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# Play: An Important Tool for Cognitive Development

BY SHANNON LOCKHART, HIGHSCOPE SENIOR EARLY CHILDHOOD SPECIALIST

Take a look at the play of Gabrielle, a three-year-old who has a plan to play with magnetic tiles:

*At planning time, Gabrielle says, "I'm going to play with the doggies and Magnatiles in the toy area. I'm making a tall elevator." At work time, Gabrielle builds with the magnetic tiles while playing with the small toy dogs, as she planned. She stacks the tiles on top of one another in a tower-like form—her "elevator"—then places some dogs in it. The elevator then falls over. She repeats this several times but the elevator continues to fall over. Gabrielle then arranges the magnetic tiles into squares, connecting them to form a row. Gabrielle says to Shannon, her teacher, "I'm making doghouses because the elevator keeps falling down." Shannon says, "I was wondering what you were building, because you planned to make a tall elevator going up vertically, and now you are using them to make doghouses in a long horizontal row. You solved the problem by changing the way you were building." Gabrielle uses pretend talk while moving the dogs around. At one point she says, "Mommy, Mommy, we are hungry" and opens one of the doghouses and moves the dog inside where a bigger dog is placed. Gabrielle says, "Mommy says the food's not ready, so go play."*

*While moving the dogs around, Gabrielle says to herself out loud, "We have to find something to do until the food is ready." Gabrielle says to Shannon, "Let's pretend we are going to the park." Shannon agrees and says, "I'm going to slide down the slide three times and then jump off the climber." As Shannon pretends to do this with one of the dogs, Gabrielle watches then copies her and says, "My dog jumped higher than yours." She then says, "Mommy says we have to go home now. We need to move our dogs over there so they can eat." The pretend play continues.*



Planning and recall times help children develop key cognitive skills that are part of executive function.



Pretend play is particularly conducive to the development of self-talk, or children's internal language about what they are doing and what they will do next.

*At recall time, Gabrielle is using a scarf to hide some objects she played with. When it is her turn to recall, she gives clues about what is under the scarf. She shows the group a couple of magnetic tiles and dogs. Shannon asks her what she did with these materials during work time. Gabrielle talks about the problem with the falling "elevator" and then recounts the story about the doggies.*

Early childhood educators often make the point that "children learn through play." But what does this statement really mean? In the scenario described above, what exactly is Gabriella learning as she plays? She is planning what she is going to do, carrying out her plan, and then recalling what she did (in the HighScope Curriculum, this is known as the plan-do-review process). But did we realize that she is developing key cognitive functions such as working memory, self-regulation (e.g., being aware of and controlling her feelings and actions), internal language or "self-talk," and the ability to organize, focus, plan, strategize, prioritize, initiate, and perform other skills that determine later success in school? Indeed she is, and these cognitive skills are all part of what we call executive function — the cognitive abilities that control and regulate other behavior. Play helps young children develop these abilities. Unfortunately, due to the demands for accountability in public schools and pressure to accelerate young children's academic learning, time for play is either being eliminated or limited, and play is much less often child-initiated or free from constraints.

In this article, we will review the legitimacy and validity of child-initiated play in young children's lives, and we will address the basics of executive function so that we can become more intentional in our planning of, and support for, children's play.

## The Importance of Play

Stuart Brown, Founder of the National Institute for Play, has said that "play is anything that spontaneously is done for its own sake...*appears* purposeless, produces pleasure and joy, leads one to the next stage of mastery" (as cited in Tippett, July 2008; italics added). Edward Miller and Joan Almon describe play as "activities that are freely chosen and directed by children and arise from intrinsic motivation" (2009, p. 15). Jeannine Ouellette refers to play as "activity that is unencumbered by adult direction, and does not depend on manufactured items or rules imposed by someone other than the kids themselves" (Ouellette, 2007, para. 13). When children play, they are actively engaged in activities they have freely chosen; that is, they are self-directed and motivated from within.

Kenneth Ginsburg, stating the position of the American Academy of Pediatrics, says that "play is essential to development because it contributes to the cognitive, physical, social, and emotional well-being of children and youth" (Ginsburg, January 2007, p. 182). Play is so important to children's development that the United Nations High Commission for Human Rights (1989) recognizes it as a basic right of every child.

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## What Is Executive Function?

Executive function (EF) is a term used to describe a set of mental processes that are central to helping us organize and order our actions and behaviors (Packer, 2009). It refers to the cognitive abilities that control and regulate other behaviors, and therefore enable goal-directed behavior. These include the ability to initiate and stop actions, assess and change behavior when needed, anticipate outcomes, and plan future behavior (Zelazo, Muller, Frye, & Marcovitch, 2003). Executive function thus involves both concrete behaviors and the ability to form abstract concepts. We use executive function when we perform such activities as planning, organizing, strategizing, delaying impulses, and paying attention to and remembering details. Children with high levels of self-regulation and executive functioning do better in school, both in academic areas such as literacy and mathematics, and also in social adjustment (Bodrova & Leong, 2007). "Poor executive function is associated with high dropout rates, drug use, and crime...[whereas] good executive function is a better predictor of success in school than a child's IQ" (Spiegel, 2008). These cognitive functions are beginning to be developed long before children enter formal schooling. In fact, the years between three and five are especially important in the development of executive function because of changes in brain development during this period, particularly in the frontal cortex, which is responsible for regulating and expressing emotion (Shore, 2003). Engagement in play is thus a major contributor to physical and mental development.

