development, 69*, 1556–1576.

Mian, N. D., Wainwright, L., Briggs-Gowan, M. J., & Carter, A. S. (2011). An ecological risk model for early childhood anxiety: The importance of early child symptoms and temperament. *Journal of Abnormal Child Psychology, 39*(4), 501–512. doi:10.1007/s10802-010-9476-0

Morris, A. S., Silk, J. S., Steinberg, L., Sessa, F. M., Avenevoli, S., & Essex, M. J. (2002). Temperamental vulnerability and negative parenting as interacting predictors of child adjustment. *Journal of Marriage and Family, 64*(2), 461–471.

Muris, P., & Ollendick, T. H. (2015). Children who are anxious in silence: A review on selective mutism, the new anxiety disorder in DSM-5. *Clinical Child and Family Psychology Review, 18*(2), 151–169. doi:10.1007/s10567-015-0181-y

Muris, P., van Brakel, A. M. L., Arntz, A., & Schouten, E. (2011). Behavioral inhibition as a risk factor for the development of childhood anxiety disorders: A longitudinal study. *Journal of Child and Family Studies, 20*, 157–170.

Murray, L., & Cooper, P. (2003). Intergenerational transmission of affective and cognitive processes associated with depression: Infancy and the preschool years. In I. Goodyer (Ed.), *Unipolar depression: A lifespan perspective*. Oxford, England: Oxford University Press.

Murray, L., Fiori-Cowley, A., & Hooper, R. (1996). The impact of postnatal depression and associated adversity on early mother–infant interactions and later infant outcome. *Child Development, 67*(5), 2512–2526.

Nakatani, E., Krebs, G., Micali, N., Turner, C., Heyman, I., & Mataix-Cols, D. (2011). Children with very early onset obsessive-compulsive disorder: Clinical features and treatment outcomes. *Journal of Child Psychology and Psychiatry, 52*(12), 1261–1268. doi:10.1111/j.1469-7610.2011.02434.x

Olino, T. M., Klein, D. N., Dyson, M. W., Rose, S. A., & Durbin, C. E. (2010). Temperamental emotionality in preschool-aged children and depressive disorders in parents: Associations in a large community sample. *Journal of Abnormal Psychology, 119*(3), 468–78. doi:10.1037/a0020112.

Pacholec, N. M., Tamas, M. E., Poggesi, R. M., Hoyman, L. C., Tabbarah, S., Thordarson, M., et al. (2013). "I want my mommy!" Assessment and treatment recommendations for separation anxiety disorder. *International Journal of Law and Social Sciences, 2*(2), 124–129.

Pahl, K. M., Barrett, P. M., & Gullo, M. J. (2012). Examining potential risk factors for anxiety in early childhood. *Journal of Anxiety Disorders, 26*(2), 311–320. doi:10.1016/j.janxdis.2011.12.013

Paulus, F., Backes, A., Sander, C., Weber, M., & Gontard, A. (2015). Anxiety disorders and behavioral inhibition in preschool children: A population-based Study. *Child Psychiatry and Human Development, 46*(1), 150–157.

Ponzurick, J. M. (2012). Selective mutism: A team approach to assessment and treatment in the school setting. *The Journal of School Nursing, 28*(1), 31–37. doi:10.1177/1059840511422534

Ringoot, A. P., Jansen, P. W., Steenweg-de Graaff, J., Measelle, J. R., van der Ende, J., Raat, H., ... Tiemeier, H. (2013). Young children's self-reported emotional, behavioral, and peer problems: The Berkeley Puppet interview. *Psychological Assessment, 25*(4), 1273–1285. doi:10.1037/a0033976

Roberts, Y. H., Campbell, C. A., Ferguson, M. & Crusto, C. A. (2013). The role of parenting stress in young children's mental health functioning after exposure to family violence. *Journal of Traumatic Stress, 26*(5), 605–612. doi:10.1002/jts.21842

Scahill, L., Riddle, M. A., McSwiggin-Hardin, M., Ort, S. I., King, R. A., Goodman, W. K., ... Leckman, J. F. (1997). Children's Yale-Brown Obsessive-Compulsive Scale: Reliability and validity. *Journal of the American Academy of Child and Adolescent Psychiatry, 36*, 844–852.

Scheeringa, M. S. (2004). *Diagnostic Infant and Preschool Assessment*. Version 11/17/10. Retrieved from http://www.infantinstitute.org/MikeSPDF/DIPA_v111710.pdf

Scheeringa, M., et al. (2002). *Research Diagnostic Criteria—Preschool age* (RDC–PA). Retrieved June, 25, 2014 from http://www.infantinstitute.org/WebRDC-PA.pdf

Scheeringa, M. S., & Haslett, N (2010). The reliability and criterion validity of the Diagnostic Infant and Preschool Assessment: A new diagnostic instrument for young children. *Child Psychiatry and Human Development, 41*(3), 299–312.

Scheeringa, M. S., Myers, L., Putnam, F. W., & Zeanah, C. H. (2012). Diagnosing PTSD in early childhood: An empirical assessment of four approaches. *Journal of Traumatic Stress, 25*, 359–367. doi:10.1002/jts.21723

Shriver, M. D., Segool, N., & Gortmaker, V. (2011). Behavior observations for linking assessment to treatment for selective mutism. *Education and Treatment of Children, 34*(3), 389–411.

Stone, L. L., van Daal, C., van der Maten, M., Engels, R. C., Janssens, J. M., & Otten, R. (2014). The Berkeley Puppet Interview: A screening instrument for measuring psychopathology in young children. *Child and Youth Care Forum, 43*(2), 211–215. doi:10.1007/s10566-013-9235-9

Trapolini, T., McMahon, C. A., & Ungerer, J. A. (2007). The effect of maternal depression and marital adjustment on young children's internalizing and externalizing behaviour problems. *Child: Care Health and Development, 33*(6), 794–803

Valderhaug, R., & Ivarsson, T. (2005). Functional impairment in clinical samples of Norwegian and Swedish children and adolescents with obsessive-compulsive disorder. *European Child and Adolescent Psychiatry, 14*(3), 164–173.

van der Bruggen, C. O., Stams, G. J., & Bogels, S. M. (2008). Research review: The relation between child and parent anxiety and parental control: A meta-analytic review. *Journal of Child Psychology and Psychiatry, 49*(12), 1257–1269. doi:10.1111/j.1469-7610.2008.01898.x

Viana, A. G., Beidel, D. C., & Rabian, B. (2009). Selective mutism: A review and integration of the last 15 years. *Clinical Psychology Review, 29*, 57–67.

Viaux-Savelon, S., Rabain, D., Aidane, E., Bonnet, P., Montes de Oca, M., Camon-Sénéchal, L., ... Mazet, P. (2010). Phenomenology, psychopathology, and short-term therapeutic outcome of 102 infants aged 0–12 months consecutively referred to a community-based 0–3 mental health clinic. *Infant Mental Health Journal, 31*(2), 242–253, doi:10.1002/imhj.20254

Volbrecht, M. M., & Goldsmith, H. H. (2010). Early temperamental and family predictors of shyness and anxiety. *Developmental Psychology, 46*(5), 1192–1205. doi:10.1037/a0020616

Waters, A. M., Bradley, B. P., & Mogg, K. (2014). Biased attention to threat in paediatric anxiety disorders (generalized anxiety disorder, social phobia, specific phobia, separation anxiety disorder) as a function of 'distress' versus 'fear' diagnostic categorization. *Psychological Medicine, 44*(3), 607–616. doi:10.1017/S0033291713000779

Wherry, J. N., Corson, K., & Hunsaker, S. (2013). A short form of the Trauma Symptom Checklist for Young Children. *Journal of Child Sexual Abuse, 22*(7), 796–821. doi:10.1080/10538712.2013.830667

Wherry, J. N., Graves, L. E., & King, H. M. R. (2008). The convergent validity of the Trauma Symptom Checklist for Young Children for a sample of sexually abused outpatients. *Journal of Child Sexual Abuse, 17*(1), 38–50, doi:10.1080/10538710701884441

Wichstrom, L. (2012). Prevalence of psychiatric disorders in preschoolers. *Journal of Child Psychology and Psychiatry, 53*(6), 695–705.

Wu, P., Hoven, C. W., Bird, H. R., Moore, R. E., Cohen, P., Alegria, M., ... Narrow, W. E. (1999). Depressive and disruptive disorders and mental health service utilization in children and adolescents. *Journal of American Academy of Child and Adolescent Psychiatry, 38*, 1081–1090.

Chapter 12
Assessment of Sleeping, Feeding/Eating, and Attachment Problems in Early Childhood

Adrienne Garro

Abstract This chapter focuses on problems that can occur in three fundamental developmental processes during infancy and early childhood: sleeping, feeding/eating, and attachment. Background, context, and recent research for problems and disorders in these three domains are covered. Assessment of problems and disorders in attachment, sleeping, and feeding/eating are described including classification and diagnostic considerations. In addition, specific assessment instruments for the three types of problems are covered. The chapter concludes with a discussion of implications for practitioners to help establish links between assessment and intervention.

Keywords Sleep problems in young children · Reactive attachment disorder · Disinhibited social engagement disorder · Obesity in preschoolers · Feeding/eating problems in children · Child sleep measures · Assessment of children's eating · Assessment of children's sleeping

Introduction

Sleeping, eating, and attachment are considered basic processes and functions in infancy. Child developmental theorists, ranging from Freud to Erikson, have posited that one and/or more of these processes are central tasks that must be successfully achieved as part of healthy development during the first two years of life. The establishment of healthy sleeping, eating, and attachment patterns might be regarded as straightforward by many parents. However, there are also many parents who experience stress when early sleeping or feeding/eating does not proceed as expected or when they do not bond with their children as they would like. Early parenting experiences can be especially stressful when children are born prematurely or have significant medical problems (Lantz & Ottosson, 2013; Gray,

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A. Garro (ed.), *Early Childhood Assessment in School and Clinical Child Psychology*, DOI 10.1007/978-1-4939-6349-2_12

Edwards, O'Callaghan, & Cuskelly, 2012). Even when infants and toddlers are physically healthy, parents frequently have concerns regarding a variety of areas of child development and behavior (Young, Davis, Schoen, & Parker, 1998). Moving past infancy and toddlerhood, the foundations of positive eating and sleeping patterns and secure attachment are fundamental for young children's physical and social-emotional well-being. Therefore, problems in these areas can interfere with functioning across a number of developmental domains.

