

Perspectives on Early Childhood Psychology and Education

Volume 5 | Issue 1

Article 7

January 2023

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Recommended Citation

Bracken, Bruce A. and Theodore, Lea A. (2023) "Promoting Health and Wellness in Young Children: Preschool Assessment," *Perspectives on Early Childhood Psychology and Education*: Vol. 5: Iss. 1, Article 7.

Available at: <https://digitalcommons.pace.edu/perspectives/vol5/iss1/7>

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Promoting Health and Wellness in Young Children: Preschool Assessment

Bruce A. Bracken and Lea A. Theodore

Abstract

Children's formative development is most critical during the preschool years. It is during the earliest years of a child's life when the fundamental building blocks of learning, cognitive development, academic achievement, information processing, language, and interpersonal skills are acquired and developed. Preschools are well suited to shape children's overall health and well-being, with burgeoning research demonstrating a relationship between early life experiences and subsequent adult health. Preschool and quality daycare provide rich opportunities for children's learning, yielding long-lasting and significant effects. Comprehensive preschool assessment sheds light on aspects of the whole child, providing early identification of potential problems and the subsequent development of evidence-based interventions to address delays in development. The following chapter will provide a rationale for preschool assessment, identify specific domains in need of consideration, and promote the systematic linkage of established interventions to promote children's intellectual functioning, academic achievement, information processing, and skill development.

Keywords: *Preschool, Assessment, Intervention, Whole Child*

Introduction

A child's formative development is most critical during the preschool years. Research outcomes and advances in the field of preschool education during the past few decades have documented the significant benefits of high-quality education and enrichment opportunities and their inextricable link to the development of productive members of society. Long-term benefits associated with quality preschool education include higher rates of high school graduation, increased matriculation in college, greater likelihood of securing skilled labor positions, and improved health as adults (Sheridan et al., 2019; Mistry et al., 2012). It is during the earliest years of a child's life when the fundamental building blocks of learning, cognitive development, academic achievement, information processing, language and interpersonal skills are acquired and developed. Assessment of these various domain-specific skills allows practitioners to evaluate children's ability to surmount curricular demands, as well as meet the behavioral expectations of formal education (Theodore, in press). For a comprehensive review of relevant preschool skill and behavioral assessment domains, investigate current preschool assessment books (e.g., Alfonso et al., in press-a; Bracken & Nagle, 2007).

Comprehensive preschool assessments reveal important aspects of the whole child, i.e., individual strengths and weaknesses, areas of development and learning delays and advances, and school readiness. Examination of these areas assist in the early identification of potential problems and the subsequent development of evidence-based interventions to address lags in development. For children who underperform in critical areas, early intervention is essential to mitigate deficits, because unresolved issues or unaddressed delays often result in an achievement gap that increases cumulatively over time (Jensen, 1974). Whether learning or developmental delays are associated with federal legislation mandating educational services, evolving political or philosophical dynamics, or individual state's early childhood educational standards, there is an increasing awareness that early childhood intervention is far more efficacious than interventions at any other

age level. A direct link between assessment and intervention at every developmental level is considered essential during early childhood (Bagnato et al., 2010; Nagle et al., in press). This chapter will provide a rationale for preschool assessment and identify specific domains in need of detailed assessment to systematically link established interventions to areas of deficit, thereby promoting intellectual functioning, academic achievement, information processing, and skill development.

Legislative Mandates for Preschool Assessment and Intervention

For more than 50 years, a coalition of educators, psychologists, politicians, legislatures, and child advocacy groups have developed and promulgated sound educational standards designed to shape early educational expectations and experiences. The growing acceptance of the importance of early childhood assessment and intervention has resulted in convergent actions across organizational, state, and national levels. The recognized significance of preschool assessment, having coalesced as it has, has ascended from disparate early grass roots efforts to the enactment of state and federal legislation. To fully appreciate the current status of early childhood education, it is important to reflect on the historical changes and transformation of laws associated with early childhood initiatives. The following section provides a capsule summary of the historical timeline of early childhood legislation that has culminated in today's assessment and intervention practices for young children.

Individuals with Disabilities Education Act (IDEA)

Federal legislation (e.g., IDEA, 1975–2006) stipulated that all students with disabilities, from birth through 21 years of age, would have equal access to learning opportunities through a free and appropriate public education (FAPE). Significantly, preschool education was identified as a critical component of this law and the legislation therein set the stage for early childhood education. To this

end, comprehensive preschool assessment must focus on content, process, and procedure, including an emphasis on the inclusion of parents and teachers in evaluations, as well as the assessment of authentic, developmentally appropriate abilities and behaviors that are responsive to intervention.

State and National Efforts

Nationally, the promotion of state standards from kindergarten through grade 12 was promulgated by The National Governors Association in 2003. Such an endorsement of early childhood educational standards was grounded in the belief that state standards would ensure that students, regardless of where they attended school, would receive a more uniform and stronger basic education. Special concern was expressed in the document about identifying and closing the gap between 'at-risk' students, including minority and economically disadvantaged students, and their more economically advantaged peers.