The many books and articles written on the subject list a wide range of cognitive, emotional, interpersonal, and creative benefits (refer to the sidebar on p. 4 for some highlights).

Many experts agree that play provides the foundation for learning and later academic success. For example, research demonstrates the importance of child-initiated play (as opposed to play defined and directed by adults) in the development of language and literacy skills. When children determine the direction and content of their own play, they have many opportunities to hear and practice language. This type of language-rich play directly influences future development of higher mental functions (Bodrova & Leong, 2007). When children are allowed to initiate their own play, they are then able to express those choices in words and to interact and converse freely with other children and adults. The International Association for the Evaluation of Educational Achievement (IEA) Preprimary Project, a cross-national longitudinal study, found that children's language performance at age seven was significantly higher when teachers had allowed children to choose their own activities at age four (Montie, Xiang, & Schweinhart, 2007).

Developmental psychologists identify four types of child-initiated play: *exploratory play* (discovering the properties of materials and tools, not to make something, but for the pleasure of doing it); *constructive play* (making things); *dramatic play* (acting out "make believe" or pretend situations and assuming various roles); and for older children, *games with rules*.

Gabrielle was engaging in the first three types of play, but especially in dramatic (make-believe) play. When children spend time in make-believe play, they use self-directed talk and develop other features of the critical cognitive skills of executive function (Spiegel, 2008). We will look at how child-initiated play in general, and make-believe play in particular, help to develop executive function.

## Components of Executive Function

Although researchers have not completely agreed on the elements of executive function, Chris Dendy (2008) outlines five general components based on Russell Barkley and Tom Brown's work on attention deficit disorders. These components are presented below, with the plan-do-review sequence described in Gabrielle's play at the beginning of this article serving to illustrate the connection between play and executive function.



By stocking the classroom with interesting materials that children can manipulate in various ways, teachers help children build organization and planning skills and develop their working memory.

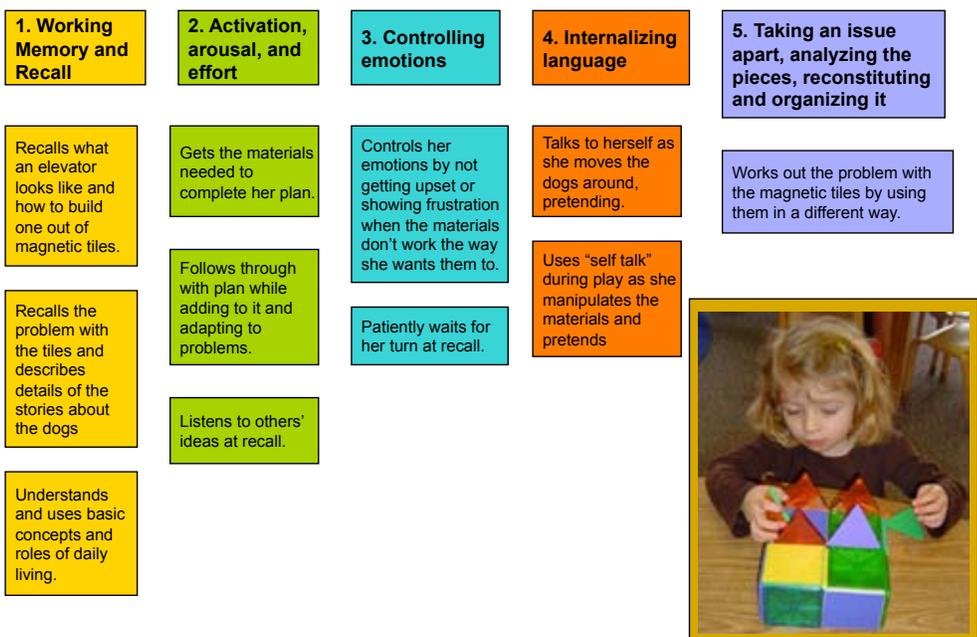
## The Importance of Play

In its position statement on developmentally appropriate practice, the National Association for the Education of Young Children (NAEYC) states, "Research shows that child-guided, teacher-supported play benefits children in many ways. When children play, they engage in many important tasks, such as developing and practicing newly acquired skills, using language, taking turns, making friends, and regulating emotions and behavior according to the demands of the situation. This is why play needs to be a significant part of the young child's day" (Copple & Bredekamp, 2009, p. 328).

## Working Memory and Recall

The first component of executive function is working memory and recall, which is the ability to hold facts in one's mind as well as being able to access them from one's long-term memory at any point in time (Dendy, 2008). In the HighScope preschool daily routine, planning and recall times are opportunities for children to tap into their working memory and articulate their ideas, choices, and decisions about what they want to do (planning time), and remember and reflect on their work-time actions and experiences (recall time). Planning builds children's self-confidence and self-control while leading to more concentrated, complex play. Recall time exercises children's capacities to form and talk about mental images, helps them build their memory skills, and expands their awareness of time outside the present. As presented in the diagram below, Gabrielle is exhibiting these functions during her planning and recall.