Literature Review

Background and Context of Sleep Problems in Young Children

Sleep problems are one of the most commonly reported concerns among parents and families of young children, with prevalence rates ranging from 20 to 45 % (Sadeh, Mindell, Luedtke, & Wigand, 2009; Simola et al., 2010). The most commonly reported types of sleep difficulties are resistance to going to bed and night waking (Simola et al., 2012). Other problems sometimes seen in this age group include sleep-related anxiety, insomnia, and parasomnias, which are conditions that occur during arousals from REM sleep or partial arousals from non-REM sleep. Specific examples of parasomnias include nightmares, night terrors, sleepwalking, confusional arousals, and many others. Finally, a small percentage of children suffer from disorders in breathing during sleep, including sleep apnea (Ivanenko & Guruaj, 2009). For the purposes of this chapter, discussion will be limited to sleep disorders/problems that are not primarily related to medical conditions, though this author recognizes the value of a biopsychosocial model in the development of these problems. While many young children experience temporary sleep problems, a significant percentage demonstrate persistent and/or recurrent problems over time (Simola et al., 2012) Estimates regarding the persistence of sleep problems are variable. Lam, Hiscock, and Wake (2003) found that 12 % of children who were reported by their parents as having infant sleep problems still had them at ages 3–4. Byars, Yolton, Rausch, Lanpheare, and Beebe (2012) conducted a prospective study beginning at age 6 months and collected data at ages 12, 24, and 36 months. They found that 21 % of children with sleep problems in infancy showed sleep problems at age 36 months. Simola et al. (2012) looked at sleep problems/disturbances in a community sample of Finnish children. They found that, while overall prevalence decreased from the preschool period to school age period, among children who experienced some degree of sleep disturbance as preschoolers, 35 % continued to have this at school age.

In general, as noted by Simola et al. (2010), it is often difficult to pinpoint the numbers of children impacted by sleep problems due to differences in: (a) measures and methods; (b) definitions and classifications for these problems; and (c) sample characteristics. In reviewing literature on sleep problems among young children, it is clear that these problems are encountered across many different nations, not just the United States. For

example, Teng, Bartle, Sadeh, and Mindell (2012) examined sleep patterns and problems in a large sample from birth to age 36 months in Australia and New Zealand and found that 30.69 % of parents perceived their child to have a sleep problem. Chou (2007) studied sleep in 506 children with ages from birth to 6 years in northern Taiwan and found that frequent night waking was reported for 37.5 % of the sample. Aishworiya et al. (2012) examined sleep behavior in 372 preschoolers in Singapore and found that sleep problems, such as needing company to fall asleep or difficulty sleeping alone, occurred in over half of the sample. To date, there has only been one study of cross-cultural differences in the sleep of preschool children. Mindell, Sadeh, Kwon, and Gon (2013) compared children from predominantly Asian (P-A) countries/regions (e.g., China, India, Malaysia, Japan) to those from predominantly Caucasian (P-C) countries/regions, (e.g., United Kingdom, Australia, Canada, and the U.S). Their results indicated that, in general, preschoolers from P-A countries were parent-reported to have significantly later bedtimes, less nighttime sleep, and higher levels of sleep problems compared with those from P-C countries. However, total 24 hr. sleep times did not differ significantly when taking nap time into account. This research also found that bed and room sharing were more common in P-A countries. Clearly, additional research is needed to examine cross-cultural patterns in children's sleep, not only between different nations, but also between different cultural groups within a country.

In addition to sleep disorders which can be diagnosed as their own distinct conditions, sleep problems are often associated with other psychological disorders. They can represent a sign or symptom of other disorders (e.g., anxiety diagnoses or depression) or be indirectly linked to other psychological problems or disabilities. In a study examining sleep problems in preschool children with autism (AD), those with developmental delays (DD), and those with typical development (TD), Krakowiak, Goodlin-Jones, Hertz-Picciotto, and Hansen (2008) found that there were significant differences among the groups in terms of experience of at least one sleep problem (53 % for AD, 46 % for DD, and 32 % for TD). Furthermore, according to parental report, about 20 % of children in both the AD and DD groups showed sleep problems that negatively impacted their daily functioning, whereas only 1.2 % of children in the TD group did. Overall, research with families of children with autism indicates that they are more likely to experience a variety of sleep-related problems in comparison to normative samples, including bedtime resistance, difficulties in settling to sleep, and nighttime and early morning wake-ups (Allik, Larsson, & Smedje, 2006; Polimeni, Richdale, & Francis, 2005).

Beyond autism, other disabilities have been studied in connection with sleep problems. For example, research by Hemmingsson, Stenhammar, and Paulsson (2008) as well as Wright, Tancredi, Yundt, and Larin (2006) has found high rates of sleep problems in children with physical disabilities (PDs). In these children, sleep problems are related to a variety of factors, including pain and other medical issues, toileting needs, and difficulties associated with eating and/or drinking (Hemmingsson et al.). Rates of sleeping problems are also high in children with intellectual disabilities, including those with Down syndrome or Williams syndrome (Ashworth, Hill, Karmiloff-Smith, & Dimitriou, 2013; Breslin, Edgin, Bootzin, Goodwin, & Nadel, 2011).

The overlap between sleep problems and chronic health conditions has also been researched. For example, using longitudinal data from a large sample of Norwegian children, Sivertsen, Hysing, Elgen, Stormark, and Lundervold (2009) found that the prevalence of chronic sleep problems was significantly higher in children with chronic illness as compared to those without (6.8 vs. 3.6 %). In addition, sleep problems identified at younger ages increased the risk of sleep problems at older ages, even after accounting for potential confounding variables. In a study of sleep and pediatric cancer, Rosen, and Brand (2011) found a wide variety of sleep problems, including excessive daytime sleepiness (EDS), sleep-disordered breathing, and insomnia. In addition, studies have found higher rates of sleep disturbance in children with seizure disorders (Larson et al., 2012); asthma (Yoon et al., 2014); and migraines (Heng & Wirrell, 2006).

Research has not only focused on rates of sleep problems in children with disabilities and psychological disorders, but also on the effects of these problems. For example, in a study of children with intellectual disabilities, Didden, Korzelius, van Arperlo, van Overloop, and de Vries (2002) found that those with more severe sleep problems were more likely to demonstrate difficult daytime behaviors, including aggression, noncompliance, and hyperactivity. Similarly, Schreck, Mulick, and Smith (2004) studied a sample of elementary school children with autism and found that fewer hours of sleep were related to more serious social skill deficits and higher levels of repetitive behaviors. In a study focusing on a large sample of 2–3 year old children, Reid, Hong, and Wade (2009) found that sleep difficulties were not only strongly associated with emotional and behavioral problems, but also seemed to worsen these problems. Sleep problems not only have implications for the individual child, but also for her or his family. A number of studies have noted that pediatric sleep problems, even in the absence of other child problems or disabilities, are associated with increased stress and/or impairment in parents' functioning (Boergers, Hart, Owens, Streisand, & Spirito, 2007; Lam et al., 2003; Matthey, 2001). The combination of a pediatric disability or chronic health condition and sleep difficulties often presents a number of challenges to parents and families, such as having to wake to address the child's needs.

Given the body of research described above, it is clear that sleep problems need to be evaluated carefully in the context of other disabilities and conditions in young children, since these problems are likely to negatively impact their functioning in different settings. However, additional research is needed to understand the connection between sleep difficulties and psychological functioning and impairment in younger children since much of the research has involved school-aged children and/or adolescents.

Sleep Assessment Tools

With respect to assessment of sleep, several standardized measures are available. One of the most commonly used during the infancy period is the Brief Infant Sleep Questionnaire (BISQ; Sadeh, 2004). According to Sadeh (2004), items of the BISQ

were based upon review of infant sleep literature, particularly clinical studies which utilized objective and/or subjective measures of sleep. Items of the BSIQ focus on: (a) length of nocturnal sleep; (b) length of daytime sleep; (c) number of night wakings; (d) duration of wakeful period(s) during nighttime; (e) the time at which the child falls asleep for the night); (f) length of time it takes for child to fall asleep; (g) methods of falling asleep (e.g., with parent present); (h) location of sleep; and (i) preferred body position. Sadeh looked at the psychometric properties of the BSIQ. Test–retest reliability was calculated for a small sample, yielding *r* values from 0.82 to 0.95. The BISQ correlated well with actigraphy (an objective, already validated measure of activity levels taken by a small wrist device) and with information acquired from daily sleep logs. In the above research, Sadeh also found that an online version of BISQ could be successfully used to assess infant sleep patterns and problems. The actual BISQ is provided as an appendix to Sadeh's (2004) article. Some subsequent research using the BISQ has supplemented the original questions with questions about bedtime routine (Kohyama, Mindell, & Sadeh, 2011) to provide information about contextual factors that may impact young children's sleep patterns and problems.

Another widely used questionnaire is the Children's Sleep Habit Questionnaire (CSHQ; Owens, Spirito, & McGuinn, 2000). The CSHQ is a 33-item parent-report measure that asks about children's typical sleep behavior in the past week. It was originally developed for children aged 4–10 years old, but has been adapted for children in the 2–5 year old range (Goodlin-Jones, Sitnick, Tang, Liu, & Anders, 2008; Sneddon, Peacock, & Crowley, 2013). The original CSHQ yields a total score as well as eight subscale scores: (a) Night Waking, (b) Bedtime Resistance, (c) Sleep Onset Delay, (d) Sleep Durations, (e) Sleep Anxiety, (f) Parasomnias, (g) Sleep-Disordered Breathing, and (h) Daytime Sleepiness). All items are scored as "usually," "sometimes," or "rarely"; each of these has specific behavioral anchors. Owens et al. reported an internal consistency of 0.68 for a community sample and 0.78 for a clinical sample diagnosed with sleep disorders. Test–retest reliability over a two-week interval was adequate, with *r* values in the 0.60–0.79 range for seven of the eight subscales. The researchers also noted that the total score of the CSHQ and all of its subscales effectively differentiated between the community sample and clinical subgroups derived from the larger clinical sample. Goodlin-Jones et al. focused on discriminant validity for the CSHQ in children aged 2.5–5 years and found that it successfully differentiated between a group with sleep problems and one without sleep problems. Sneddon et al. examined psychometric properties and the factor structure of the 33 item CSHQ, which was administered to about 100 mothers of children aged 2–5 years. They found that the best fit/structure consisted of 23 items broken down into four factors: (a) sleep initiation; (b) sleep distress; (c) sleep transition; and (d) sleep duration. As evidence of criterion validity, Goodlin-Jones found that all four factors correlated in the expected directions with sleep diary items completed by the mothers. Internal consistencies for the subscales of the CSHQ were variable with alpha values ranging from 0.55 and 0.59 for Daytime Sleepiness and Sleep Anxiety to 0.81 and 0.82 for Bedtime Resistance and Sleep Duration.

The Sleep Disturbance Scale for Children (SDSC; Bruni et al., 1996) was originally developed on an Italian sample of parents as a 26-item parent-report scale

for children aged 6.5–15 years, 3 months. The scale provides a standardized measure of sleep disturbance for clinicians and researchers, and items are rated on a 5-point Likert-type scale based upon frequency of occurrence, with behavioral anchors for each point. The total score of the SDSC showed good internal reliability for both control and clinical groups, with Cronbach's alphas of 0.79 and 0.71. Test-retest reliability was adequate ($r = 0.71$). Romeo (2013) examined the psychometric properties of the SDSC for a sample of 601 healthy preschool children, aged 3–6 years. They found strong internal inconsistency for the total score (Cronbach's alpha = 0.83). However, Romeo et al. derived a factor structure which varied from the original due to different prevalence rates for sleep problems in preschoolers. Romeo et al.'s factors were: (a) difficulties initiating and maintaining sleep (DIMS); (b) parasomnias; (c) sleep-disordered breathing; (d) excessive sleepiness; (e) sleep hyperhidrosis (sweating); and (f) nonrestorative sleep. There has been at least one other study which utilized the SDSC with preschool children (Simola et al., 2012), suggesting that it does show promise as both a diagnostic and monitoring tool since it can be used across a wide age span.