These collective efforts prompted former George W. Bush's presidential administration to introduce the "*Good Start, Grow Smart*" initiative, which emphasized the importance of cognitive development in children between the ages of birth through age five. The *Good Start, Grow Smart* program led to a downward extension of the "No Child Left Behind" legislation (Public Law 107-110), introducing accountability in early childhood education. This series of actions laid the foundation for the development of common instructional content during the preschool and the primary grades, as well as promoted the formation of early childhood educational standards in all 50 states. Significantly, these educational benchmarks addressed the "whole child," including cognitive, academic, behavioral, social/emotional, linguistic, and physical development.

In 2009, President Barak Obama announced his support for *Race to the Top*, the nation's largest federally funded early childhood initiative, subsidized through the Department of Education. This initiative provides financial support to economically disadvantaged

children and families to ensure they receive high quality education and requisite resources and services. *Race to the Top* endeavored to meet four primary goals: (1) Adopt standards, assessments, and interventions that prepare students for productive lives; (2) enhance educational data systems to measure student growth and inform teachers; (3) recruit, develop, reward, and retain effective educators; and (4) improve America's lowest-achieving schools (Bracken, 2013).

In addition to these previously mentioned goals, *Race to the Top* prioritized: (1) developing educational programs in the STEM areas (i.e., Science, Technology, Engineering, and Mathematics); (2) creating educational practices that improve school readiness (including social, emotional, and cognitive functioning), and improving the transition between preschool and kindergarten; (3) expanding statewide data systems across time that would include data from special education programs (e.g., English language learner programs, early childhood programs); and (4) improving all parts of the education system by creating a seamless transition for all preschool-through-graduate school (P-21) students.

State Standards Movement

Bracken and Crawford (2010) reviewed 50 states' early childhood educational standards and the social-political conditions that influenced the development of these standards. Notably, although the nation was beginning to employ standards for early childhood education, educational standards were inconsistent across states. The Bracken and Crawford (2010) review focused on the incidence of basic concepts in state's early childhood educational standards, derived from the Bracken Basic Concept Scale—Third Edition (BBCS-3; Bracken, 2006a, 2006b) and the Bracken School Readiness Assessment—Third Edition (Bracken, 2007). Their review cited Scott-Little and researcher's work (2003) as having published an influential statement on the need for early childhood educational standards, *Standards for Preschool Children's Learning and Development: Who Has Standards, How Were They Developed, and How Are They Used?* That paper emphasized

educational accountability, highlighting the “widespread growth of early childhood programs in the late 1990s” and the mounting concern about the “growing divide between the poor and non-poor” (p. 2). Also important for the formation of educational standards was the effort of the National Education Goals Panel (NEGP, 1989), formally defining what “ready to learn” actually means.

The National Association for the Education of Young Children (NAEYC), another leader in the development of early childhood educational standards, published a joint paper on the need for early childhood standards in 2004. The NAEYC and the National Association of Early Childhood Specialists in State Departments of Education (NAECS/SDE) drafted a statement elucidating a process for establishing early childhood educational standards. This statement paved the way for accreditation curriculum requirements for early childhood programs. The participating organizations approved the curriculum standards draft two years later (NAEYC, 2004).

Resulting from these combined efforts, a consensus now exists that rigorous education should occur at all levels throughout a child’s educational career, the process must be uniform, lead to accountability, and comport to accepted educational standards. In response to the psychoeducational needs identified by scientists and practitioners, early childhood assessments must now match IDEA legislation mandates, states’ educational standards, and current philosophical, academic, and political initiatives related to sound early childhood assessment and intervention.

Rationale for Preschool Assessment

The literature clearly demonstrates that between birth and age seven, learning and development occur at very rapid rates, with growth curves that are steeper than any age thereafter. To understand the importance of early childhood assessment and intervention, it is essential to differentiate between learned behaviors and behaviors that are developed. Development is a natural unfolding of children’s abilities and characteristics that occur in a prescribed and universal

sequence across race/ethnicity, sex, national origin, or any other human condition. Development occurs in the same sequence, but not at the same rate, for all individuals (e.g., all children sit before they crawl; crawl before they walk; and walk before they run). Moreover, no matter how ardently we might try, we cannot “teach” children to sit, crawl, walk, or run—they develop these functions only when they are biologically, cognitively, and physically ready.

Learning, on the other hand, is the accumulation of knowledge and abilities that result from a developing person interacting with his or her environment in a meaningful way. For example, although children acquire the ability to crawl or walk through the natural developmental process, they learn about their environments as they crawl or toddle from one place to another within their environment, and by seeing all that is present as they approach or move about. Importantly, as educators, our goal is to create stimulating and safe environments that allow children to both develop in an unrestricted manner and learn maximally. Early childhood assessment encompasses both developmental phenomena and learning outcomes in a combined manner because the two modes of behavior are inextricably linked.