### Components of Executive Function in Gabrielle's Play



## Activation, Arousal, and Effort

The second component includes *activation* (getting started), *arousal* (paying attention), and *effort* (finishing work). On a larger scale, this would apply to the whole plan-do-review process. However, work time is the part of the day when children use these functions the most because children are following through with their plans by getting the appropriate materials, carrying through with their intentions while adapting to and solving any

## Child-Driven Play

When children pursue play under their own impulse and initiative, they

- Practice decision-making skills
- Discover their own interests
- Engage fully in what they want to pursue
- Develop creative problem-solving skills
- Practice skills in resolving conflicts
- Develop self-regulation
- Develop trust, empathy, and social skills
- Develop language and communication skills
- Use their creativity and imagination
- Develop skills for critical thinking and leadership
- Analyze and reflect on their experiences
- Reduce stress in their everyday lives

problems that arise, and then completing the task. During work time, these functions are used over and over again as children make new plans and follow through with them. As presented in the diagram on p. 4, Gabrielle sticks with her plan throughout work time, is highly engaged with pretend play, and solves problems and carries through with her intentions until cleanup time. It is important to recognize that it takes purposeful play for these cognitive functions to fully develop. Because their play is self-directed — and therefore meaningful and purposeful to them — children are highly motivated to maintain their engagement. Children who aimlessly wander around during free play are not exhibiting the highest levels of complex play and strategizing needed to use and develop these higher-level thinking skills. Likewise, when children’s play activities are directed by adults, initiation (activation) is taken out of their hands, interest (arousal) is diminished, and actions (effort) may be aimed at pleasing others rather than thinking about and learning from their own experiences.

## Controlling Emotions

The third component of executive function is *controlling emotions*, that is, the ability to tolerate frustration and to think before acting or speaking. This is part of self-regulation. Children with developed self-regulation are more able to control their emotions and behaviors, resist impulses, and exert self-discipline (Bodrova & Leong, 2007). Children who participate in a consistent, reliable problem-solving approach (e.g., HighScope’s six steps to resolving conflicts; Evans, 2002) learn to express strong emotions in nonhurtful ways; appreciate their own views as well as the views of others; listen and discuss the details of problems; recognize that when there is a problem, there are lots of possibilities for solutions; and deliberate, negotiate, and collaborate with others while staying calm when confronted with a conflict or a problem. When the magnetic tiles continued to fall down, Gabrielle could have had an emotional “melt down” or shown strong frustration by kicking at the tiles and walking away. However, due to her self-regulation skills, she stuck with the task and solved the problem by building with the tiles another way. There is evidence that some children who spend a significant amount of time using video games and watching violent media programming imitate what they see, thinking these are acceptable behaviors, and do not know how to self-regulate when frustrated. These children may get angry, even at the game itself (Anderson & Bushman, 2001).

## Internalizing Language

The fourth component is *internalizing language* — using “self talk” — to control one’s behavior and direct future actions. As adults, we internally talk to ourselves throughout the day (e.g., to master problems, control emotions, and plan) — we just remind ourselves

## Where Has Play Gone?

Many of us remember when we could go outside and play until the street lights came on or, in more inclement weather, when we played make-believe games with a friend in our bedroom or build things out of items we found lying around the house. Sadly, a daily time for children to freely choose what they want to do, whether indoors or outdoors, is in jeopardy. More and more, outdoor play is perceived as being too dangerous for children, so children are cooped up in their homes (Metrocom International, 2007). Both at home and at school, children are bombarded by television, DVD and computer games, violent toys that inhibit imaginative play, extracurricular activities, and academic pressure. Needless to say, little time is being allocated to creative play.

Among the greatest threats to children's creative play are television, video and DVD games, and computers. When children are mindlessly watching a screen, they are not engaging all of their senses. According to the Alliance for Childhood, children spend four-and-a-half hours per day involved in these activities (July 2009). Following a study connecting television watching with attention problems, the American Academy of Pediatrics (AAP; 2001) has recommended that young children – especially those under three who are in the formative years of brain development – have no exposure to television, as a preventative measure against attention problems and subsequent risk of attention deficit-hyperactivity disorder (ADHD) (Christakis, Zimmerman, DiGiuseppe, & McCarty, 2004). Yet studies cited by AAP and the White House Task Force on Childhood Obesity (2010) show 43% of children under age two watch television daily, and 90% of children aged 4 to 6 use screen media an average of two hours per day.

A position statement by the National Association for the Education of Young Children (NAEYC), asserts that “research demonstrates that watching violent programs is related to less imaginative play and more imitative play in which the child simply mimics the aggressive acts observed on television” (The National Institute of Mental Health, 1982, as cited in NAEYC, 1994, p. 2). Furthermore, the majority of toys that children play with tend to be violent and expensive toys based on media programs and which encourage children to reenact the aggressive behaviors they see on television, in commercials, or in movies. As children spend more time with media and items that promote violence, the less time they are engaged in activities that help them process violence. “Thus, as the need to work through violence increases, children's ability to work it through can be seriously impaired” (Levin, 2007, p. 3).

