Traditionally, academic success depends upon a child’s basic ability to read, write, spell, and do math equations—abilities commonly known as the three R’s. The goal of traditional education is to teach and strengthen these basic abilities so students may apply them to complete given tasks.

The No Child Left Behind Act (PL 107-110), passed by Congress in 2001, was intended to increase the academic achievement levels in these areas for students considered to be disadvantaged (based upon low family income level, residence in a non-English speaking household, or enrollment in a low-performing public school) and to better prepare teachers for the task of teaching. The No Child Left Behind Act (NCLB) puts forth four key principles:

- accountability for student learning results,
- state flexibility in its use of federal funding,
- school choice for parents and students from disadvantaged backgrounds, and
- a focus on using curriculum programs based on scientific research.

Debate on the legislation brought a renewed focus on needed improvements in the public school systems, but the real-world application of NCLB principles has created unintended consequences in the educational community and inadvertently affected the basic developmentally appropriate expectations of early childhood curriculum.

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The accountability aspects of NCLB require students to pass assessment tests at specified grade levels to ensure schools qualify for federal funding. An unfortunate effect of mandated assessment tests in kindergarten and primary grade classrooms (grades 1–3) is that they can lead parents and policy makers to set unrealistic academic goals for five- and six-year-olds. Out of concern and fear about the future, parents prefer that young children focus on academics and place pressure on preschool and prekindergarten teachers (Almon 2003). Pressure and mistaken expectations encourage teachers to use inappropriate curricula that develop skills rather than a curriculum that cultivates learning.

One example is the NCLB program known as Early Reading First (Title 1, Part B, Subpart 2). In an attempt to promote reading competency in kindergarten through third grade, this program provides federal funding to begin by helping prepare three-, four-, and five-year-olds with language, cognitive, and early reading skills determined necessary to be successful readers in kindergarten. What the program ignores is the fact that developmentally children are ready to read at different ages. Early Reading First cites the importance of children’s social, emotional, and physical development but promotes early literacy skills above all others, thus reinforcing inappropriate teaching practices and fueling a vicious cycle. “Teaching preschoolers to read can be understood as a desperate effort to compensate, having created the conditions for failure in older children” (Olfman 2003, 37).

Young children today are expected to enter kindergarten classrooms with increasingly advanced skills. “Thirty-six states now have standards for what children should know and be able to do before they enter kindergarten, particularly in literacy and other academic areas” (Jacobson 2004, 13). As a result, many families are anxious to have their prekindergarten children attend early childhood programs that teach the academic content and skills required to pass tests (Almon 2003).

The notion that formal instruction techniques that work in the primary grades will also be effective in early childhood programs has brought a rise in rigorous public and private academic preschool and prekindergarten programs. (Throughout this article, programs for toddlers and three-year-old children are referred to as preschool, and programs for four-year-olds and five-year-olds who are not enrolled in kindergarten are called prekindergarten.) In an effort to teach the three R’s and better prepare young children for future kindergarten assessment tests, these academic learning environments often ignore questions about the reliability of any test results gathered from such young children and put the balanced development of the children at risk.

This article takes a close look at the push to teach the three R’s in early childhood programs, examines how children learn best, and suggests a set of three I’s to better prepare young learners for future academic success.

Understanding the basic goals of the primary grades

As children move from an early childhood learning environment to kindergarten and primary grade classrooms, they are increasingly required to think abstractly and focus their efforts on adult-chosen goals. A large portion of primary school curricula is delivered through teacher instruction. In such classrooms, academic success depends upon the students’ ability to listen, absorb information, and do seatwork (Owen, Froman, & Moscow 1981). The educational system requires a student “to call the powers of his or her mind into service at will and deliberately use them to tackle isolated problems presented by some other person” (Donaldson 1978, 129).
The basics: More than just the three R’s

Preschool and prekindergarten children can be taught to recite addresses, phone numbers, spelling words, and number facts from a checklist. Experienced teachers, however, know that deep learning and developed thinking require that a child be able to understand how, when, and why to use knowledge and skills, and also possess good work habits. A task such as reading is a complex process in which children combine memorized information with growing abstract thinking to understand a printed text. Knowing the alphabet and sounds of the letters is not enough for a child to be a successful reader whose comprehension skills are strong.

Similarly, showing competency in the three R’s in the primary grades does not ensure a child’s academic performance in the intermediate grades, where complex abstract thinking requires more than just using bits of information memorized along the way. “Learning why they are supposed to know something, learning how and why things go together, taking time to explain things so that we fill children not with just information but also with understanding, increases their cognitive development in incredibly important ways” (Muller-Ackerman 2002). A successful student and lifelong learner not only exhibits competence in the skills associated with the three R’s but also understands the importance of learning specific academic knowledge, can meaningfully apply knowledge in the future, and—most important—has gained the disposition and abilities to do so. (Katz [1993a] defines the term disposition as the tendency of a child to consciously and voluntarily use a behavior to achieve a goal.)