The Sleep Disorders Inventory for Students (SDIS; Luginbuehl, 2004) was developed as a parent-report screening instrument for school psychologists to help determine if a child or adolescent's problems with sleep are impacting their performance in school. The measure involves parent report and includes a version for children aged 2–8 years (SDIS-C) and an adolescent version for aged 11–18 years (SDIS-A). The SDIS was validated on a sample of 821 children and adolescents, recruited from sleep centers across the US and schools in Florida. The sample was fairly diverse with respect to ethnicity, parent education, and family income and approximated data from the 2000 U.S. census. According to Luginbuehl, Bradley-Klug, Ferron, Anderson, and Benbadis (2008), SDIS items focus on specific problems and disorders, not general sleep behavior. Items are rated on a 7-point scale ranging from a 1 (child never exhibits this behavior) to a 7 (child exhibits behavior multiple times per hour daily or nightly). Factor analysis for the SDIS-C yielded four factors: EDS, which is often a precursor to narcolepsy; obstructive sleep apnea, periodic limb movement disorder, and delayed sleep phase syndrome. These accounted for approximately 70 % of the variance. Luginbuehl et al. reported that the internal consistency for the total scale was strong (Cronbach's alpha = 0.91). For the four factors/subscales, internal consistency was also solid with alpha values ranging from 0.76 to 0.90. For test-retest reliability, the SDIS-C showed $r = 0.97$ with a 2–6 month interval between administrations. The SDIS showed some evidence of concurrent and predictive validity when compared with polysomnography measurements and diagnosis of sleep disorders. Furthermore, the SDIS-C demonstrated good specificity when it came to predicting which children would be diagnosed with a sleep disorder.

The Tayside Children's Sleep Questionnaire (TCSQ; McGreavey, Donnan, Pagliari, & Sullivan, 2005) is a ten-item measure that was derived and adapted from the DIMS section of the SDSC for children aged 1–5 years. Psychometric properties are based upon samples of Scottish children. The TCSQ specifically examines difficulties initiating or maintaining sleep (DIMS). According to McGreavey et al., the

TCSQ is intended to be used in research and as a screening instrument in primary care settings. The TCSQ can also help determine the number of children aged 1–5 years who experience DIMS and as a severity indicator of DIMS as perceived by parents. Items ask parents/caregivers to consider their child's sleep patterns over the past 3 months to help differentiate temporary problems from more chronic ones. All items are rated on a five-point scale for either frequency or intensity of the problem. Face and content validity of the TCSQ were established through literature review and clinical expertise related to sleep disorders. The authors established a cut-off score of 8 to indicate a diagnosis of DIMS. The internal reliability of the total score for the TCSQ was found to be strong (Cronbach's alpha = 0.85). According to McGreavey et al., a principal components factor analysis identified two main factors which accounted for about 58 % of the variance: basic primary sleep problems and the need for parental intervention during the night.

The Sleep and Settle Questionnaire (SSQ; Matthey, 2001) is another parent-report measure, consisting of 34 items. It was developed in Australia for a study to improve couples' relationships and parenting skills with infants. It was administered to 189 stay-at-home mothers with a mean age of 27.6 years and almost 1/3 having a university education. All participants were English-speaking, but no information was gathered regarding race or ethnicity. This limited demographic range needs to be taken into account when the SSQ is used. The items measure parental perceptions of: (a) sleep patterns, including number and duration of sleep episodes over 24 hrs. (b) time it takes to settle baby to sleep; (c) duration of crying episodes; and (d) the baby's daytime temperament. The SSQ is different from many parent-report measures since it also assesses parents' confidence levels in getting their baby to sleep, parental perceptions of why their baby has difficulties settling to sleep; and the extent to which parents are bothered by infant behaviors a–d above. Since the SSQ includes perception items, it is beneficial in understanding some aspects of parenting behavior and the family environment. The targeted age range for the SSQ was not specified by Matthey. However, based upon the content of many of the items, it seems to be intended for the infancy period, mainly the first year of life. Matthey reports some evidence of discriminant validity since the SSQ differentiated between mothers who experienced significant sleep and/or settle problems with their infant and those who did not. For test-retest reliability, Matthey found that many items related to sleep and settling were not stable over time, though items related to parental bother were moderately stable. As evidence of construct validity, Matthey reports changes in the expected directions for scores on many sleep pattern items at ages 6 weeks and 6 months; also, scores for duration of sleep and confidence in settling the infant improved significantly for parents who attended a sleep and settle treatment program. One limitation is that all of the validity data involved parent-report information. Thus, additional research for validity needs to involve clinician measures and/or objective tools.

Background and Context of Feeding/Eating Problems in Young Children

When it comes to assessment of feeding and eating problems in younger children, it is important to consider both their overlap and differentiation from these

problems in older children and adolescents. For example, although there were some recent slight declines in obesity among low-income preschoolers in the US, overall prevalence rates remain high, as they do among older children and adolescents (Centers for Disease Control and Prevention (CDC), 2013). During 2011–2012, the rate of being overweight or obese among 2–5 year olds was 22.8 %, with higher rates for Black and Hispanic children (Ogden, Carroll, Kit, & Flegal, 2014). Many of the factors contributing to high rates of obesity in younger children are the same as those for older children and adolescents, namely high intake of high-calorie foods and beverages, including fast food and sugar-sweetened beverages; low levels of physical activity; and high rates of sedentary behaviors. However, due to their young age and lower levels of independence, the eating behaviors of toddlers and preschoolers are likely to be more directly influenced by family context. For example, in a study of general feeding approach, Hughes, Shewchuck, Baskin, Nicklas, and Qu (2008) found that an indulgent style was significantly associated with higher preschooler BMI, even after taking into account other variables such as parent BMI and affect, child temperament and age, and ethnicity. An indulgent style is characterized by parents making few demands on their children with respect to eating, and, when they do make demands, they tend to be nondirective and supportive.

There has been considerable research devoted to restrictive feeding style, with several studies indicating that such a style contributes to children being overweight, obese or having other negative outcomes related to eating (e.g., Joyce & Zimmer-Gembeck, 2009; Faith, Scanlon, Birch, Francis, & Sherry, 2004). It is important to note, however, that some research has not found positive associations between restrictive feeding and greater child weight/BMI, with some studies indicating a negative association (e.g., Campbell et al., 2010) and some showing no association (e.g., Spruijt-Metz, Li, Cohen, Birch, & Goran, 2006). Restrictive feeding practices often involve preventing or limiting access to certain foods; they may also include using food as a means to control a child's behavior. According to Faith and Kerns (2005), restrictive feeding is often prompted by specific child characteristics (e.g., current weight status), but is also influenced by other characteristics (e.g., parents' own BMI). In a study of maternal feeding practices for infants and toddlers, Blissett and Farrow (2007) found that a number of factors were related to pressuring children to eat or restrictive feeding practices at ages 1 and 2 years, such as maternal mental health problems and mealtime negativity. The researchers also found that pressure to eat or restrictive eating at age 1 was a good predictor of these same feeding practices at age two.

Bergmeier, Skouteris, Horwood, Hooley, and Richardson (2014) focused on younger children (infants and preschoolers) and conducted a review of 18 studies to look at relationships among child temperament, maternal feeding practices, and child BMI and/or weight gain. Their results indicated that the temperament traits of poor self-regulation, low negative affectivity, high and low soothability, and showing higher distress to limitations were associated with greater BMI. While some of these relationships were not in the expected direction (e.g., high soothability, low negative affectivity), the authors noted that there may have been other

environmental pathways not specifically examined in the studies to account for these relationships. Using a large Norwegian sample of mothers and children, Vollrath, Stene-Larsen, Tonstad, Rothbart, and Hanson (2012) conducted longitudinal research and found associations between both high externalizing and internalizing problems at age 1.5 years and greater likelihood of consuming sweet foods and drinks, particularly at ages three and seven.

Overall, additional research studies paint a complex picture of the relationship between parent feeding/eating practices and children's eating patterns. For example, Gray, Janicke, Wistedt, and Dumont-Driscoll (2010) found that higher parent BMI was associated with greater use of restrictive feeding practices in a sample of parents of children aged 7–17 years, and this relationship was stronger when parents showed greater body dissatisfaction. Gray et al. also found that higher degrees of children being overweight were related to more restrictive feeding on the part of parents, and this relationship was mediated by parental concern about child weight. In a sample of younger children (ages 4–8 years) and their caregivers, Joyce and Zimmer-Gembeck found that there was a direct link between restrictive feeding and child BMI. This relationship was partially explained by children engaging in disinhibited eating. Some have posited that high restriction of children's eating, especially access to particular foods, contributes to a cycle of children desiring those foods even more and, thus, overeating the "forbidden" food items (Birch, Fisher, & Davison, 2003). Joyce and Zimmer-Gembeck (2009) also found a significant association between restrictive feeding on the part of parents and young children's disinhibited eating, and this relationship was moderated by several parent contextual variables. More specifically, greater coerciveness and chaos, defined as inconsistency and erratic/unpredictable behavior, strengthened the link, while higher support/warmth weakened it. In addition to the above, young children's eating patterns and weight are influenced by the following parent/family variables: (a) modeling of eating habits and physical activity (Rhee, 2008); (b) directions, guidance, and access regarding healthy foods and physical activity (Brown & Ogden, 2004); and (c) nutritional knowledge (Golan & Crow, 2004).

Ethnic and cultural factors related to feeding and eating have received some attention in the recent literature. For example, Kumanyika (2008) reviewed several studies and concluded that a number of ethnic/cultural-related variables increased the risk for childhood obesity. These included higher levels of maternal type 2 diabetes during pregnancy; feeding practices/styles that can contribute to children's overeating and/or low regulatory mechanisms associated with eating (e.g., early introduction of solid food to babies; giving food even when children are not indicating hunger, etc.); inadequate physical activity; and family tendencies to consume fast food and other high-calorie foods and beverages. Kumanyika also emphasized the importance of considering parental beliefs and attitudes regarding feeding and eating which might interact with sociocultural factors. For example, among many African-Americans, being overweight or obese, particularly in females, is not viewed as unattractive and is not incorporated as part of poor body image. Thus, eating practices and habits which contribute to obesity are modeled by adults and may be normalized within the culture. For poor families, being able to

provide food, whether nutritious or not, may contribute to status and lead to greater consumption of unhealthy meals and snacks. Using a sample of only African-American and Hispanic families, Cross et al. (2014) looked at appetite characteristics, such as enjoyment of food and responses to internal hunger and feeling satiated, as possible mediators between parents' controlling feeding practices and child weight. Their findings indicated that, for African-American families only, higher parental pressure to eat was associated with lower preschooler weight, and this relationship was mediated by children's greater tendencies toward satiety responsiveness. Cross et al. noted that these results are different from those in previous research involving primarily White families where pressure to eat was associated with lower responsiveness to satiety cues (e.g., Carnell & Wardle, 2008).