Another major threat to play is pressure to introduce academics. *In Crisis in The Kindergarten* (Miller & Almon, 2009), the authors argue that children are spending the majority of their day in literacy and math instruction and in standardized testing and test preparation, leaving less than 30 minutes (and sometimes no time at all) in play or choice time. The same restrictions and pressures are being placed on preschoolers. Research shows that the knowledge gained through this type of “cramming” and early pressure to learn ABCs and 123s fades by fourth grade (Miller & Almon, 2009).



When adults are intentional in their interactions with children, validating their emotions and helping them find solutions to problems, children are better able to manage their own feelings and behaviors.

not to talk back! With young children, private speech is key to these functions because it helps the children direct their own actions; for example, what to do with their hands, bodies, and voices, which in turn is part of developing self-regulation. Make-believe play in particular is most helpful for the development of private speech. Alix Spiegel quotes Laura Berk: “This type of self-regulating language...has been shown in many studies to be predictive of executive function” (Berk as cited in Spiegel, 2008). Returning to the opening scenario, as Gabrielle plays with the dogs, she uses private speech (internal dialogue) as she directs the pretend play. Children who spend the majority of their time in teacher-directed activities or watching television or computer screens — that is, listening to others talk — miss out on opportunities to develop self-regulation through internal dialogue and thought.

### Complex Problem Solving

The fifth component of executive function is *complex problem solving* — taking an issue apart, analyzing the pieces, and reconstituting and reorganizing it into new ideas. During work time and small-group time, children are faced with many challenging problems as part of carrying out their plans and completing tasks. Part of problem solving with young children is helping them recognize that there is a problem and then involving them in the process of finding a solution. When children are engaged and adults avoid jumping in and solving problems for them, the children learn to rely on their own ideas and decision-making skills and to see themselves as confident problem solvers. For Gabrielle, through many experiences with magnetic tiles and solving problems, she needed no assistance in solving the problem and coming up with a new idea to continue her plans. Children who lack the experiences in play, and who spend most of their time in adult-organized activities, lack the creativity that it takes to solve problems mentally.

• • •

In summary, we as educators are entrusted with the responsibility of fully engaging children’s minds and bodies in the way they learn best. By understanding the importance of play, how it helps to develop key cognitive functions, and what these functions are, we can become more effective in protecting purposeful play and more intentional in our interactions with children during their play. In this issue’s “Classroom Hints” article, we will discuss strategies that assist in the development of execution function in young children. However, most important, we must remember that play is simply about having fun!