Developmental psychology and educational literature have long shown that the most rapid course of physical, cognitive, motoric, linguistic, and neurological development occurs during the first few years of life. Corresponding with this period of rapid development are “critical periods,” or windows of opportunity for young children to best benefit from experiences that contribute to optimal whole child development, health, and wellness. Children who are deprived of, or who have limited meaningful experiences during critical periods of development, typically lag behind their peers with respect to cognitive development, academic achievement, and behavioral comportment vis-a-vis children who have had a richer exposure to various cultural and educational opportunities. Unfortunately, remediation of children’s stunted growth after these critical periods pass is much more difficult than if redress is provided while the windows

of opportunity are fully opened. Therefore, identifying the need for and the provision of quality interventions during these critical periods is essential for fostering optimal learning and development in infants, toddlers, and young children.

Ideally, educators and psychologists would identify delays in children's development and learning early on and provide empirically supported interventions to overcome children's deficits during the time-period when such skills or abilities are most sensitive to growth, change, and enhancement. Educational programs such as Project Head Start or other experimental early childhood educational demonstration programs (e.g., Abecedarian Project, Perry Preschool Program) have demonstrated the benefits of early assessment, intervention, and progress monitoring. Programs such as Head Start have extended their scope of involvement to the development of requisite curricular skills that promote school readiness, including the provision of medical, dental, and mental health services and healthy eating behaviors and habits, as well as the acquisition of appropriate interpersonal skills. Thus, Head Start seeks to address the needs of the whole child, beginning in early childhood, targeting not just cognitive and academic functioning, but social and emotional functioning, behavioral comportsment, and health and wellness for preschool children (Rossin-Slater, 2015; Whitcomb, 2018). Research has demonstrated the long-term well-being and health benefits of Project Head Start, including reducing the likelihood of obesity, mortality, and smoking, and enhancing nutrition and overall child health (Frisvold & Lumeng, 2011; Rossin-Slater, 2015). Similarly, The Perry Program and Abecedarian Project showed similar positive health outcomes for early childhood education, such as diminished cardiovascular and metabolic diseases and lower overall blood pressure (Currie, 2001; Masse & Barnett, 2002).

A review of successful early childhood projects reveals that learning is greatest when evidence-based interventions for young children are intensive, of high quality, employed for a reasonable duration, and consistent (Ramey & Ramey, 1998). Unlike previous

funded programs with less well-defined curricula, such as Title I school-based remedial programs, focused projects like the Perry Preschool Program and the Abecedarian Project used careful developmental timing, curricular intensity, direct provision of learning experiences, program breadth and flexibility, instructional differentiation, and on-going progress monitoring.

Independent researchers, such as Wilson (2004), have demonstrated that when assessment of authentic content is followed-up with focused interventions, young children can make significant and meaningful improvements in their knowledge and skills across diverse content areas, and over brief periods of time. Bracken and Panter (Bracken & Panter, 2011; Panter & Bracken, 2000; Panter & Bracken, 2013) also highlighted the essential nature of the direct, content-focused approach to assessment, intervention, and progress monitoring for successful early childhood education, especially when the assessed and taught content is founded in well-defined early childhood states' educational standards and school curricula. These programmatic and independent findings illustrate the importance of assessing a full range of knowledge at a deep level using psychometrically sound preschool instruments (Alfonso & Flanagan, 2009; Bracken, 1987), followed by empirically-supported interventions with ongoing progress monitoring, to provide foundational support for young students' learning (Theodore, in press).

Assessment Domains

Authentic preschool assessment follows a hierarchical arrangement of domains, subdomains, and specific developmental behaviors. Each domain is composed of multiple facets or subdomains of functioning. Hierarchically, systematic early childhood assessment includes broad learning and developmental domains (e.g., language) that depict a child's current level of functioning. Moreover, within each broad communication domain there are essential subareas that collectively compose the domain (e.g., receptive and expressive language). Further, within these more specific aspects of

communication, there more definitive behaviors, such as receptive and expressive vocabularies (Bracken, 2006a, 2006b; Dunn et al., 2007). The following section provides a brief description of essential early childhood assessment domains, subdomains, and a sample of specific behavioral indicators of development. Further, the core domains and subdomains of development and learning that comprise a thorough and complete preschool assessment, are delineated in multiple sources (e.g., Alfonso et al., in press-b; Bracken, 2013).

Cognitive

The cognitive domain addresses behaviors associated with learning and development in the most global sense; that is, development of cognitive functioning and experiential learning drawn from the environment and every day events, as well as from formal settings (e.g., preschools, daycare centers). In order for children to learn effectively, their cognitive skills must include well developed short-term (i.e., immediate) and long-term memory (i.e., memory of more distant experiences and facts) and sustained attention. The early childhood assessment of cognition (i.e., intelligence), including reasoning, memory, and quantitative skills can be conducted with traditional language- and culturally-loaded intelligence tests (e.g., Wechsler Preschool and Primary Scale of Intelligence–Fourth Edition, Wechsler, 2012) or through totally nonverbal and culturally fair intelligence tests (e.g., Universal Nonverbal Intelligence Test, Bracken & McCallum, 1998, 2016).