Diagnosis and Classification of Eating/Feeding Disorders

With the arrival of the DSM-5, there have been some changes in classification and diagnosis of eating and feeding problems. Most notably, there is no longer a specific diagnosis of Feeding Disorder of Infancy or Early Childhood as was listed in the DSM-IV. Instead, the DSM-5 includes Avoidant/Restrictive Food Intake Disorder, which incorporates some of the same symptoms that were listed for the former Feeding Disorder diagnosis in the DSM-IV (American Psychiatric Association (APA), 2013a). One of the main differences is that the old diagnosis highlighted "a persistent failure to eat adequately" which resulted in either significant weight loss or failure to gain weight, whereas the new diagnosis emphasizes "persistent failure to meet appropriate nutritional and/or energy needs." (APA, 2000a, 2013a) The old diagnosis was analogous in many ways to failure-to-thrive (FTT) syndrome, which is a medical diagnosis. The new diagnosis does not require symptoms of serious weight loss or failure to gain weight. Another major difference between the two diagnoses is that the newer one does not require an onset before 6 years of age. Thus, the DSM-5 recognizes that Avoidant/Restrictive Food Intake Disorder can occur in individuals of any age, though it notes that problems related to insufficient food intake or lack of interest in eating often develop early in life. Furthermore, with respect to the development and course of this disorder, the DSM-5 notes that a variety of factors, including child temperament, parent–child interaction difficulties, and parent psychopathology, may contribute (APA, 2013a).

In addition to Avoidant/Restrictive Food Intake Disorder, the DSM-5 recognizes several other diagnoses under the umbrella of Feeding and Eating Disorders. Although none of these have a minimum age of onset, many of their specific criteria imply a level of cognitive and/or emotional development which does not typically characterize preschoolers. For example, Anorexia Nervosa includes a criterion related to distortion of how an individual experiences her/his body weight or shape (APA, 2013b). Such a criterion is less likely to apply to very young children since it is difficult for them to express these types of self-perceptions. While obesity is clearly a health problem that is experienced by young children, the DSM-5 does not include obesity as a mental disorder. Instead, the DSM-5 characterizes obesity as a problem of too much body fat that is influenced by genetic, physical, behavioral,

and environmental variables (APA, 2013s). In considering obesity as a biopsychosocial syndrome, it clearly overlaps with a number of psychological disorders which are found in the DSM such as depressive disorders. To date, only one study has specifically looked at the overlap between obesity and psychopathology in younger children (Ek, Headman, Marcus, & Nowicka, 2014). Using a small sample of parents of obese children aged 4–6 years, they found that scores on the CBCL were significantly higher than those for normal weight children for the subscales of Externalizing, Internalizing, Affective Problems, Anxiety, Attention, and Depression. The results also indicated higher levels of withdrawn behavior and sleep problems compared to the control group.

With respect to assessment measures of feeding and eating in young children, the Child Feeding Questionnaire (CFQ; Birch et al., 2001) has been widely used. The CFQ consists of 31 items which examine "beliefs, attitudes, and practices regarding child feeding, with a focus on obesity proneness in children." All items are answered on a 5-point Likert-type scale with descriptive anchors for each point on the scale. The CFQ is designed to be used with parents of children aged from 2 years to 11 years. In early research, Birch et al. examined the CFQ with three samples; two were White and non-Hispanic and one was Hispanic. They found support for a seven-factor model with internal consistencies above 0.70 for each factor. Three factors/subscales focus on parental control of feeding (Restriction, Monitoring and Pressure to Eat), and the other four focus on parents' specific attitudes regarding feeding (Perceived Responsibility for Feeding, Concern about Child Weight, Perceived Child Weight, and Concern About (own) Weight). As described by Corsini, Danthiir, Kettler and Wilson (2008) the CFQ was based upon the Model of Obesity Proneness (Costanzo & Woody, 1985). According to this model, higher parental control upsets children's natural self-regulation when it comes to eating, and this dysregulation contributes to overweight or obese tendencies. Subsequent research using a variety of factor analyses has concluded that a seven- or eight-factor model best fits the CFQ (e.g., Camci, Bas, & Buyukkaragoz, 2014; Corsini et al., 2008; Liu, Mallan, Mihrshahi, & Daniels, 2014). The CFQ has been translated into a variety of languages. Some researchers have proposed or tested minor modifications to the CFQ based upon cultural differences. For example, Anderson, Hughes, Fisher, and Nicklas (2005) proposed that a five-factor model (Perceived Responsibility, Concern about Weight, Restriction, Pressure to Eat, and Monitoring) might be more appropriate for Black and Hispanic families, particularly those from low-income backgrounds. Several researchers have noted that items associated with food as rewards on the Restriction subscale were not a suitable fit for the samples they worked with, including Anderson et al. described above; Liu et al. (2014), who studied immigrant Chinese-Australian families; and Sorjonen, Pietrobelli, Flodmark, and Faith (2014) who worked with a Swedish sample.

There are several other parent-report instruments for assessment of feeding/eating problems in young children. One of these is the Feeding Strategies Questionnaire (FSQ; Berlin, Davies, Silverman, & Rudolph, 2011) which examines family-based feeding strategies, strengths, and mealtime environment. The FSQ can be used with parents of children with existing feeding difficulties to help inform

intervention, but can also be applied to help prevent feeding problems by enabling clinicians and families to identify areas that could become serious problems (Berlin et al.) It consists of 40 items to which parents respond on a five-point Likert scale ranging from Strongly Disagree to Strongly Agree. Exploratory and confirmatory factor analyses with the FSQ support six factors/scales: Mealtime Structure, Consistent Mealtime Schedule, Child Control of Intake, Parent Control of Intake, Between Meal Grazing, and Encourages Clean Plate. Internal consistencies for these scales range from 0.70 to 0.89. The authors developed the FSQ using community and clinical samples of families of children ranging in age from 2 to 6 years. Internal consistencies for the subscales ranged from a low of 0.70 for Parent Control of Intake to highs of 0.88 and 0.89 for Grazing and Encourages Clean Plate.

The Mealtime Behavior Questionnaire (MBQ; Berlin et al., 2010), consists of 33 items which assess frequency of problematic mealtime behaviors related to food refusal/avoidance, food manipulation, mealtime aggression/distress, and choking/gagging/vomiting. Internal consistencies for these subscales ranged from a low of 0.73 for Food Manipulation to a high of 0.89 for Food Refusal/Avoidance, with a Cronbach's alpha of 0.91 for the overall scale. The MBQ has some validity backing, including correlations in the expected directions with subscales from the About Your Child's Eating inventory (AYCE; Davies, Ackerman, Davies, Vannatta, & Noll, 2007).

The Preschooler Feeding Questionnaire (PFQ; Baughcum et al., 2001 as cited in Evans et al., 2011), which is available in English and Spanish, includes items examining parents' feeding practices and beliefs that are thought to be related to children's overweight status. The original development of the PFQ included an eight factor model, though more recent research has proposed a five-factor model: Pushing Child to Eat, Difficulty with Picky Eating, Using Food to Calm, Child Underweight Concerns, and Concern about Child Overeating (Evans et al., 2011). The PFQ was first developed using a predominantly White sample of mixed income drawn from pediatric practices. Subsequent research examined use of the PFQ with families who received WIC. This research found significant differences between Spanish-speaking Hispanic families and both English-speaking Hispanic families and White families on several subscales, suggesting connections and/or interactions between acculturation and parents' feeding practices and beliefs (Evans et al., 2011; Seth et al., 2007).

The Feeding Practices and Structure Questionnaire (FPSQ; Jansen, Mallan, Nicholson, & Daniels, 2014) is a 40-item parent-report measure designed to assess parental feeding practices with young children (below age three), with a focus on reactions/sensitivity to children's satiety/hunger cues in connection with structure and routines during feeding and meals. Items for the FPSQ were developed based upon the theory that parental feeding practices, as a specific context of parenting behavior, strongly influence young children's eating patterns and, thus, can directly impact overeating. It is comprised of nine factors: (a) 'Distrust in Appetite', (b) 'Reward for Behavior', (c) 'Reward for Eating', and (d) 'Persuasive Feeding', which fit under the broader construct of "Non-Responsive Feeding Practices"; and (e) 'Structured Meal Setting', (f) 'Structured Meal Timing', (g) 'Family Meal Setting', (h) 'Overt Restriction' and (i) 'Covert Restriction,' which fit under the

broader construct of "Structure of the Meal Environment." According to Jansen et al. (2014), the internal reliability of these factors/scales is adequate with Cronbach's alphas ranging from 0.61 to 0.89. There is some evidence for the predictive validity of the FPSQ since several of its factors correlated in the expected directions with scores on the Children's Eating Behavior Questionnaire (Wardle, Guthrie, Sanderson, & Rapoport, 2001).

Attachment Problems

Attachment difficulties represent a distinct category in child psychopathology. This is due to their status as both a risk factor for other problems and a negative outcome of other variables. When considering attachment problems as a category of risk, research tends to support the link between insecure or otherwise dysfunctional attachment and different forms of child psychopathology. For example, Moss et al. (2006) found that insecure attachment patterns in children age 6 years were significantly related to their levels of both internalizing and externalizing problems at age 8 years. In a review of research related to insecure attachment and child internalizing difficulties, Brumariu and Kerns (2010) concluded that there is a definitive link between the two. They also noted that both mother–child and father–child attachment problems negatively affect children, though there is much less research involving fathers. O'Connor, Bureau, McCartney, and Lyons-Ruth (2011) prospectively studied a large sample of children beginning in infancy and continuing into preschool and found that those with disorganized/controlling patterns of attachment at age 3 years showed the most maladaptive outcomes at age 4.5 years in comparison to children with secure attachments. These outcomes included higher levels of both internalizing and externalizing problems, as rated by mothers and teachers, and lower quality relationships with teachers. In a study which looked at attachment feelings, maternal depression, and social-development in infants, Mason, Briggs, and Silver (2011) found both direct and indirect relationships among variables. More specifically, a positive maternal screening for depression when babies were 2 months old was associated with at-risk infant social-emotional development and parent-child dysfunctional interactions, both at age 6 months. In addition, these relationships were mediated by mothers' negative feelings regarding attachment to their infants.