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## References

- Alliance for Childhood. (n.d.). *Time for play, every day: It's fun — and fundamental*. Retrieved July 23, 2009 from [http://www.allianceforchildhood.org/sites/allianceforchildhood.org/files/file/pdf/projects/play/pdf\\_files/play\\_fact\\_sheet.pdf](http://www.allianceforchildhood.org/sites/allianceforchildhood.org/files/file/pdf/projects/play/pdf_files/play_fact_sheet.pdf)
- American Academy of Pediatrics Committee on Public Education. (2001). *Children, adolescents, and television*. Retrieved May 13, 2010, from: <http://aappolicy.aappublications.org/cgi/reprint/pediatrics;107/2/423.pdf>.
- Anderson, C. A., & Bushman, B. J. (2001, September). Effects of violent video games on aggressive behaviour, aggressive cognition, aggressive affect, physiological arousal, and prosocial behaviour: A meta-analytic review of the scientific literature. *Psychological Science*, 12(5), 353–359.
- Bodrova, E., & Leong, D. J. (2007). *Tools of the mind: The Vygotskian approach to early childhood education*. Columbus, Ohio: Pearson.
- Christakis, D. A., Zimmerman, F. J., DiGiuseppe, D. L., & McCarty, C. A. (April 2004). Early television exposure and subsequent attentional problems in children. *American Academy of Pediatrics*, 113(4), 708–713.
- Copple, C., & Bredekamp, S. (Eds.). (2009). *Developmentally appropriate practice in early childhood programs: Serving children from birth through age 8*. Washington, DC: National Association for the Education of Young Children.
- Dendy, C. A. (February 2002). *Executive Function... "What is this anyway?"* Retrieved February 29, 2008, from <http://www.chrisdendy.com/executive.htm>
- Evans, B. (2002). *You can't come to my birthday party! Conflict resolution with young children*. Ypsilanti, MI: HighScope Press.
- Ginsburg, K. R. (January, 2007). The importance of play in promoting healthy child development and maintaining strong parent-child bonds. *American Academy of Pediatrics*, 119(1), 182–191.
- Levin, D. (2007). Meeting children's needs in violent times. In R. New & M. Cochran (Eds.), *Early childhood education: An international encyclopedia*. Westport, CT: Greenwood Publishing Group.
- Metrocom International (Producer) for Michigan Television. (2007). *Where do the children play?* [DVD]. Ann Arbor: Regents of the University of Michigan.
- Miller, E., & Almon, J. (March 2009). *Crisis in the kindergarten: Why children need to play in school*. Retrieved March 27, 2009, from [www.allianceforchildhood.org](http://www.allianceforchildhood.org)
- Montie, J., Xiang, Z., & Schweinhart, L. (2007). *The role of preschool experience in children's development: Longitudinal findings from 10 Countries*. Ypsilanti, MI: HighScope Press.
- National Association for the Education of Young Children (July 1994). *Media violence in children's lives*. Retrieved February 29, 2008, from <http://www.naeyc.org/positionstatements>
- Ouellette, J. (October 16, 2007). The death and life of American imagination. *The Rake: Magazine*. Retrieved July 28, 2009, from <http://www.secretsofthecity.com/magazine/reporting/features/death-and-life-american-imagination>
- Packer, L. (December 9, 2004). *What are the executive functions?* Retrieved July 23, 2009, from [http://www.schoolbehavior.com/conditions\\_edfoverview.htm](http://www.schoolbehavior.com/conditions_edfoverview.htm)
- Shore, R. (2003). *Rethinking the brain: New insights into early development, revised edition*. New York: Families and Work Institute.
- Spiegel, A. (February 29, 2008). Creative play makes for kids in control. Retrieved February 29, 2008, from <http://www.npr.org/templates/story/story.php?storyId=76838388>
- Tippet, K. (host and producer). (24 July, 2008). Play, spirit, and character. [interview]. *Speaking of faith*. [Radio broadcast]. St. Paul, Minnesota: American Public Media.
- United Nations High Commission for Human Rights. (20 November 1989). *Convention on the rights of the child (resolution 44/25)*. New York: Author.
- White House Task Force on Childhood Obesity. (2010). *Solving the problem of childhood obesity within a generation: Report to the President*. Washington, DC: Author. Retrieved May 12, 2010, from [http://www.letsmove.gov/tfco\\_fullreport\\_may2010.pdf](http://www.letsmove.gov/tfco_fullreport_may2010.pdf).
- Zelazo, P. D., Muller, U., Frye, D., & Marcovitch, S. (2003). The development of executive function. *Mono-graphs of the Society for Research in Child Development*, Volume 68.

## CLASSROOM HINTS

# Planning Assists Children's Executive Function

BY SHANNON LOCKHART

*Yesterday, a number of children had difficulty staying engaged in large-group time. The teachers decided that it was not active enough and took too long. Today, the teachers decide to use the “freeze song” to help children understand where their bodies are in space and to give them opportunities to connect the words they use to the actions they perform to the music. As the music plays, the teachers imitate children's actions. At certain points, the music stops, or “freezes.” At one point when the music stops, a teacher says, “Jamie, how should we make our bodies freeze?” Jamie says, “Touch your back.” The teacher says, “Everyone stop your bodies and touch your back.” Then the music starts again and children and teachers freely move their bodies. From this activity, children begin to learn how to control their bodies and actions, which in turn helps them to regulate their thoughts and feelings. At first, children will still move their bodies to the “freeze” parts, but once they have had more experiences with this start-and-stop action, they will become successful.*

The scenario above illustrates how adults can help children develop key cognitive skills (see “What Is Executive Function” in the feature article). Teachers who are knowledgeable about self-regulation and executive function are able to plan numerous activities that support children in learning how to put words to their actions and control their bodies. By setting up the classroom environment and the daily routine for active learning, and by planning intentional interactions with children, teachers help children to develop working memory, self-regulation, internal language, and organization, planning, and initiating skills, as well as other important cognitive abilities. Next, we will look at ideas and strategies for planning the learning environment, the daily routine, and intentional interactions to help develop children's executive function.



### Planning the Learning Environment

**Stable learning areas.** By strategically arranging and organizing the classroom with stable learning areas (e.g., house, block, art, book, and toy areas) and by stocking these areas with appropriate open-ended materials (e.g., dishes, wooden blocks, paints), we begin to help children see an organization in their environment upon which they can rely. Children can then easily categorize and classify information about their room and use this information to plan and recall as well as carry out their intentions during work time. An organized learning environment also helps children who have trouble regulating their emotions, in that it provides consistency in their everyday lives.

**Visual Supports.** You can also create visual supports for children and place them in the classroom where children can easily see and use them. For example, you can make a pictorial daily routine chart; a sequence chart that shows a step-by-step process for a task such as washing hands; and social stories, which are simple drawings illustrating classroom problem-solving scenarios, such as what to do when one child accidentally knocks over another child's block tower. Timers (e.g., oven timers or homemade sand/salt timers in different sizes) help children gain a sense of time and are often useful in helping children resolve issues that arise during play, such as those

dealing with sharing and turn-taking. You can also use sign language and make sign-language cards for children to view, and for children who are having difficulty knowing where to place their bodies during an activity, you can use visual markers such as carpet squares or hula hoops.