One of the goals of the primary grades is to develop and strengthen thinking and computational skills to accomplish given tasks. However, the pen-and-pencil seatwork typically associated with three-R skills requires a successful student to also apply many nonacademic abilities and behaviors. A complex task such as reading requires visual focus, eyes that track and work together, letter-to-sound recognition, memory, language comprehension, and an interest in books and reading. Writing requires small motor control and strength, eye-hand coordination, motor muscle memory, an understanding of language structure, the ability to construct and express thoughts, the ability to organize ideas, and the opportunity and motivation to write (Flagler 1996). Arithmetic requires a student to try challenging tasks, recognize how objects and shapes physically interrelate, recognize patterns, gather information, and express ideas in symbols or pictures. As they learn to read, write, and perform arithmetic computations, children combine various physical, emotional, social, and cognitive capabilities with these nonacademic behaviors. And all of these nonacademic learning behaviors require natural abilities that are developed over time in a good early childhood program.
Understanding the basic goal of early childhood

The goal of early childhood education is to help a child develop the abilities, the understanding, and the disposition required for success in the primary grades and beyond. To prepare themselves, preschool, prekindergarten, and kindergarten children need time to refine physical movements, learn how the emotional and social world works, and develop practical hands-on knowledge. “Until sometime around the age of six or seven, children’s ‘work’ is to develop the basis for abstract thought by mastering their physical environments, and by learning to use language” (Healy 2004, 62). As a child matures, his or her practical hands-on knowledge of the world will provide a solid foundation for more academic learning.

Sight, sound, and touch: The basics of learning readiness

Early childhood learning environments must be carefully designed to provide a variety of opportunities for children to see, hear, touch, and connect with their surroundings. It is through these sensory experiences that preschool, prekindergarten, and kindergarten children master the basics of learning readiness. A child shows learning readiness when he or she can focus, listen, absorb information, do seatwork, and learn in a formal setting in which new information is delivered through direct instruction. The characteristics of learning readiness are developed rather than taught and only through numerous concrete interactions with the world can a young child prepare to benefit from formal instruction later (Elkind 1987).

Supporters of academic early learning environments mistakenly believe that the best way to prepare young children for primary school success is through formal instruction, work sheets, and skill drills. Such practice predetermines the most relevant information and attempts to force young children to focus in ways that most are simply too immature to do successfully. The unintended consequence is often a child with low confidence and a negative disposition toward learning. “It is clearly not useful for a child to learn skills if, in the process of learning them, the disposition to use them is damaged” (Katz 1993b).

A developmentally appropriate classroom offers a variety of learning opportunities through play and hands-on exploration. During play, young children use hands-on exploration and sensory learning in a very important way; they confidently test new knowledge in a relaxed atmosphere, relate it intuitively to existing knowledge, and store that information for future use. A successful learner of any age identifies new information that is relevant, connects it to existing knowledge, focuses to apply it to new situations, and becomes ready to learn more. An appropriate early childhood classroom establishes curriculum goals that focus on making sense of the concrete world. In such a classroom, preschool and prekindergarten children develop a broad knowledge base upon which they will later build in elementary school and beyond. Teachers provide experiences that invite children to use their knowledge and skills, thus strengthening positive dispositions toward...
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Greater attention span, an important asset in the primary classroom, develops as young children engage in longer periods of meaningful activity in a physically and mentally relaxed, receptive learning environment (Donaldson 1978). Hands-on curriculum incorporates the active nature of young children with a set of activities designed to allow them to see, hear, and touch and to connect meaningful experiences and knowledge for a period of time of their choosing.

Learning readiness develops over several years when young children
• participate in regular routines and rhythms of activity in a safe and predictable physical environment,
• engage in multiple social experiences with competent peers and adults,
• have ongoing access to various materials that stimulate their explorations,
• and are supported by consistent, stable adults who are emotionally invested in them (Pianta & Walsh 1996; National Center for Early Development and Learning 1998).

The real risk of the academic readiness approach

Early childhood programs that implement a directed academic curriculum often replace essential, hands-on learning activities with skill-based performance and rote-learning tasks. In doing so, they risk the developmental growth

Strategies to Develop Focus and Attention in Young Children

Focused engagement helps preschool and prekindergarten children develop stronger and longer attention spans. When play activities and projects are developed around young children’s interests, children are motivated and are able to pay attention for longer periods.