When severe and connected with negligent and/or deficient care, attachment problems can be classified as a disorder. With the publication of the DSM-5, classification and diagnosis of attachment disorders did undergo two major changes. First, they are now located under the umbrella of *Trauma and Stressor-Related Disorders*. This is due to the fact that attachment disorders originate from a form of trauma (e.g., negligence or other adverse treatment by a caregiver) (APA, 2013d). Second, while the DSM-IV formerly included Reactive Attachment Disorder with two subtypes, emotionally with-drawn/inhibited and indiscriminately social/disinhibited, the DSM-5 now classifies these as two distinct disorders. Specifically, they are Reactive Attachment Disorder (RAD) and Disinhibited Social Engagement Disorder (DSED). According to APA, this split is due to the fact that the two show different symptom patterns, developmental course, and correlates. In RAD, children show emotionally

withdrawn behavior and develop very limited or no close ties with caregivers; they do not seek comfort, support, or nurturance from them (APA). Therefore, children with RAD show an absence of, or highly atypical, attachment behaviors across a variety of settings and contexts. In contrast, children with DSED demonstrate tendencies to excessively approach and interact with adults, in particular adults who are unfamiliar. Thus, there is a failure to discriminate among adults, and affected children also tend to show high levels of attention-seeking behavior. According to Zeanah and Gleason's (2015) extensive review, there is considerable research to support the separate diagnoses of RAD and DSED (e.g., Rutter, Kreppner, & Sonuga-Barke, 2009; Zeanah & Smyke, 2014). The differentiation between the two involves their phenotypes; for example, RAD is more likely to be associated with depression signs, such as poor social responsivity, and DESD is more likely to be linked with impulsivity and, thus, may look like symptoms of ADHD. RAD is sometimes mistaken for an ASD. Zeanah and Gleason also highlighted that there are often different outcomes from the two. Specifically, when placed with supportive caregivers who can provide quality care, children with RAD tend to show good improvement and reduction of their symptoms, while this is not the case for children with DSED, who continue to demonstrate lack of social inhibition and intrusion on interpersonal boundaries. Even after transitioning to quality caregiving, children with DSED are at risk for continuing problems, such as poor peer relationships and deficits in social skills.

In assessing both RAD and DSED, the DSM-5 indicates that children must be at least 9 months old developmentally. This age was chosen because it is considered the time when babies do show definite signs of attachment to parents and other caregivers. Prior to 9 months, it is difficult to determine if children have attachment disorders because their capabilities with respect to demonstrating clear, consistent bonding behaviors have not fully emerged. A number of articles and studies related to measurement of attachment problems and disorders can be found in the research literature. Zeanah and Gleason noted that continuous measures, including physiological ones, as well as categorical criteria sets have been used successfully to differentiate between RAD and DSED. A wide range of research has used structured observational protocols, including the Strange Situation, to examine young children already diagnosed with attachment disorders or considered at-risk for these disorders (e.g., Bruce, Tarullo, & Gunnar, 2009; Gleason et al., 2011; Oliveira et al., 2012). Interviews and history gathering can also be highly valuable in understanding how the child relates and responds to a variety of people. The Disturbances of Attachment Interview (DAI; Smyke & Zeanah, 1999) is a semi-structured interview that was designed to be used with close caregivers of 1–5 year-old children. It assesses for both inhibited and disinhibited types of attachment problems and also contains items related to distortion of secure attachments. According to Smyke, Dumitrescu, and Zeanah (2002), the internal consistencies of the inhibited and disinhibited subscales are strong, with Cronbach's alphas of 0.80 and 0.83, respectively. In their 2011 research, Gleason et al. found support for both the convergent and discriminant validity of the DAI.

There are also some standardized questionnaires that are used to assess attachment disorders, such as the Relationships Problem Questionnaire (RPQ; Minnis, Rabe-Hesketh, & Wolkind, 2002) and the Reactive Attachment Disorder-Checklist

(RAD-C; Hall, 2007). Both of these parent-report screening instruments were developed for the diagnosis of the two subtypes of RAD under the DSM-IV and, thus, will require updated research in connection with the DSM-5 diagnoses for attachment disorders. The original RPQ was developed in Great Britain and is intended to be used with children 5 years and older. Items were created based upon the DSM-IV and ICD-10 criteria for attachment disorders and upon symptoms shown by children ages 18 months through 17 years who were in institutionalized care. In a study conducted with 121 foster families, Minnis et al. (2002) found that the RPQ showed adequate internal consistency with a Cronbach's alpha of 0.70 and good test-retest reliability and inter-rater reliability based upon intraclass coefficients (0.78 and 0.81, respectively).

The RPQ was subsequently revised based upon factor and cluster analyses from a study with the parents of over 15,000 twin pairs in the UK (Young, Reekie, Gray, Ronald, & Minnis, 2006, as cited in Thrall, Hall, Golden, & Sheaffer, 2009). Based upon these analyses, the authors derived a ten-item parent version and a 14-item teacher version of the RPQ. These are available online: http://www.radinfo.co.uk/rpq-relationship-problem-questionnaire.html. The RPQ has been translated into Spanish, Dutch, and Swedish. Young et al. found that the RPQ was able to effectively differentiate between children with RAD and those without. In a more recent study, Vervoort, De Schipper, Bosmans, and Verschueren (2013) carried out additional psychometric research with the Dutch RPQ. They found the following internal consistencies: (a) 0.63 and 0.71, for the parent- and teacher-report Inhibited subscales and (b) 0.77 and 0.81 for the parent- and teacher-report Disinhibited subscales. Vervoort et al. also found support for the Inhibited and Disinhibited factors through exploratory and confirmatory factor analyses. Lastly, the researchers' analyses using other instruments and tools (e.g., the DAI) indicated good convergent validity for the RPQ. Thrall et al. (2009) conducted research involving the RPQ and the RAD-C. They developed the RAD-C for the study and described it as a 17-item measure used with parents or caregivers of children or adolescents (specific age range was not reported). There are also extra items parents answer regarding their children's behavior at a younger age. Internal consistency of the RAD-C was found to be strong, with a Cronbach's alpha of 0.93. Thrall et al. found evidence of convergent validity between the RPQ and RAD-C with a correlation of $r = 0.86$. Both instruments showed evidence of construct validity in terms of distinguishing between children already diagnosed with RAD and those without the disorder.

Given the recent development of the RAD and DSED diagnoses, the fund of assessment information for attachment problems must evolve in new directions, including new standardized measures. Aside from questionnaires, clinicians can continue to use other tools to help inform diagnosis, including clinical interviews, which enable clinicians to gather information about the history and environmental influences related to children's attachment behaviors and problems. Observations, which can vary in degree of structure, may be used to look at children's interactions with parents/caregivers in play situations or when instructions, tasks, or demands are presented. One potential drawback is that observations do not necessarily capture more subtle or nuanced aspects of parent-child attachment or provide

opportunities to see a child's reaction with strangers. The Strange Situation is a standardized observation protocol, and, as described by O'Connor and Zeanah (2003), involves both advantages and disadvantages as a form of assessment. As advantages, O'Connor and Zeanah note that it incorporates an unfamiliar adult and, thus, enables clinicians to observe atypical responses such as seeking contact indiscriminately from a non-caregiver. The segment of separation and reunion with caregiver is also a beneficial aspect of the Strange Situation since it provides different levels of stress under which children and caregivers can be observed. One drawback of the Strange Situation, as noted by O'Connor and Zeanah, is that it includes an underlying assumption that an attachment relationship already exists between caregiver and child. Therefore, it is not intended to be used when attachment connections are missing. Given this limitation, the standardized protocol for the Strange Situation does not fit for suspected cases of RAD. Another disadvantage is that the coding system of the Strange Situation has difficulty taking into account behaviors and patterns that do not fit with the attachment styles of the instrument. This detracts from its sensitivity and specificity when it comes to accurately identifying clinically significant attachment problems.

Implications for Practice

Sleeping and feeding/eating problems represent two of the most common concerns among parents of young children. While these problems often present as mild and/or temporary, there are many infants, toddlers, and preschoolers with more serious difficulties in these areas who require professional assessment and intervention. The following is a summary of practice guidelines and considerations for psychologists who receive these types of referrals. The first set of points covers assessment practices; the second set relates to intervention. The third set of information summarizes assessment and intervention guidelines for attachment problems and disorders. These problems, while not as extensively researched as sleeping and eating problems, impact many young children and their families and often co-occur with other difficulties. Since difficulties in all three of these domains are more likely to arise during the first five years of life, the ability to effectively assess them is fundamental for early childhood psychologists.

- Sleeping and feeding/eating, should be assessed through a biopsychosocial model which incorporates physiological variables (e.g., the child's health status, biological rhythms, etc.); temperament characteristics, which interact with parent/family and other environmental variables, and sociocultural factors that help determine what is considered acceptable and typical.
- Based upon a biopsychosocial model, medical illnesses/conditions should be ruled out as causes for sleep and feeding problems. If medical conditions co-exist and/or contribute to these problems, interdisciplinary assessment and treatment involving physicians, psychologists, and/or other professionals (e.g., OT) is crucial.

- Children with disabilities or chronic conditions are more likely to experience problems sleeping, and specific syndromes, such as cerebral palsy and cystic fibrosis, often interfere with eating/feeding early in life. Thus, treatment of eating/sleeping problems should be incorporated as part of the child's overall plan of care.
- In assessing and treating sleeping problems, parent/family factors, including cultural influences, must be taken into consideration. Co-sleeping, sleeping location/arrangements, and parental presence and involvement when young children fall asleep might be affected by cultural beliefs.
- In addition to standardized questionnaires, sleep diaries, completed by parents/caregivers, are often useful to clinicians in assessment. These diaries can include a variety of information, such as times/planned schedules for child's sleep, number and duration of nighttime wakings, duration of child sleep, etc. They can also be individualized based upon the nature of the child's sleep problems. Data from sleep diaries can be used to monitor how well interventions are working.
- The American Academy of Sleep Medicine (2005) (as cited in Meltzer, 2010, pp. 172–173) established a diagnosis of Behavioral Insomnia of Childhood (BIC), which has different criteria from adult insomnia. It includes two types: (a) onset-association (i.e., very specific and demanding conditions are needed for child to fall/stay asleep and (b) limit-setting (i.e., child shows difficulties falling/staying asleep related to poor parental limit-setting).
- For food refusal, multi-faceted assessment is recommended, including observation of parent-child interactions during feeding to examine: (a) type, texture, and quantity of foods consumed and refused; (b) child behavior and emotional states; (c) reactions and attachment to parents; (d) parents' emotional state and behaviors during feeding, including reaction to child's behavior; and (e) other contextual variables (Douglas, 2002)
- Existing research related to obesity in preschoolers highlights several key areas for clinicians to assess: (a) parental restrictive feeding; (b) other feeding/eating practices in the home, such as shared mealtimes, types of food provided/offered (e.g., high energy-dense foods, which lead to greater caloric intake), TV watching during eating, etc.; (c) levels of child physical activity; (d) parents' weight, BMI and other aspects of physical health; and (e) cultural beliefs and values which might influence or interact with all of the above.

  – Behavioral interventions have the most research support in treating sleep problems in young children, including difficulties falling asleep and staying asleep and resistance or noncompliance at bedtime. Specific techniques include: establishment of consistent, age-appropriate sleep schedules and bedtime routines; teaching children to fall asleep independently; use of regular or gradual extinction procedures (i.e., ignoring crying, requests, etc.); and use of a later bedtime which is faded back to the desired bedtime (Camilo & McCormick, 2007; Meltzer, 2010).