**Materials.** Provide a variety of materials that support executive function. For example, different types of small manipulatives (rocks, shells, and shapes; small replicas of people, animals, and cars) lead to children’s pretend play and the development of self-talk. Natural, found, and recycled materials lend themselves to open-ended play, including complex play, such as when children pretend “restaurant” using sheets of paper for menus, yellow sponges and rocks for food, and dishes. Dramatic play props also contribute to cooperative play in which children negotiate roles, act out scenes, and problem-solve situations.

One rule of thumb is to provide some but not all the props for dramatic play scenarios, so that children tap into their imagination and creativity to seek various materials from the different classroom learning areas for making their own props.

Another suggestion that helps with self-regulation — as well as reducing the number of conflicts within the children’s day — is to have multiples of popular toys and materials. To enlist the full range of children’s perceptual and cognitive abilities, these materials should appeal to all of children’s senses (e.g., things made of metal; objects having different textures; heavy objects such as small and large wooden blocks; and sand and water).

## Planning the Daily Routine

**The overall routine.** By providing consistency and opportunities for active learning, the overall daily routine plays an important role in how children express their emotions; pay attention; and solve complex problems, both those having a social basis and those involving materials. Each part of the routine provides active learning opportunities and allows for child choice — even when tasks such as cleaning up have to be done.

It is also important to limit the number of transitions but to plan for the transitions that are needed. For example, warn children



when a transition is approaching. This develops their ability to anticipate events and plan accordingly. In addition, give children choices (control) about what to do during transitions. When possible, ask for and use children’s ideas about what to do during transitions.

When changes take place within the routine, such as when a teacher is absent or a special guest is visiting, report these to children by using a message board with simple drawings or by playing guessing games. These strategies further give children a sense of control over their day and allow them to anticipate events.

The transition from home to school can set the whole tone of the day for a child and determine how much he or she will participate. Therefore, teachers need to help parent-child partners establish consistent morning rituals that children can trust in. Children, like adults, find it easier to regulate their emotions when they know what to expect and are reassured their needs will be met.

**Plan-do-review.** The plan-do-review sequence is an important process that assists in the development of working memory and recall as well as the other cognitive functions discussed in the lead article. However, there are a few other strategies you can use to support children’s self-regulation and internal language: hide-and-seek games; games that require children to stop and think (e.g., a modified Simon Says game without winners and losers, or a freeze song with actions, as illustrated in the opening scenario); made-up stories for children to act out; and large-group times in which children have the opportunity to talk about what they are doing and to release energy by stomping, jumping, twisting, bending, and squatting.

## Planning Intentional Interactions

Intentionally plan for activities that support executive function and self-regulation throughout the daily routine. In this regard, it is especially important to allot enough time for child-driven play (45–60 minutes). During this time, which is called work time in the HighScope Curriculum, play as a partner with children and follow the children’s leads. You can facilitate children’s developing executive function abilities by taking on roles assigned to you by the children and modeling role playing without taking over the play. Model the kind of language used in self-talk, or private speech, by telling children what you are doing (e.g., “I’m going to wash off the table first and then sit down in my seat for recall”). Additionally, when conflicts or problems arise, implement the six steps to problem solving:

### The Six Steps to Conflict Resolution

- Step 1: Approach calmly, stopping any hurtful actions.
- Step 2: Acknowledge children’s feelings.
- Step 3: Gather information.
- Step 4: Restate the problem.
- Step 5: Ask for ideas for solutions and choose one together.
- Step 6: Give follow-up support as needed.

For more information, see  
*You Can’t Come to My Birthday Party!*  
*Conflict Resolution With Young Children*, by Betsy  
 Evans (HighScope Press, 2002).

Using the six problem-solving steps specifically helps children develop self-regulation as well as what is called “other-regulation.” According to Bodrova and Leong (2007), children engage in other-regulation before developing self-regulation. That is, they learn about their own behaviors through recognizing and assisting in the change of others’ behaviors. Take, for example, a child who has difficulty taking turns. By placing that child in charge of the sand



timer, when other children have a problem with taking turns, she can suggest using the sand timer. With repeated experience in this role, she will understand that she can use the timer as well and may have fewer emotional outbursts.

Another suggestion offered by Bodrova and Leong to help children develop other-regulation is to plan experiences in which children have to identify mistakes in the teacher’s work or in written information — for example, to deliberately make mistakes on the message board that children can correct, such as the block symbol drawn in for the art area, or when copying the movement of a child acting as leader during large-group time. Children then see the adults as well as other children making mistakes and can help correct them. When they do this, they begin to internalize strategies for self-regulation when involved in conflicts. By correcting adults who did not write on the message board correctly or who miscopied an action, they begin to see themselves as competent problem solvers.

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By intentionally planning the classroom learning environment, the daily routine, and our interactions with children, we can do a great deal to support young children’s developing executive function and self-regulation skills!