Additionally, sound cognitive functioning includes the ability to differentiate the hierarchical arrangement of percepts and concepts; that is, the ability to perceive important conceptual characteristics of objects (e.g., blue color, small size, square shape, smooth texture) and group those characteristics conceptually with into categories (e.g., colors, sizes, shapes, textures) (Bracken, 2006, 2007, in press). Using percepts and concepts, children begin to reason with the knowledge they have accumulated. For example, they may begin to deduce that most plant leaves are green — and begin to inquire why leaves are

generally green. Attentive children may notice that cubes provide better building blocks than balls or oddly shaped objects and develop a sense of how objects can be combined to form wholes greater than their respective parts (e.g., several blocks combined might represent a fort, bridge, or vehicle.). Finally, among the most important cognitive skills are attention and executive functioning—skills needed to sustain attention long enough to complete an activity while attending to important details, features, and relationships and subsequently use that information collectively to generalize an effective approach and plan for similar future situations.

Memory

Memory consists of short-term immediate recall, long-term delayed recall, and working memory (i.e., the ability to retain information in memory while using it simultaneously to solve a problem). Accurate and useable memory also requires effective and non-impaired use of basic channels of communication (e.g., auditory, visual, tactile), as well as the nature of the material to be recalled (e.g., verbal, spatial, numerical); hence, the importance of visual and auditory screenings before conducting assessments. Memory can be simple (e.g., recalling a single object or number) or it can be complex, using combined channels of communication and dissimilar content. For example, a teacher’s simple question to a child, “How many red, tall flowers did you see on the picture?” is a question presented aurally. The child must respond orally, after recalling previously viewed multicolored flowers on a page, and then count the number of red flowers that were tall, as opposed to those that were short, all from memory.

Percepts and Concepts

Children begin to differentiate objects in their environment, and they do so because of dominant characteristics they perceive. Those objects may have no inherent meaning to the child initially—they are just sights the child notices (e.g., chair, table, bed). The sight

of these objects initially represents percepts because the objects are perceived through the senses but have no special meaning to the child; that is because they have not yet acquired the status of becoming concepts. Once these objects develop meaning and their salient characteristics are used to define them, they attain the status of being concepts (i.e., multiple salient features that in combination define the object as fitting into a specific category). As concepts, they can be categorized according to their salient features, which then classifies them within different conceptual categories. For example, a blue bowl might be categorized with other dishes used in the kitchen; it might be grouped with other objects that hold a substance (e.g., soup, cereal) or are used for mixing (e.g., mixing bowl); it could be classified among other objects that are blue. As such, percepts represent what the child notices as a single object; concepts are what the child organizes and generalizes into meaningful categories based on the features that were initially perceived (Bracken, 1984, 2006a, 2006b, in progress).

Reasoning

Reasoning combines recalled information that might be perceptual or conceptual to solve problems, see relationships, create new combinations, and so on. When a child recalls that steam locomotives have loud whistles, tea kettles whistle on stovetops, and both of these disparate objects make a similar high-pitched noise, the child might begin to reason that steam, when passing through a small hole, is what makes the whistling sound. Moreover, through reasoning, the child might also see that if one regulates the volume of steam passing through the hole, they can vary the intensity of sound produced.

Attention and Executive Functioning

The ability to attend with intention is essential for memory, perception, conceptualization, and reasoning. Children must sustain attention long enough to discern relevant from irrelevant

features of objects or a situation to the point of understanding associations, relationships, or utility. Further, children must attend with sufficient focus and time to effectively comprehend and solve problems. Without effective attention and awareness, children flit from experience to experience without discriminating relevant from irrelevant information. Executive functioning is the ability to make a plan, organize time and material effectively, execute the plan, and then evaluate how well the plan worked. Attention and executive functioning are central to children effectively organizing their lives, planning for future events, following through on their plans, and anticipating how to approach future situations. Children's ability to focus their thinking and to concentrate are essential components of wellbeing throughout life (Thompson, 2014).

Communication Domain

Communication involves receiving and expressing information through multiple channels of communication. At a foundational level, children hear (i.e., aural communication mode) and speak (i.e., oral communication mode); however, children also communicate non-verbally (e.g., pointing, shrugging, sign language), which employs a tactile channel of communication. As children participate in school-related activities, they begin to employ cross-modal communications based on combinations of these fundamental channels of communication. For example, when children learn to read, even silent reading, they "hear" what their eyes are viewing. Similarly, children may feel an object with their eyes closed, and "see" a ball in their hands. In addition, children might provide text in printed form, using the tactile mode of communication. Although sophisticated communication is complex and can cross modalities, we generally think of communication as either receptive or expressive in nature. The assessment of speech and communication and speech requires a comprehensive array of approaches, methods, and instruments (Crais, 2011).

Receptive Language. Although a child can receive communicated information through their eyes, ears, hands, and so on,

communicated information for the preliterate child is largely spoken. The extent to which children perceive aural communications accurately depends on their hearing acuity, the volume they can effectively hear, how well they attend, how expansive their vocabulary is, or their ability to comprehend and make sense of what they hear. Children with receptive communication difficulties may have encountered the limitation due to any number of conditions (e.g., deafness or hard of hearing at birth, injury, infection), and children with limited receptive abilities generally experience mild to significant delays in language development.