- Although behavioral interventions have empirical support, they can also be challenging for families to implement. Clinicians need to take into account parent/family stress, openness, acceptance of behavioral strategies, and other ecological factors. The principle of flexibility within fidelity is often beneficial in facilitating change.
- Schlarb and Brandhorst (2012) developed an Internet-based program, mini-KiSS, for parents to use to address sleep problems in infants and young children. Consisting of six sessions, mini-KiSS combines psychoeducation, CBT, relaxation strategies, and imagination exercises to address night wakings, poor parental limit setting, and other dysfunctional behaviors. Results indicated positive effects across all areas and high acceptability for the program. Additional research on the mini-KiSS is necessary, especially since the program has not been studied in the US.
- Some research (e.g., Kuhl et al., 2014) indicates that reduction in overall caloric intake is most important in reducing BMI in preschoolers who are already obese. Research by Clifford et al. (2012) indicates that ensuring adequate night sleep duration for preschoolers with obesity is linked to reduction in caloric intake.
- Prevention-based models for preschool obesity are also available. KAN-DO is an interactive program targeting mothers who are overweight and their preschool children. It focuses on positive parenting skills, stress management, and education about healthy behavior change (e.g., increasing activity) (Ostbye et al., 2012). Preliminary results indicated that KAN-DO changed some maternal behaviors, but did not impact child BMI (Ostbye). The Mind Exercise Nutrition Do It! (MEND) program is currently being assessed as a preventive intervention for obesity in preschoolers (Skouteris, McCabe, Swinburn, & Hill, 2010).

    - Attachment should also be assessed through a multidimensional model which recognizes that both children and parents/caregivers contribute characteristics and experiences which can facilitate and interfere with bonding.
    - For attachment assessment and intervention, clinicians need to differentiate between clinical disorders related to pathogenic care and less severe problems. In the latter case, the focus of treatment is to increase parental sensitivity and responsiveness to their child's behavior, often in the context of real-life interactions (O'Connor & Zeahah, 2003). The rationale is to facilitate the establishment of the parent as a secure home base for the child. One specific form of this treatment is child–parent or toddler–parent psychotherapy (CPP/TPP).
    - Psychoeducational parenting interventions (PPI) have also been used as a form of preventive intervention for at-risk parent–child dyads. There are different forms of PPI, some of which overlap with CPP. Stronach, Toth, Rogosch, and Cicchetti (2013) developed a specific form of PPI which included didactic training to improve parenting skills and knowledge of

child development and CBT to address parenting stress, problem solving, and social support.

- Both CPP and PPI have some empirical support (e.g., Stronach et al.; van Ijzendoorn, Juffer, & Duyvesteyn, 1995). Clinicians who apply these interventions need to consider the issues they want to address—parent behaviors only, such as responding to child cues; parent-child bonding; or a combination. Other factors to consider: (a) location of treatment—CPP and PPI are usually carried out in home settings; (b) cultural beliefs and values which might influence acceptability of interventions; and (c) parent/caregiver expectations for their children and for the treatment.
- As noted above, symptoms of RAD tend to improve when affected children are placed in supportive, caring environments, but this is not the case with DSED. Given the relative newness of these diagnoses, additional research is necessary to determine effective interventions. However, infants and young children with these diagnoses might qualify for and benefit from EI/special ed. services due to deficits in emotional regulation and social skills.

Case Study—Sleeping and Eating Problems in a Young Child

Daniel is a 5-year-old boy who was born six weeks prematurely and spent several weeks in the hospital due to respiratory and feeding difficulties. Daniel's family is Mexican-American and speak English and Spanish at home. Daniel's parents, Mr. and Mrs. Valdez, were highly anxious throughout his hospital stay, and, at one point, Mrs. Valdez needed to be seen in an emergency room for her anxiety. Daniel was discharged weighing 5 lbs. 2 oz and was able to progress typically through other stages of eating (i.e., he drank formula for several months and then began having solid foods). Daniel did need to be discharged on an apnea monitor, which he continued to have until age one. He did not have any major apnea episodes and required no further hospitalizations. Due to their worry about Daniel's apnea, Mr. and Mrs. Valdez kept his crib in their room and checked on him frequently. They often woke him up to make sure he was ok, even when the monitor did not go off. When Daniel was 18 months old, his pediatrician told Mr. and Mrs. Valdez that they should move him to his own room so that he could sleep better. The Valdez' agreed, but experienced a lot of difficulty getting Daniel to sleep independently. He woke up frequently during the night and cried until his parents came into his room. Mr. and Mrs. Valdez often wound up letting Daniel sleep with them. These problems are still ongoing. Getting Daniel to go to sleep has also been problematic. He often cries, delays, and/or tantrums when it is time to go to bed. With respect to feeding/eating, Daniel began to show signs of excessive weight gain when he was about two. Because of his neonatal hospitalization and early feeding difficulties, Mr. and Mrs. Valdez did not want to put any limitations on Daniel's eating and have continued to give him access to a lot of high caloric foods. In

addition, they often use food treats as a way to placate Daniel when he becomes upset or has a tantrum.

Now that Daniel is in kindergarten, his teacher and the school nurse have expressed concerns about his weight to his parents, especially because it interferes with his ability to keep up with his peers in physical activities. Although the pediatrician had made repeated attempts to have Mr. and Mrs. Valdez reduce Daniel's weight through a healthier diet, these efforts were not successful. Daniel's teacher, who shares a similar cultural background to the family, persuaded them to attend an outpatient health center which includes psychological services. Both Mr. and Mrs. Valdez completed the Children's Sleep Habits Questionnaire (CSHQ). Although there were slight differences between parents' ratings, they both rated Daniel highly on the subscales of Bedtime Resistance, Sleep Onset Delay, Sleep Duration, Sleep Anxiety, Night Waking, and Daytime Sleepiness. Mrs. Valdez's ratings were at or above the clinic sample means for all of these subscales, while Mr. Valdez's ratings were at or above the clinic sample means for all of these subscales except for Daytime Sleepiness. The Valdez's ratings were close to the normative range for the subscales of Parasomnias and Sleep-Disordered Breathing. For qualitative purposes, the Preschool Feeding Questionnaire (PFQ) was administered to Mr. and Mrs. Valdez. Results from this measure indicated that both parents showed strong patterns of pushing their child to eat and using food to calm child. Information from the PFQ and clinical interviews with both parents also indicated that there was lack of structure at mealtimes and that Daniel exerted a high level of control over eating (e.g., he demanded and was given snacks throughout much of the day). Mr. and Mrs. Valdez expressed some concern about Daniel's weight but initially did not recognize the negative health consequences associated with it. Following this assessment, the interdisciplinary team consisting of a nurse, bilingual social worker, and psychologist met with the family to discuss further steps.

Discussion Questions

1. Describe additional assessment information that the team might want to gather.
2. Based upon the information provided in the scenario, what might be considered the best strategies and targets for treatment for Daniel's sleeping and eating problems?
3. Describe cultural and family variables that need to be considered in working with Daniel's family.
4. In considering treatment, in what ways should the health center team collaborate with Daniel's school, assuming his parents give consent for communication.

References

Aishworiya, R., Chan, P., Kiing, J., Chong, S. C., Laino, A. G., & Tay, S. K. (2012). Sleep behaviour in a sample of preschool children in Singapore. *Annals of the Academy of Medicine, Singapore, 41*(3), 99–104.

Allik, H., Larsson, J. O., & Smedje, H. (2006). Insomnia in school-age children with Asperger syndrome or high-functioning autism. *BioMedCentral Psychiatry, 6*, 18.

American Academy of Sleep Medicine. (2005). *Behavioral Insomnia of Childhood*. Retrieved December 10, 2015 from http://www.aasmnet.org/resources/factsheets/insomnia.pdf

American Psychiatric Association (APA). (2000a). Feeding disorder of infancy or early childhood. In *Diagnostic and statistical manual of mental disorders* (4th ed., Text Revision.). Washington, DC: Author.

American Psychiatric Association (APA). (2000b). In *Diagnostic and statistical manual of mental disorders* (4th ed., Text Revision.). Washington, DC: Author

American Psychiatric Association (APA). (2013a). Avoidant/Restrictive food intake disorder. In *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Author.

American Psychiatric Association (APA). (2013b). Anorexia Nervosa. In *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Author.

American Psychiatric Association (APA). (2013c). Feeding and eating disorders. In *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Author.

American Psychiatric Association (APA). (2013d). Trauma- and stressor-related disorders. In *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Author.

Anderson, C. B., Hughes, S. O., Fisher, J. O., & Nicklas, J. A. (2005). Cross-cultural equivalence of feeding beliefs and practices: The psychometric properties of the Child Feeding Questionnaire among Black and Hispanics. *Preventive Medicine, 41*, 521–531.

Ashworth, A., Hill, C. M., Karmiloff-Smith, A., & Dimitrou, D. (2013). Cross syndrome comparison of sleep problems in children with Down syndrome and Williams syndrome. *Research in Developmental Disabilities, 34*(5), 1572–1580. doi:10.1016/j.ridd.2013.01.031

Baughcum, A. E., Powers, S. W., Johnson, S. B., Chamberlin, L. A., Deeks, C. M., Jain, A., et al. (2001). Maternal feeding practices and beliefs and their relationships to overweight in early childhood. *Journal of Developmental and Behavioral Pediatrics, 22*(6), 391–408.

Bergmeier, H., Skouteris, H., Horwood, S., Hooley, M., & Richardson, B. (2014). Associations between child temperament, maternal feeding practices and child body mass index during the preschool years: A systematic review of the literature. *Obesity Review, 15*(1), 9–18. doi:10.1111/obr.12066

Berlin, K. S., Davies, W. H., Silverman, A. H., & Rudolph, C. D. (2011). Assessing family-based feeding strategies, strengths, and mealtime structure with the Feeding Strategies Questionnaire. *Journal of Pediatric Psychology, 36*(5), 586–595.

Berlin, K. S., Davies, W. H., Silverman, A. H., Woods, D. W., Fischer, E. A., & Rudolph, C. D. (2010). Assessing children's mealtime problems with the Mealtime Behavior Questionnaire. *Children's Health Care, 39*, 142–156.

Birch, L. L., Fisher, J. O., & Davison, K. K. (2003). Learning to overeat: Maternal use of restrictive feeding practices promotes girls' eating in the absence of hunger. *American Journal of Clinical Nutrition, 78*, 215–220.

Birch, L. L., Fisher, J. O., Grimm-Thomas, K., Markey, C. N., Sawyer, R., & Johnson, S. L. (2001). Confirmatory factor analysis of the Child Feeding Questionnaire: A measure of parental attitudes, beliefs and practices about child feeding and obesity proneness. *Appetite, 36*(3), 201–210.

Blissett, J., & Farrow, C. (2007). Predictors of maternal control of feeding at 1 and 2 years of age. *International Journal of Obesity, 31*, 1520–1526.

Boergers, J., Hart, C., Owens, J. A., Streisand, R., & Spirito, A. (2007). Child sleep disorders: Associations with parental sleep duration and daytime sleepiness. *Journal of Family Psychology, 21*(1), 88–94.

Breslin, J. H., Edgin, J. O., Bootzin, R. R., Goodwin, J. L., & Nadel, L. (2011). Parental report of sleep problems in down syndrome. *Journal of Intellectual Disability Research, 55*, 1086–1091. doi:10.1111/j.1365-2788.2011.01435.x

Brown, R., & Ogden, J. (2004). Children's eating attitudes and behaviour: A study of the modelling and control theories of parental influence. *Health Education Research, 19*, 261–271.