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## SPECIAL EDUCATION

# Play — An Intentional Intervention!

BY TERRI MITCHELL, HIGHSCOPE FIELD CONSULTANT AND EARLY CHILDHOOD ADMINISTRATOR, CANYONS SCHOOL DISTRICT, SANDY, UTAH

*At planning time, Alyia points to the picture of the sand and water table. Today in the table there is water and dish soap. Children have been washing a variety of materials such as plates, cars, and Legos. After Alyia points to the picture, her teacher comments, “Alyia, I see you pointing to the water table. You must want to wash today.” Alyia looks at her teacher and moves over to the water table and finds an item to wash. She is fascinated by the bubbles created by the dish soap and picks some up in her hand and lets them fall back in the water. About seven minutes pass, and an adult comes over to tell Alyia that she needs to come work with her but that Alyia can come back in a few minutes. Alyia resists moving away from the activity she has just chosen but reluctantly complies as the adult negotiates with her. After several minutes of working together, the adult continues to insist that Alyia stay, even though Alyia tries to indicate she is “finished.” After about 15 minutes Alyia is released to go back to her choice of activities. Alyia does not return to the water table but moves about the room, searching for someone or something to engage with.*

Whether it is playing in the block area with the plastic airplanes or dressing the baby dolls, young children with disabilities can often have difficulty maintaining engagement in play scenarios because teachers and programs do not fully support uninterrupted free-play time. In this article, we will look at why this is so and how adults can support children’s free play.

Both HighScope and the National Association for the Education of Young Children (NAEYC) recommend that children have at least one hour of free play in a half-day session. Children with special needs receive the same benefit — if not more — from this uninterrupted time to engage with materials and people of their choice.

Most early childhood classrooms that are inclusive or are designed for children with special needs proclaim that play is central to their program. Yet, in my experience, play time (work time in the HighScope Curriculum) is often when adults pull children out of their play to work with them in a directive way or to work on IEP goals. I believe scenarios such as the one of the adult working with

Alyia happen because adults do not understand their role in play development and intervention and how IEP goals can be met within the context of children’s play.

When children have a developmental delay or a disability, we provide interventions to close the gap, regardless of the delay or disability. Considering a child’s delay in language, social development, physical development, or cognitive

development, for example, doesn’t it make sense that allowing the child more time to explore materials and people would help close the gap? The research does, in fact, support this strategy. It is also important to remember that adult support to the child is key.

For instance, if a child is delayed in his or her social development, we would provide opportunities for the child to practice interacting with peers, and we would do so through the support we give the child within the context of the experience. So, for example, if Tomas is reluctant to join a group of other children, we might imitate what he does as he plays by himself a few feet away from the group and then model how he might join in with the others. But when we pull children away from natural opportunities to practice interacting with peers and receive adult support in that context, we tend to send a message that their choices and interests are not important.

As explained in the lead article, there is a growing body of evidence supporting the many connections between cognitive development and play initiated and sustained by children. Additionally, play supports the development of language and social-emotional regulation. So, as educators of young children with or without disabilities, we need to recognize children’s ability to use play as an avenue to *learning and generalizing new skills or concepts*. Therefore, play with **adult scaffolding** — that is, supporting children at their current developmental level and introducing new materials and gentle challenges as children are ready — is an intentional intervention. The support the adult gives to Tomas, above, is an example of this approach.



When children are allowed to make choices and follow through on their choices, with adult scaffolding children are much more likely to maintain a topic in conversational turn taking; use and pretend with materials; and initiate or invite others into their space. Choice promotes self-confidence and self-control and leads to more focus, concentration, and play. However, when adults pull children aside to directively teach them — for example, about vocabulary, shapes, or counting — they send the message that the adult’s agenda to complete a specific task is more important than the child’s choice. We can avoid sending this message by providing time, allowing for choice, and engaging with children using appropriate interaction strategies. That is, we can scaffold children’s learning in the context of their chosen play rather than taking them away from their free-play activities.

### Scaffolding in the Context of a Child’s Chosen Play

The sample work-time scenario with Nathan (a teacher) and Hayden, below, illustrates how supportive interaction strategies in the context of children’s play create conditions for successful interventions with young children.

*Nathan and Hayden are in the block area. Hayden, who uses only a few words, typically moves from area to area with little intention to play and with low engagement with materials. Nathan notices as Hayden picks up a small plastic airplane and begins to move it around in the air. Nathan chooses to move a bit closer and picks up another nearby plastic airplane. Nathan begins making airplane noises. Hayden pauses the movement of his plane. Nathan states, “Plane flying!” Hayden begins to move his plane again. “Plane up...plane down,” says*

*Nathan as he flies his plane closer to Hayden’s space. Hayden smiles and begins to imitate the up-and-down motion with Nathan, who says, “My plane is going to land... (making plane sounds) down, down, down...stop.” Hayden stops to watch, then runs off to another area.*

*In this intervention scenario, Nathan scaffolds Hayden’s learning in the context of Hayden’s play by imitating Hayden and then expanding on Hayden’s play (by making plane sounds), and finally commenting on his own actions. This drew Hayden, even for a short while, into a beginning play scenario. This intentional intervention was specifically designed to support Hayden’s IEP goals of language development, initiative, and time on task. The anecdotal notes that Nathan might now write could include the amount of time Hayden engaged with Nathan and/or any language, sounds, or gestures Hayden used. In the next intentional intervention, Nathan may choose to comment on Hayden’s actions.*

Adults can support children’s play by providing comments that assist children in maintaining focus on the play, as Nathan did in the scenario above. Adults make the comments, but they do so without the expectation of a response from the child. The goal of this type of intervention is to simply support the child in maintaining focus and expanding upon his or her play, not to direct the play in any particular way.