• Select and read a story on a topic of particular interest to a child. Such books help children develop focused listening skills and motivate them to expand their attention span. In-depth reading also provides children with opportunities to refine language comprehension skills, exercise visual focus, and build basic knowledge. Increasingly choose longer, more detailed text to further expand the child’s attention span.
• Provide unusual combinations of simple play materials to stimulate children to think about old ideas in new ways. They will see, hear, touch, explore, create, and spend longer periods of time engaged in creative thinking and in refining small motor, social, and language abilities as they connect new play schemes to old ones.
• Provide physical and musical games, dress-up, and outdoor play as outlets for children’s natural energy. In such activities, children integrate large and small motor skills, develop hand-eye coordination, organize ideas, and practice social and language skills. A young child who gets plenty of exercise is better able to focus attention on other activities. Over the course of an early childhood program, combine increasing periods of mental focus with decreasing periods of large muscle activity to help children become used to mentally focusing for longer periods of time.
• Play quiet background music during art projects and listening games to help children develop the ability to screen out distractions in the environment.
Balanced developmental brain growth is crucial if a young child is to gain a broad base of knowledge and meaningful understanding.

necessary for children’s future academic success. When rote-learning tasks are used in an early childhood classroom, they condition a child to concentrate on a very specific skill and use lower parts of the brain, such as the limbic system and the insufficiently developed cerebral cortex, to learn that skill. During this type of task, the child is forced to use parts of the brain that are immature, and although she may be able to practice and learn the task, experts believe the normal growth and development of the brain can be distorted by such practice. The child will continue to use the lower part of the brain trained to perform a task, even when the cortex system becomes more developed and better suited to the task (Healy 2004). One pre-K teacher explains the principle to parents with a simple analogy: “We can make wine or we can make vinegar. Fine wine may take more time, but the flavor is well rounded.” Balanced developmental brain growth is crucial if a young child is to gain a broad base of knowledge and meaningful understanding.

While some adult-directed or facilitated activities, such as reading stories, singing songs, and group dictation, are appropriate, traditional adult-directed academic curriculum is for the most part inappropriate in early childhood learning environments because it

- places emphasis on the teacher’s goals, forces the child to tackle a problem that is unrelated to his or her environment or concrete experiences, and leaves gaps in the development of reasoning and logic;
- does not respect the child’s individual objectives or allow the child to use intrinsic motivations to engage in learning;
- jeopardizes a child’s attitude or disposition toward learning (Katz 1993a);
- limits opportunities for a child to practice and develop essential nonacademic abilities;
- reduces opportunities for the child to understand essential relationships between experiences and peers and to test newly learned concepts in his or her environment;
- risks placing inappropriate expectations and pressure on young children;
- decreases the development of the intuitive foundation of knowledge needed for complex abstract thinking in the future; and
- forces children to use immature neural pathways to complete tasks.

The basic three I’s

To avoid the trap of placing inappropriate expectations on preschool and prekindergarten children, early childhood educators should understand the learning dispositions (Katz 1993a) or motivations innate in all young children. The will to learn is an intrinsic motive and young children are motivated to learn using their spontaneous energies (Bruner 1966). A developmentally appropriate curriculum helps channel a child’s intrinsic motivation into learning activities through interactions and the child’s need to relate to others; through the use of imagination and the child’s need to wonder, question, and
understand; and through integration and the child’s need to combine new knowledge with earlier experiences. Early childhood curricula that embrace these intrinsic motivations—the basic three I’s—and combine them with hands-on learning environments help children build a solid knowledge foundation. Such an approach nourishes a young child’s spontaneous learning and helps teachers and families start young children on the rewarding path to learning readiness (Ready for School Goal Team 2000).

**Interactions: Can I play too?**

All children have an intrinsic need to socialize. Infants make sounds and gestures to interact with caregivers and have their basic physical needs met. As they get older, children imitate adults and gradually develop the skills and awareness to meet their growing social needs and successfully interact with peers. Achievements such as language acquisition, learning basic skills, social development, and self-regulation occur in the context of these close relationships with others (Shonkoff & Phillips 2000). Through hands-on interactive activities, young children practice and refine language, listening, social, and reasoning skills in a stimulating interactive environment. They can build general intuitive knowledge through watching and imitating others. Properly designed curricula incorporate rich opportunities for teachers and children to interact in meaningful activities and create the building blocks for advanced learning skills such as reading (U.S. Department of Education 2002).