Expressive Language. Expressive language consists of the extent to which a child can express their needs, wants, or desires effectively. At a basic level, a young children's expression might consist of shrugs, points, or grimaces, but typically, expressive communication is a function of how well children articulate their message verbally. Children with expressive language delays may have any number of physical, psychological, or personal/cultural overlays (e.g., tied frenulum, shyness, cultural expectations that children should be seen and not heard) that limit their expressive abilities.

Academic Domain

Once children are exposed to pre-academic experiences, they begin to develop pre-literacy skills and specific knowledge about numbers and counting, science, social studies, technology, the arts, and so on. Caregivers and teachers begin to introduce children to basic facts and experiences (e.g., mathematics, science, art) and begin teaching them pre-literacy skills such as number and letters recognition. This broad academic domain comprises all topical and subject matter that reflects accepted beliefs about what is important for children to know to prepare them to engage their academic K-12 careers.

Literacy Knowledge and Skills. Literacy and pre-literacy skills are typically taught in a systematic manner in preschools by exposing children to letter identification and sounds, and number identification

and counting, and through a broad exposure to books and other print material. As children develop, their vocabularies grow rapidly and begin to become specialized; their interests also become more divergent (e.g., interest in dinosaurs, the heavens above, plants); and they begin to seek picture books and textual books of interest that foster interest in reading and enhance their literacy and general knowledge.

Math Knowledge and Skills. Beginning with fundamental concepts such as "more," children increasingly become aware of math related concepts, such as numbers, counting, volume, size, and other quantity, measurement, and volume concepts and knowledge. Starting with rote counting, followed by place counting (i.e., one to one correspondence), children begin to develop a sense of numerosity and quantitative values, as well as a global number sense (e.g., more, less, same).

Science. Children's wonderment about basic science facts, such as why the sky is blue or why leaves turn colors initiates many young children's interest in science. Animal husbandry, plant life, geological structures and formations, and all such natural phenomena have scientific explanations that many young children seek to understand. Children's innate sense of curiosity causes them to seek explanations of common events and relationships, and as they begin to ask and learn about science content, their understanding about the inter-relationships between organisms and systems begins to develop.

Social Studies. When children ask why one child is black, another yellow, and yet another is white, they are expressing an awareness of fundamental social/cultural and individual differences in people; differences which may not be evident within their own family, unless of course their families are multi-racial. In multi-racial families, children's perceptions about human differences will likely blossom at an even younger age. Social studies provide many opportunities for educators to explain individual and group differences, and the importance and foundations of cultural beliefs, gender roles, societal expectations, and so on. Linked with these foundational

human characteristics are other aspects of society that are important, such as education, economy, religious beliefs, health and social welfare, and related cultural issues that are dominant in the local and national media.

Technology and Engineering. In an ever-increasingly technological world, children learn about technology at increasingly younger ages, as they are exposed to home computers, tablets, calculators, telephones, televisions, and the many electronic devices common in many households. As children begin to playfully build structures, dam streams, move earth, build sand castles, erode or wash away surfaces with water, create levers and ramps, play with magnets, and replace batteries, they begin to develop an emerging understanding of civil, mechanical, and electrical engineering. Their innate curiosity encourages a natural comprehension of engineering concepts and laws; however, systematic exposure to these phenomena as part of the preschool experience fosters this interest in a much more direct manner.

Arts. Children are also naturally drawn to sounds, sights, and textures that in combination create art. This interest begins to develop not only a sense of aesthetic awareness, but also a deeper appreciation of music, dance, visual arts, and the production of artistic products. Importantly, art can easily be found in the previously mentioned academic and cultural areas (i.e., literacy, math, science, social studies, engineering).

Adaptive Functioning

Children typically develop adaptive skills in tandem with their cognitive functioning, but not always. In cases where children are overly protected and have much done for them, their adaptive skills are often slower to develop. Some children, due to lack of exposure to cognitively stimulating environments, may develop adaptive skills at a faster rate out of necessity than more advantaged children; however, for most normally developing children, their adaptive skills generally develop at a rate commensurate with their cognitive

skills. Adaptive functioning includes the child's ability to take care of themselves and perform basic routines (e.g., dressing, toileting, self-feeding, hygiene, making transitions in daily routines) (Harrison & Oakland, 2015; Sparrow et al., 2016). As children grow older and are coached or taught basic self-care skills, their abilities and adaptation increase to the point of becoming relatively independent in their daily functioning, with less and less reliance on adults to care for them. Similarly, as they increase in independence, children are often assigned responsibilities that contribute to maintaining the home or classroom, such as performing chores, duties, or meeting expectations that help others, and keep an orderly, safe, and kempt setting.

Self-Care

Children demonstrate increasingly complex self-care skills as they assume responsibility for meeting their own personal needs. They rely less on adults to feed them, or provide food for them, and begin to make their own snacks or vocalize eating preferences. They dress themselves little by little by first pulling on or off clothing, and later snapping snaps, buttoning buttons, zipping zippers, and tying or fastening their shoes. As young children develop, they become reliable users of the toilet, and assume the full range of toileting behaviors. Similarly, they increasingly bathe themselves, get themselves ready for bed, and prepare for upcoming events (e.g., putting on coats, boots, mittens, hats). Children who are fully developed in their self-care behaviors are free of adult support, except for parental or caregiver suggestions or guidance as to what clothing or outerwear is appropriate for the weather, event, or situation.