Bruce, J., Tarullo, A. R., & Gunnar, M. R. (2009). Disinhibited social behavior among internationally adopted children. *Development and Psychopathology, 21*, 157–171. doi:10.1017/S0954579409000108

Brumariu, L. E., & Kerns, K. A. (2010). Parent-child attachment and internalizing symptoms in childhood and adolescence: a review of empirical findings and future directions. *Development and Psychopathology, 22*(1), 177–203. doi:10.1017/S0954579409990344

Bruni, O., Ottaviano, S., Guidetti, V., Romoli, M., Innocenzi, M., Cortesi, F., et al. (1996). The Sleep Disturbance Scale for Children (SDSC) construction and validation of an instrument to evaluate sleep disturbances in childhood and adolescence. *Journal of Sleep Research, 5*, 251–261.

Byars, K. C., Yolton, K., Rausch, J., Lanphear, B., & Beebe, D. W. (2012). Prevalence, patterns, and persistence of sleep problems in the first 3 years of life. *Pediatrics, 129*, 1–9. doi:10.1542/peds.2011-0372

Camci, N., Bas, M., & Buyukkaragoz, A. H. (2014). The psychometric properties of the Child Feeding Questionnaire (CFQ) in Turkey. *Appetite, 78C*, 49–54.

Camilo, O., & McCormick, L. (2007). Behavioral parent-training approaches for the treatment of bedtime noncompliance in young children. *Journal of Early and Intensive Behavior Intervention, 4*(2), 511–525. doi:10.1037/h0100388

Campbell, K., Andrianopoulos, N., Hesketh, K., Ball, K., Crawford, D., Brennan, L., ... Timperio, A. (2010). Parental use of restrictive feeding practices and child BMI z-score. A 3-year prospective cohort study. *Appetite, 55*, 84–88. doi:10.1016/j.appet.2010.04.006

Carnell, S., & Wardle, J. (2008). Appetite and adiposity in children. Evidence for a behavioral susceptibility theory of obesity. *The American Journal of Clinical Nutrition, 88*, 22–29.

Chou, Y. (2007). Survey of sleep in infants and young children in northern Taiwan. *Sleep and Biological Rhythms, 5*(1), 40–49.

Clifford, L. M., Beebe, D. W., Simon, S. L., Kuhl, E. S., Filigno, S. S., Rausch, J. R., et al. (2012). The association between sleep duration and weight in treatment-seeking preschoolers with obesity. *Sleep Medicine, 13*(8), 1102–1105. doi:10.1016/j.sleep.2012.06.019

Corsini, N., Danthiir, V., Kettler, L., & Wilson, C. (2008). Factor structure and psychometric properties of the Child Feeding Questionnaire in Australian preschool children. *Appetite, 51*(3), 474–481.

Costanzo, P. R., & Woody, E. Z. (1985). Domain-specific parenting styles and their impact on the child's development of particular deviance: The example of obesity proneness. *Journal of Social and Clinical Psychology, 3*(4), 425–445.

Cross, M. B., Hallett, A. M., Ledoux, T. A., O'Connor, D. P., & Hughes, S. O. (2014). Effects of children's self-regulation of eating on parental feeding practices and child weight. *Appetite, 81*, 76–83.

Davies, W. H., Ackerman, L. K., Davies, C. M., Vannatta, K., & Noll, R. B. (2007). About your child's eating: Factor structure and psychometric properties of a feeding relationship measure. *Eating Behaviors, 8*(4), 457–463.

Didden, R., Korzilius, H., van Aperlo, B., van Overloop, C., & de Vries, M. (2002). Sleep problems and daytime problem behaviours in children with intellectual disability. *Journal of Intellectual Disabilities Research, 46*, 537–547.

Douglas, J. (2002). Psychological treatment of food refusal in young children. *Child and Adolescent Mental Health, 7*(4), 173–180.

Ek, A., Headman, J., Marcus, C., & Nowicka, P. (2014). Early psychopathology of obesity. A study with preschoolers and their parents. Abstracts 23rd European Childhood Obesity Group (ECOG) Congress Liverpool 13th–15th of November 2013. *Appetite 76*, 197–215. doi:10.1016/j.appet.2014.01.017

Evans, A., Seth, J. G., Smith, S., Harris, K. K., Loyo, J., Spaulding, C., ... Gottlieb, N. (2011). Parental feeding practices and concerns related to child underweight, picky eating, and using food to calm differ according to ethnicity/race, acculturation, and income. *Journal of Maternal and Child Health, 15*, 899–909. doi:10.1007/s10995-009-0526-6

Faith, M. S., & Kerns, J. (2005). Infant and child feeding practices and childhood overweight: The role of restriction. *Maternal and Child Nutrition, 1*(3), 164–168. doi:10.1111/j.1740-8709.2005.00024.x

Faith, M. S., Scanlon, K. S., Birch, L. L., Francis, L. A., & Bettylou, S. (2004). Parent child feeding strategies and their relationships to child eating and weight status. *Obesity Research, 12*(11), 1711–1722.

Gleason, M. M., Fox, N. A., Drury, S., Smyke, A., Egger, H. L., Nelson, C. A., ... Zeanah, C. H. (2011). The validity of evidence-derived criteria for reactive attachment disorder: Indiscriminately social/disinhibited and emotionally withdrawn/inhibited types. *Journal of the American Academy of Child and Adolescent Psychiatry, 50*, 216–231. doi:10.1016/j.jaac.2010.12.012

Golan, M., & Crow, S. (2004). Parents are key players in the prevention and treatment of weight-related roblems. *Nutrition Reviews, 62*, 39–50. doi:10.1111/j.1753-4887.2004.tb00005

Goodlin-Jones, B. L., Sitnick, S. L., Tang, K., Liu, J., & Anders, T. F. (2008). The Children's Sleep Habits Questionnaire in toddlers and preschool children. *Journal of Developmental and Behavioral Pediatrics, 29*, 82–88.

Gray, P. H., Edwards, D. M., O'Callaghan, M. J., & Cuskelly, M. (2012). Parenting stress in mothers of preterm infants during early infancy. *Early Human Development, 88*, 45–49. doi:10.1016/j.earlhumdev.2011.06.014

Gray, W. N., Janicke, D. M., Wistedt, K. M., & Dumont-Driscoll, M. C. (2010). Factors associated with parental use of restrictive feeding practices to control their children's food intake. *Appetite, 55*, 332–337. doi:10.1016/j.appet.2010.07.005

Hall, C. (2007). Reactive attachment disorder checklist—RAD-C. Department of Psychology, East Carolina University, Greenville, North Carolina, USA.

Hemmingsson, H., Stenhammar, A. M., & Paulsson, K. (2008). Sleep problems and the need for parental night-time attention in children with physical disabilities. *Child: Care, Health and Development, 35*(1), 89–95. doi:10.1111/j.1365-2214.2008.00907.x

Heng, K., & Wirrell, E. (2006). Sleep disturbance in children with migraine. *Journal of Child Neurology, 21*(9), 761–766.

Hughes, S. O., Shewchuk, R. M., Baskin, M. L., Nicklas, T. A., & Qu, H. (2008). Indulgent feeding style and children's weight status in preschool. *Journal of Developmental and Behavioral Pediatrics, 29*(5), 403–410. doi:10.1097/DBP.0b013e318182a976

Ivanenko, A., & Gururaj, B. R. (2009). Classification and epidemiology of sleep disorders. *Child and Adolescent Psychiatric Clinics in North America, 18*, 839–848. doi:10.1016/j.chc.2009.04.005

Jansen, E., Mallan, K. M., Nicholson, J. M., & Daniels, L. A. (2014). The Feeding Practices and Structure Questionnaire: Construction and initial validation in a sample of Australian first-time mothers and their 2-year olds. *International Journal of Behavioral Nutrition and Physical Activity*, *11*, 72. Retrieved from http://ijbnpa.biomedcentral.com/articles/10.1186/1479-5868-11-72

Joyce, J. L., & Zimmer-Gembeck, M. J. (2009). Parent feeding restriction and child weight. The mediating role of child disinhibited eating and the moderating role of the parenting. *Appetite, 52*, 726–734. doi:10.1016/j.appet.2009.03.015

Kohyama, J., Mindell, J. A., & Sadeh, A. (2011). Sleep characteristics of young children in Japan: Internet study and comparison with other Asian countries. *Pediatrics International, 53*, 649–655.

Krakowiak, P., Goodlin-Jones, B., Hertz-Picciotto, I., Croen, L. A., & Hansen, R. L. (2008). Sleep problems in children with autism spectrum disorders, developmental delays, and typical development: A population-based study. *Journal of Sleep Research, 17*, 197–206. doi:10.1111/j.1365-2869.2008.00650.x

Kuhl, E. S., Clifford, L. M., Bandstra, N. F., Filigno, S. S., Yeomans-Maldonado, G., Rausch, J. R., et al. (2014). Examination of the association between lifestyle behavior changes and weight outcomes in preschoolers receiving treatment for obesity. *Health Psychology, 33*(1), 95–98. doi:10.1037/a0032741

Kumanyika, S. K. (2008). Environmental influences on childhood obesity: Ethnic and cultural influences in context. *Physiology and Behavior, 94*, 61–70. doi:10.1016/j.physbeh.2007.11.019

Lam, P., Hiscock, H., & Wake, M. (2003). Outcomes of infant sleep problems: A longitudinal study of sleep, behavior, and maternal well-being. *Pediatrics, 111*(3), 203–207.

Lantz, B., & Ottosson, C. (2013). Parental interaction with infants treated with medical technology. *Scandinavian Journal of Caring Sciences, 27*(3), 597–607.

Larson, A. M., Ryther, R. C., Jennesson, M., Geffrey, A. L., Bruno, P. L., Anagnos, C. J., ... Thiele, E. A. (2012). Impact of pediatric epilepsy on sleep patterns and behaviors in children and parents. *Epilepsia (Series 4), 53*(7), 1162–1169. doi:10.1111/j.1528-1167.2012.03515.x

Liu, W. H., Mallan, K. M., Mihrshahi, S., & Daniels, L. A. (2014). Feeding beliefs and practices of Chinese immigrant mothers: Validation of a modified version of the Child Feeding Questionnaire. *Appetite, 80*, 55–60.

Luginbuehl, M. L. (2004). The initial development and validation study of the sleep disorders inventory for students. *Dissertation Abstracts International Section A: Humanities and Social Sciences, 64*(12-A), 4376.

Luginbuehl, M., Bradley-Klug, K. L., Ferron, J., Anderson, W. M., & Benbadis, S. R. (2008). Pediatric sleep disorders: Validation of the sleep disorders inventory for students. *School Psychology Review, 37*(3), 409–431.

Mason, Z. S., Briggs, R. D., & Silver, E. J. (2011). Maternal attachment feelings mediate between maternal reports of depression, infant social–emotional development, and parenting stress. *Journal of Reproductive and Infant Psychology, 29*(4), 382–394. doi:10.1080/02646838.2011.629994

Matthey, S. (2001). The Sleep and Settle Questionnaire for parents of infants: Psychometric properties. *Journal of Paediatric Child Health, 37*(5), 470–475.

McGreavey, J. A., Donnan, P. T., Pagliari, H. C., & Sullivan, F. M. (2005). The Tayside Children's Sleep Questionnaire: A simple tool to evaluate sleep problems in young children. *Child: Care, Health and Development, 31*(5), 539–544.