Successful interactions not only expand a child’s personal knowledge base, social skills, and language abilities but also build self-esteem and create the confidence needed to instinctively make good decisions in challenging academic tasks in the future. A strong sense of self, a basic requirement if young children are to be successful at learning increasingly complex academic content, can only develop over time and through interaction with trustworthy and caring adults (National Center for Early Development and Learning 1998.) Kindergarten teachers place high importance on the interactive social aspects of learning (Lin, Lawrence, & Gorrell 2003).

**Imagination: I wonder why?**

Children have a natural sense of wonder and curiosity; they possess an intrinsic need to understand their surroundings. Creative and imaginative play opportunities motivate young children to imagine, wonder, and explore ways to organize and use new knowledge, test the learning environment, seek possible explanations, and practice new skills safely. During imagination-based play activities, they explore and test creative ideas and develop a sense of which sets of circumstances are fact and which are fantasy. While playing, children practice thinking skills such as symbolic thinking (the ability to pretend that one object represents another). They also use developing logic to compare and evaluate realistic and unrealistic ideas. Dramatic play also provides rich language-building opportunities (Bredekamp & Copple 1997).

Rather than focusing on an activity with only one correct outcome, imagination-based play integrates meaningful, nonjudgmental learning possibilities with unlimited, open-ended opportunities for interaction. Children combine the power of wonder, their imagination, and creative play activities to rehearse skills for the future, refine language, and build social skills. They
The ability to link knowledge, experience, and new ideas is crucial in an ever-changing world.

Consider alternative possibilities by applying organization, logic, and symbolic thinking and by visualizing “how things might be.” All of these thinking processes are vital in the complex reasoning required in abstract higher learning environments.

**Integration: Can I see, hear, and touch it?**

Young children learn by using all of their senses to experience the physical world. During this multisensory learning process, children meet the basic need to integrate new awareness with previous knowledge through the process of active inquiry (DeVries & Kohlberg 1987). They integrate acts of sight, sound, and touch with language as they experience, explore, question, and use new knowledge. This integration builds understanding and insights into the concrete world; generates new ideas; and allows children to wonder about, discuss, and explore different outcomes. Children have the opportunity to practice making instinctive decisions and deliberate choices, test how new ideas affect old ones, and integrate the new knowledge into a meaningful understanding of their world. The ability to link knowledge, experience, and new ideas is crucial in an ever-changing world.

**Conclusion**

When educators, policy makers, and families understand the learning differences between preschool, prekindergarten, kindergarten, and primary grade children, they can promote appropriate expectations and avoid early childhood educational environments that focus on skill-based performance, assessments, and rote learning. The basic foundation of learning readiness is built in an early childhood environment in which young children engage in appropriate hands-on activity and connect social, emotional, physical, and cognitive experiences through

- repeated meaningful social and concrete interactions;
- multiple situations to use imagination to wonder, dream, and expand notions of the real world and complex abstract concepts; and
- varied opportunities to integrate play with learning experiences and link old and new knowledge.

Early childhood programs should offer active hands-on curricula that reflect the basic three I’s rather than the basic three R’s because school success is enhanced by active, child-initiated early learning experiences. Learning progress may actually be slowed by overly academic preschool experiences that introduce formalized learning experiences too early for a child’s developmental status (Marcon 2002).
Characteristics of Learning Readiness

Developmentally appropriate practices help preschool and prekindergarten children develop a broad range of characteristics associated with learning readiness. These basic characteristics provide the scaffolding for children to be successful learners in more restricted primary grade classroom environments.

Self-help skills
- Independently uses the bathroom
- Uses a tissue to wipe a runny nose
- Snaps, zips, and buttons garments
- Puts away toys and helps with clean-up activities
- Asks for help when needed

Gross motor skills
- Runs smoothly
- Skips
- Jumps with both feet off the ground
- Catches, throws, and bounces a ball
- Climbs easily on playground equipment

Thinking skills
- Recognizes pictures and objects that are the same and different
- Matches letters and simple words
- Shares ideas and gives reasons for an opinion
- Asks questions, tries new things
  - Understands and follows the rules of a simple game
  - Verbally counts to 10

Language and speech skills
- Can easily make adults understand what he or she says
- Listens to and follows simple directions
- Participates and stays on discussion topics
- Tells a story or retells experiences in proper sequence
- Enjoys listening to stories and rhymes

Social/emotional skills
- Adjusts to new situations
- Uses words to resolve conflicts
- Can sit for 5–10 minutes to focus on a story or task
- Completes tasks
- Cooperates with others and takes turns
- Uses control when frustrated
- Takes pride in his or her achievements

Fine motor skills
- Holds and uses a drawing implement
- Can copy letters such as X, H, V, D, O from a sample
- Draws a human figure with arms, legs, and features
- Ties a knot
- Cuts on simple lines and around simple shapes

References