Personal Responsibility. As children develop self-care behaviors, they also contribute to or assist in activities that maintain overall order, cleanliness, or orderly functions. For example, they may make their own beds, roll up their nap mats, pour drinks for themselves and others, set tables, pick up litter and put away toys, and in general help clean up before or after an event.

Motor Skills

Monsma and colleagues (in press) identify three important findings from decades of motor skill development research: (1) most children, with and without disabilities are delayed in their gross motor skills; (2) motor skills can be significantly improved with just minimal intervention (Logan et al., 2012; Morgan et al., 2013; Taunton et al., 2017); and, (3) the relationships between motor skills, perceived motor skill competence, physical fitness, and physical activity in childhood convey to adolescence and early adulthood (Sackett & Edwards, 2019). Importantly, early years of motor development set the foundation for neuromuscular coordination used by the individual throughout life.

Motoric activity mostly includes the child's ability to use fingers, hands, feet, and legs in a coordinated manner to take on academic and nonacademic physical activities; activities, such as cutting, pasting, coloring, picking up small objects, snapping fasteners, walking, kicking or striking balls, running, skipping, balancing, and jumping. Fine motor activities are those that require the use of fingers and hands to hold, manipulate, carry, or handle objects. Academic fine motor skills include the ability to effectively use pencils, crayons, pens, scissors, rulers, paintbrushes, and the like. Non-academic fine motor skills include the dexterity to do such things as zip zippers, fasten snaps, use dining utensils, pick up small objects, etc. In contrast to fine motor skills, gross motor behaviors typically require the use of legs and arms to accomplish tasks, but also includes the balance and coordination of the entire body in activities (e.g., kicking, running, striking, dancing, climbing, jumping).

Fine Motor. As mentioned previously, fine motor skills require small muscle movements of the fingers and hands in a coordinated manner. Fine motor behaviors may be classified as academic or non-academic. Children who come to school from homes in which parents encourage and make available school-like activities (e.g., coloring, book handling, cutting and pasting), often demonstrate better academic fine motor abilities in the classroom than children

with limited exposure to school-related activities. On the other hand, some children lack those pre-academic opportunities and develop non-academic fine motor abilities, but they lack the dexterity to effectively manipulate scissors, pencils, crayons, and so on due to a lack of previous exposure to these objects, not an inability to do so.

Gross Motor. Children's gross motor development, like fine motor skills, is dependent on both developed abilities as well as experience. Children who come from homes that emphasize athletic development or creative movement (e.g., dance), will typically demonstrate smoother gross motor coordination than children from homes that are overall less physically oriented.

Perceptual Motor. Perceptual motor skills include the combination of sight or sound, and a corresponding fine motor response to that which is seen or heard. For example, many academic fine motor skills fit this description—cutting, pasting, coloring, require that the child have both adequate fine motor skills and the ability to respond appropriately to what they see or hear (e.g., drawing through a maze, producing recognizable drawings, cutting along lines, tying shoe laces). Using other perceptual channels of communications, children also develop the ability to respond across modalities (e.g., hearing and responding to auditory stimuli), such as swatting away an unseen buzzing insect, or locating by sound and physically stopping a ringing bell or buzzer.

Personal/Social Skills

As children mature, they become ever more social and begin to interact more effectively with other people, including older individuals (e.g., older children, adolescents, and adults), as well as children their own relative age (i.e., peers). Children's effective interactions with adults and peers are based on different behavioral and cultural expectations (e.g., showing deference, respect, and following the lead of responsible adults versus sharing and playing cooperatively with children their own age). As children refine their social skills, they are better able to initiate and respond to others in a socially

acceptable manner. In contrast, children who lack social skills tend to be more isolated from others, either by choice (e.g., shy children) or because of how others view and respond to them (e.g., children who are shunned by their peers). Social skills and healthy interpersonal relations are essential elements of happiness and overall well-being.

Adult Interaction. Children with well-developed social skills have a balanced approach in their interactions with adults—that is, they respond appropriately to the authority of adults (e.g., follow adult directions, seek adult assistance when in need, ask adults opinions or permission), but they also must discern and respond differentially when adults lack true authority (e.g., knowing to not accept invitations from strangers, avoiding adults who might be behaving irresponsibly or dangerously). In general, as children develop, they learn manners (e.g., to be polite, respectful, and respond to the directions of adults), but they also begin to learn which adults they must be responsible to or wary of, and make choices about what they should do with each adult.

Peer Interaction. Children initially learn to play among other children without interacting (e.g., parallel play), and then increasingly learn to incorporate their peers into collaborative or interactive play (e.g., games, joint activities). When engaged in joint activities, children further learn how to share, cooperate, and lead activities or follow their friends' lead. Learning to take turns in conversation, play, and group activities, and showing empathy for other children who are upset, hurt, or sick are higher order social skills that develop after children progress past parallel and cooperative or interactive play and move toward fully integrated activities.