Meltzer, L. J. (2010). Clinical management of behavioral insomnia of childhood: Treatment of bedtime problems and night wakings in young children. *Behavioral Sleep Medicine, 8*, 172–189. doi:10.1080/15402002.2010.487464

Mindell, J. A., Sadeh, A., Kwon, R., & Goh, D. (2013). Cross-cultural differences in the sleep of preschool children. *Sleep Medicine, 14*, 1283–1289.

Minnis, H., Rabe-Hesketh, S., & Wolkind, S. (2002). Development of a brief, clinically relevant, scale for measuring attachment disorders. *International Journal of Methods in Psychiatric Research, 11*(2), 90–98. doi:10.1002/mpr.127

Moss, E., Smolla, N., Cyr, C., Dubois-Comtois, K., Mazzarello, T., & Berthiaume, C. (2006). Attachment and behavior problems in middle childhood as reported by adult and child informants. *Development and Psychopathology, 18*, 425–444. doi:10.1017/S0954579406060238

Nowicka, P., Sorjonen, K., Pietrobelli, A., Flodmark, C. E., & Faith, M. S. (2014). Parental feeding practices and associations with child weight status. Swedish validation of the Child Feeding Questionnaire finds parents of 4-year-olds less restrictive. *Appetite, 81*, 232–241.

O'Connor, E., Bureau, J. F., McCartney, K. A., & Lyons-Ruth, K. (2011). Risks and outcomes associated with disorganized/controlling patterns of attachment at age three in the NICHD Study of Early Child Care and Youth Development. *Infant Mental Health Journal, 32*(4), 450–472. doi:10.1002/imhj.20305

O'Connor, T. G., & Zeanah, C. H. (2003). Attachment disorders: Assessment strategies and treatment approaches. *Attachment and Human Development, 5*(3), 223–244.

Ogden, C. L., Carroll, M. D., Kit, B. K., & Flegal, K. M. (2014). Prevalence of childhood and adult obesity in the United States, 2011–2012. *Journal of American Medical Association*, *311* (8), 806–814. doi:10.1001/jama.2014.732. Retrieved from http://jama.jamanetwork.com/article.aspx?articleID=1832542

Oliveira, P. S., Soares, I., Martins, C., Silva, J. R., Marques, S., Baptista, J., et al. (2012). Indiscriminate behavior observed in the strange situation among institutionalized toddlers: Relations to caregiver report and early risk. *Infant Mental Health Journal, 33*, 187–196.

Østbye, T., Krause, K. M., Stroo, M., Lovelady, C. A., Evenson, K. R., Peterson, B. L., ... Zucker, N. L. (2012). Parent-focused change to prevent obesity in preschoolers: Results from the KAN-DO study. *Preventive Medicine, 55*, 188–195. doi:10.1016/j.ypmed.2012.06.005

Owens, J. A., Spirito, A., & McGuinn, M. (2000). The Children's Sleep Habits Questionnaire (CSHQ): Psychometric properties of a survey instrument for school-aged children. *Sleep, 23*, 1043–1051.

Polimeni, M. A., Richdale, A. L., & Francis, A. J. (2005). A survey of sleep problems in autism, Aspergers disorder and typically developing children. *Journal of Intellectual Disabilities Research, 49*, 260–268.

Reid, G. J., Hong, R. Y., & Wade, T. J. (2009). The relation between common sleep problems and emotional and behavioral problems among 2- and 3-year-olds in the context of known risk factors for psychopathology. *Journal of Sleep Research, 18*(1), 49–59. doi:10.1111/j.1365-2869.2008.00692.x

Rhee, K. I. (2008). Childhood overweight and the relationship between parent behaviors, parenting style, and family functioning. *Annals of the American Academy of Political and Social Science, 615*, 12–37.

Romeo, D. M. (2013). Neurological examination of late-preterm infants at term age. *European Journal of Paediatric Neurology, 1*(4), 374–382.

Rosen, G., & Brand, S. R. (2011). Sleep in children with cancer: Case review of 70 children evaluated in a comprehensive pediatric sleep center. *Support Care Center, 19*, 985–994. doi:10.1007/s00520-010-0921-y

Rutter, M., Kreppner, J., & Sonuga-Barke, E. (2009). Emanuel Miller Lecture: Attachment insecurity, disinhibited attachment, and attachment disorders: Where do research findings leave the concepts? *Journal of Child Psychology and Psychiatry, 50*(5), 529–543. doi:10.1111/j.1469-7610.2009.02042

Sadeh, A. (2004). A brief screening questionnaire for infant sleep problems: Validation and findings for an internet sample. *Pediatrics, 113*(6), e570–e578.

Sadeh, A., Mindell, J. A., Luedtke, K., & Wiegand, B. (2009). Sleep and sleep ecology in the first 3 years: A web-based study. *Journal of Sleep Research, 18*, 60–73.

Schlarb, A. A. & Brandhorst, I. (2012). Mini-KiSS Online: An Internet-based intervention program for parents of young children with sleep problems—Influence on parental behavior and children's sleep. *Journal of Nature and Science of Sleep, 12*(4), 41–52. doi:10.2147/NSS.S28337

Schreck, K. A., Mulick, J. A., & Smith, A. F. (2004). Sleep problems as possible predictors of intensified symptoms of autism. *Research in Developmental Disabilities, 25*, 57–66.

Seth, J. G., Evans, A. E., Harris, K. K., Loyo, J. J., Ray, T. C., Spaulding, C., et al. (2007). Preschooler feeding practices and beliefs: Differences among Spanish- and English-speaking WIC clients. *Family and Community Health, 30*(3), 257–270.

Simola, P., Laitalainen, E., Liukkonen, K., Virkkula, P., Kirjavainen, T., Pitkäranta, A., et al. (2012). Sleep disturbances in a community sample from preschool to school age. *Child: Care. Health and Development, 38*, 572–580. doi:10.1111/j.1365-2214.2011.01288.x88

Simola, P., Niskakangas, M., Liukkonen, K., Virkkula, P., Pitkäranta, A., Kirjavainen, T., et al. (2010). Sleep problems and daytime tiredness in Finnish preschool-aged children: A community survey. *Child: Care, Health and Development, 36*, 805–811.

Sivertsen, B., Hysing, M., Elgen, I., Stormark, K. M., & Lundervold, A. J. (2009). Chronicity of sleep problems in children with chronic illness: A longitudinal population-based study. *Child and Adolescent Psychiatry and Mental Health, 2009*(3), 22–28.

Skouteris, H., McCabe, M., Swinburn, B., & Hill, B. (2010). Healthy eating and obesity prevention for preschoolers: A randomised controlled trial. *BioMed Central Public Health, 10*, 220. http://www.biomedcentral.com/1471-2458/10/220

Smyke, A. T., Dumitrescu, A., & Zeanah, C. H. (2002). Attachment disturbances in young children. I: The continuum of caretaking casualty. *Journal of the American Academy of Child and Adolescent Psychiatry, 41*(8), 972–982.

Smyke, A., & Zeanah, C. H. (1999) *Disturbances of Attachment Interview*. New Orleans, LA: Tulane University School of Medicine, Department of Psychiatry.

Sneddon, P., Peacock, G. G., & Crowley, S. L. (2013). Assessment of sleep problems in preschool aged children: An adaptation of the Children's Sleep Habits Questionnaire. *Behavioral Sleep Medicine, 11*(4), 283–296. doi:10.1080/15402002.2012.707158

Spruijt-Metz, D., Li, C., Cohen, E., Birch, L., & Goran, M. (2006). Longitudinal influence of mother's child-feeding practices on adiposity in children. *Journal of Pediatrics, 148*(3), 314–320.

Stronach, E. P., Toth, S. L., Rogosch, F., & Cicchetti, D. (2013). Preventive interventions and sustained attachment security in maltreated children. *Development and Psychopathology, 25*, 919–930. doi:10.1017/S0954579413000278

Teng, A., Bartle, A., Sadeh, A., & Mindell, J. (2012). Infant and toddler sleep in Australia and New Zealand. *Journal of Paediatrics and Child Health, 48*, 268–273. doi:10.1111/j.1440-1754.2011.02251.x

Thrall, E. E., Hall, C. W., Golden, J. A., & Sheaffer, B. L. (2009). Screening measures for children and adolescents with reactive attachment disorder. *Behavioral Development Bulletin, 15*, 4–11.

van Ijzendoorn, M. H., Juffer, F., & Duyvesteyn, M. G. C. (1995). Breaking the intergenerational cycle of insecure attachment: A review of the effects of attachment-based interventions on maternal sensitivity and infant security. *Journal of Child Psychology, Psychiatry, and Allied Disciplines, 36*(2), 225–248.

Vervoort, E., De Schipper, J. C., Bosmans, G., & Verschueren, K. (2013). Screening symptoms of reactive attachment disorder: Evidence for measurement invariance and convergent validity. *International Journal of Methods in Psychiatric Research, 22*(3), 256–265. doi:10.1002/mpr.1395

Vollrath, M. E., Stene-Larsen, K., Tonstad, S., Rothbart, M. K., & Hanson, S. E. (2012). Associations between temperament at age 1.5 years and obesogenic diet at ages 3 and 7 years. *Journal of Developmental and Behavioral Pediatrics, 33*(9), 721–727.

Wardle, J., Guthrie, C. A., Sanderson, S., & Rapoport, L. (2001). Development of the Children's Eating Behaviour Questionnaire. *Journal of Child Psychology and Psychiatry, 42*, 963–970.

Wright, M., Tancredi, A., Yundt, B., & Larin, T. M. (2006). Sleep issues in children with physical disabilities and their families. *Physical and Occupational Therapy in Pediatrics, 26*(3), 55–72.

Yoon, H. K., Kang, S. G., Lee, H. J., Yoo, Y., Choung, J. T., Seo, W. H., et al. (2014). Apnea-related sleep fragmentation and poor vigilance in children with well-controlled asthma. *Journal of Sleep Research, 23*(2), 189–195. doi:10.1111/jsr.12103

Young, D., Reekie, J., Gray, A., Ronald, A., & Minnis, H. (2006). Development of a diagnostic tool for a childhood psychological disorder using multivariate statistical analysis. *Abstracts of 23rd International Biometric Conference, Montreal, Canada*. Retreived June 5, 2007 from http://www.mathstat.strath.ac.uk/downloads/publications/1075.pdf

Young, K. T., Davis, K., Schoen, C., & Parker, S. (1998). Listening to parents: A national survey of parents with young children. *Archives of Pediatric and Adolescent Medicine, 152*(3), 255–262. doi:10.1001/archpedi.152.3.255

Zeanah, C. H., & Gleason, M. M. (2015). Annual research review: Attachment disorders in early childhood–clinical presentation, causes, correlates, and treatment. *Journal of Child Psychology and Psychiatry, 56*(3), 207–222. doi:10.1111/jcpp.12347

Zeanah, C. H., & Smyke, A. T. (2014). Attachment disorders and severe deprivation. In M. Rutter et al. (Eds.), *Rutter's child and adolescent psychiatry*. London, UK: Blackwell.

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A. Garro (ed.), *Early Childhood Assessment in School and Clinical Child Psychology*, DOI 10.1007/978-1-4939-6349-2