Self-Concept and Social Role. Children's social self-concepts, their overall self-concepts, and their personal sense of self, are often tied into their self- or other-perceived role. When children are effective in their interactions, they gain confidence; when they are timid or afraid to interact with others, or when others reject them, they tend to develop fewer positive self-images. Caregivers shape children's self-concepts by their actions, words, and the manner in which

they support and encourage children in their daily functioning and interactions. For a discussion on the formulation and development of self-concept, see Bracken (1996, 2009, 2017) and Theodore and Bracken (in press).

Preschool Assessments Issues

As a developmental and learning assessment process, examiners assess behaviors that virtually all preschool children will eventually master; therefore, mastery of specific skills is the criterion of successful growth, regardless of when that mastery occurs. Thus, a typically developing child will master the specified milestone behaviors on or about the age at which other normally developing children have been found to master the same behavior. Whether the child is behind or ahead of his or her normally developing peers, mastery of finely sequenced learning and developmental behaviors is the goal, or the criterion for rate of growth comparisons.

Criterion-Referenced Versus Norm-Reference Assessment.

In a criterion-referenced approach to assessment, examiners seek to determine where on the continuum of development or learning children were at the beginning of their educational programming. Moreover, progress monitoring is important for assessing the child's rate and level of progress throughout the academic year or intervention period. Such direct evaluation, like measuring a child's height over a period, is useful for assessing the child's current level of development, as well as assessing the child's ongoing rate of growth.

Norm-referenced assessment is especially useful for determining lags in development across domains as compared to other children of the same age. Norm-referenced assessments allow for the identification of developing delays that without intervention may result in persistent delay of an ability or the early identification of a diagnosed condition. However, because the rate of development is variable during this period of rapid growth, normative comparisons may only be an indication of a slower rate of development, not terminal outcomes within domains.

It is sometimes difficult for examiners unfamiliar with early childhood behavior to determine what behaviors are typical or normally developing versus those behaviors that are problematic or even advanced. For example, when a child is described as distractible, impulsive, and easily frustrated, educators often consider possible disabilities associated with those behavioral characteristics (e.g., Attention Deficit Hyperactivity Disorder). Although behavioral descriptors of this sort are frequently associated with disorders among older children, the same behaviors often characterize many normal children between the ages of two and eight (Bracken & Theodore, in press). As such, these behaviors are only problematic because of the difficulties the behaviors cause caregivers and teachers who must deal with the child.

Normalcy is especially difficult to define among young children, and frequently even parents differ dramatically in their perceptions of their children's behavior (e.g., Bracken et al., 1998; however, empirically constructed early childhood rating scales with strong psychometric qualities like the *Clinical Assessment of Behavior* (Bracken & Keith, 2004) ease these concerns to a large extent.

During the preschool years social, motor, language, and cognitive development occur at rapid rates and the range of development among normal preschool children across and within these domains is great. As children increase in age, their rate of development slows and the range of behaviors among normal children likewise narrows. Because of this developmental phenomenon, it is sometimes difficult to differentiate mildly impaired preschool children from normal preschoolers due to variable rates of "normal" development. The task for psychologists conducting norm-referenced and criterion-referenced preschool assessments is to determine when a preschooler ceases to be considered within the normal range and begins to be considered abnormal (i.e., significantly delayed or advanced). As these early childhood years are a time of rapid development, children's overall health, including the brain, nervous and central nervous systems, endocrine, and immune systems, are particularly

salient to a child's early experiences and environments, when the foundation of lifelong health is established.

Observing and Interpreting Preschool Behavior

Educators often assume that a child's behavior in school is similar to the same child's behavior at home. In many cases this assumption may not be appropriate. A young child's behavior in one context should never be interpreted unconditionally as being representative of his or her typical behavior in another setting (Bracken & Theodore, in press). The dynamics of a classroom are often much different from the child's home environment, resulting in a wide range of behaviors across contexts. Thus, the preschool child's classroom behavior may be specific to a group setting and academic context, and generalize less well to other solitary, non-academic settings. It is common for parents to claim that their child often performs some specific behavior at home, but school-based caregivers or teachers contend they have not seen the same behavior within the academic setting. While the educational context provides enough structure, personal attention, and peer influence to keep some children eagerly on task, other youngsters resist the structure and formality of a classroom, are more timid and refuse to participate or join in activities only half-heartedly. To develop a better understanding of the child's typical behavior, the examiner should observe the child in a variety of situations and contrast the child's behavior across contexts, time, and activities. Observations should also be made while the child is involved in free play on the playground and during structured educational activities for a more complete picture of the child's typical behavior. If developmental observations are made within a variety of settings, the examiner will have a greater sample of behavior from which inferences can be made more reliably and validly.

To effectively evaluate a child's development and learning, the examiner must be aware of the child's full range of behavior and integrate those observations into meaningful behavioral trends. One distinction that should be made with observations is

determining whether a child failed to perform individual activities due to an inability to complete the task successfully or because of an unwillingness to attempt the task. It is common for shy preschoolers to refuse to attempt some educational tasks for fear of failure or to avoid unwanted attention being drawn to them. In such instances, in addition to noting the detrimental effects of the child's limited participation in the educational setting, the examiner has identified potential behaviors in another domain for intervention (e.g., self-confidence or self-regulation).

Cognitive and Academic Behaviors

Preschool evaluations include a wide variety of academic related behaviors, including functioning in each of the previously identified Cognitive and Academic domains and subdomains. Caregivers and teachers should be watchful for how children approach educational opportunities, including their interest in print material (e.g., books, magazines); recognition of text (e.g., uppercase and lowercase letters); recognition of numerals and understanding of number values; awareness of letter sounds, phonemic analysis of words, reading level, and so on. Teachers should also pay close attention to the academic subjects that children express curiosity about and choose to engage in on their own initiative. Children who choose specific subject matter typically are more advanced in those subjects than are other children.

Within the classroom, teachers are typically aware of those students who need more help in performing daily routines (e.g., toileting, lunch or snack time, getting dressed to go outside), or transitioning from one routine to another (i.e., some children respond better to changes in routines than others). These behaviors are related to a child's adaptive functioning, and many opportunities occur throughout the day (e.g., snack time, bathroom time, dressing to go outdoors) to observe how well children adapt to their environment and demonstrate personal self-care skills.

During classroom activities, teachers or examiners are in an excellent position to notice children's cognitive functioning. They see

how well children sustain attention during classroom lessons; how well they remember and follow directions, instructions, or receive admonitions; how well they reason during problem-solving activities; and, how they perceive and understand slight differences in concepts (e.g., differences between *cold*, *cool*, *lukewarm*, *warm*, *hot*).

Communication Behaviors

In the broad area of communications, it is easy to misunderstand a child's true cognitive skills or language abilities because the child may not be very good at expressing himself or herself. For example, children who are shy or who have articulation difficulties may not appear to be very intelligent or may seem to have poor language skills, yet they may be brighter than anticipated and *understand* language at a very high level. In contrast to children who have well-developed receptive language skills, children who are hard of hearing or have even periodic hearing loss due to otitis media (i.e., inner ear infections) may develop both poor reception, comprehension, expression and articulation. Observers must attend to how well the young child: (1) hears or receives what is spoken, both in group and individual settings; (2) understands what they hear and do not hear (e.g., accuracy at following directions or responding to prompts); and (3) expresses themselves, either vocally or using words and gestures in combination. To fully understand a child's communication skills, the examiner must consider the full channel of communication, including hearing, understanding, and expressing.

Motoric Behaviors

Teachers can readily identify those children in the classroom who are the coordinated ones and those who are typically clumsy, drop things, and make messes. Fine and gross motor skills require the delicate balance of combining eyesight with the movement of fingers, hands, arms, legs, and whole bodies in a coordinated manner. Teachers should seek to differentiate between classroom accidents that were due to a child's inattention or impaired vision,

gross motor clumsiness (e.g., tripping, falling, tumbling), and his or her fine motor awkwardness (e.g., breaking pencil points due to too much pressure, difficulty zipping zippers, spilling drinks at the table). Moreover, within the fine motor domain, teachers should be observant of academic versus nonacademic fine motor functioning. That is, some children lack prior educational experiences and may be awkward when printing, coloring, or using scissors, but may be able to zip zippers, snap or button clothing, and pick up and manipulate small objects with ease. In such a case, the teacher should note the differences in skills and abilities, and attribute the differences to a lack of academic experience as opposed to limited fine motor ability.

Social Skills and Adjustment

Within the social arena, teachers have ample opportunity to watch children interact with their peers of both genders, as well as their interactions with teachers and other caregivers (e.g., classroom aids). Recognizing that children are socialized with adults and other children to differing degrees, and are exposed to group activities at different rates, teachers should be careful about judging whether a child is “well-behaved” or “misbehaved.” Rather, teachers should focus on specific behaviors that are appropriate or inappropriate and note what the child does and does not do to facilitate effective social interactions. Similarly, teachers should make note of those children who tend to be leaders in the classroom (e.g., organizing events, assigning roles) and those who are more passive and simply go along. Related to taking a dominant or passive role may be how the child feels about himself or herself – that is, their self-concept. Not all shy or passive children, however, have poor self-concepts; they very well might feel good about themselves across core self-concept domains (e.g., social, physical, academic, family, competence, affect), yet have no desire to assume leadership roles (Bracken, 1996; Theodore & Bracken, in press). To be effective evaluators, psychologists must look beyond global areas of functioning (e.g., global self-concept) and consider clues that reveal how children feel about themselves within

specific areas or domains of functioning (e.g., specific domains of self-concept), as well as each child’s idiosyncratic ecological systems.

Conclusion

Preschool assessment includes a diverse array of methods, procedures, instruments, and behavioral domains. During the preschool years, more so than any other age level, examiners must attend to both developmental and learning-based assessments. Development includes the natural unfolding of behaviors (e.g., motor, speech), whereas learning-based assessments are focused on what children acquire from exposure to their environments. The two assessment foci are interrelated and must be considered together using both norm-referenced and criterion-referenced formal and informal assessment approaches.

Author Note

We have no known conflict of interest to disclose. Correspondence concerning this article should be sent to Bruce A. Bracken, The College of William and Mary, P.O. Box 8795, Williamsburg, VA 23187-8795. Email: babrac@wm.edu

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