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Interaction strategies such as commenting, imitating, expanding on children’s play, and repeating and rephrasing what children say are all adult scaffolding strategies that help young children with disabilities progress. We can also use them as part of intentional interventions with young children as we validate children’s interests.



Terri Mitchell is a HighScope field consultant and currently serves as the Early Childhood Administrator in Canyons School District in Sandy, Utah. Prior to joining Canyons, Terri was an educational specialist for the Utah Personnel Development Center, where she directed the training initiatives for early childhood special education classrooms across the state of Utah. Terri is a certified teacher in special education and early childhood special education. She has contributed her experience with instructional coaching, assessment, and systems change to the development of several high-quality early childhood programs.

## TRAINER-TO-TRAINER

# Supporting Executive Function in Children's Play

BY SHANNON LOCKHART

This two-hour workshop is designed to inform teachers about what executive function is and how they can support it through children's play. The objectives of this workshop are to enable practitioners to (1) discuss the importance of play in children's development; (2) define executive function; and (3) identify intentional strategies to assist in the development of executive function in the classroom.

*What You'll Need:* Chart paper (Opening Activity and Central Ideas and Practice); handout made from the sidebar in the feature article titled "Child-Driven Play" (Central Ideas and Practice); pictures of children at play (Central Ideas and Practice); definition of executive function and the five components from the feature article (Central Ideas and Practice); Initiative and Social Relations Key Experience DVD — segment on power belts or footage of children involved in pretend play or complex play and/or solving problems in play (Central Ideas and Practice); executive function card game (make by listing each of the five components of executive function on a separate colored card, and make a set for each table; (Central Ideas and Practice); support strategies from this issue's "Classroom Hints" article (Central Ideas and Practice).

## Opening Activity

### Favorite Activity

(15–20 minutes)

1. Have participants individually think about a favorite activity or something they love to do and then share it with others at their table while discussing the following questions:
  - Why is this your favorite activity?
  - What are some skills you learn from this activity?
  - How does this activity support your knowledge, development, or other aspects of your life?
2. After about 10 minutes, discuss participant answers as a whole group. What will emerge from the discussion is that the activities people tend to love the most are those they choose to do, feel confident doing, and are intrinsically motivated to engage in. When they are the ones making choices and decisions about their time and the activity, then they tend to be more engaged, they learn new skills or hone existing skills, and they want to repeat the activity — which in turn helps them become more confident and successful. These are activities they find fun and interesting. On chart paper, list the five factors of intrinsic motivation: **enjoyment, interest, sense of control, probability of success, and feelings of competence and self-confidence** (High-

Scope Educational Research Foundation, 2010). Emphasize that play is what children do best!

## Central Ideas and Practice

### What Is So Important About Play?

(15–20 minutes)

3. Have participants form small groups. Pass out pictures of children at play to each group. As participants look through the pictures, ask groups to discuss why play is important to children's development. Create a master list by recording their answers on chart paper.
4. Compare the list created in step 3 to the main points and sidebar from the lead article. Be sure to emphasize that play is simply about having fun! Summarize by explaining that play is vital to children's learning and that it is key to the development of executive function.

### What Is Executive Function? (40 minutes)

5. Define executive function using the definition in the feature article. Explain that executive function encompasses key cognitive skills that children need for success later in school, and that even very young children can begin developing these skills. Mention that the more that we as teachers know about executive function, the more effective we can be in helping children develop these skills.
6. Discuss the five components of executive function as presented in the feature article. Use the example of Gabrielle's play from that article or use examples from your own experiences with children.
7. Show the Initiative and Social Relations Key Experience DVD segment on power belts and ask participants to look for the five components of executive function as children are playing and problem solving. Discuss responses as a whole group.
8. Pass out the executive function card game sets to each group and have group members spread the five component cards out across their tables. Then, using the pictures of children at play, have the participants place the pictures under the component that best describes what children are doing and learning. Have them discuss why they chose that component. (*Note:* The play depicted in the pictures may illustrate more than one component, but have participants just choose one). Once all groups have completed the

matching, have group members choose one picture and explain the component to the whole group.

### **How Do We support Executive Function?**

(25 minutes)

9. Divide participants into three groups. Assign each group one of the following topics:

- Environment support
- Daily routine support
- Interaction support

Ask groups to come up with ideas that would support children's development of executive function according to their topic.

10. Once groups have finished, have each group present its group members' ideas. Compare their lists with the main points presented in this issue's Classroom Hints article, discussing any strategies that were not covered.

### **Application Activity**

(10 minutes)

11. Together with the others in their group, have group members list some strategies that will support the development of executive function with the children in their own program.

### **Implementation Plan**

(5 minutes)

12. Have individual participants use the list from the application activity to develop a plan of action for implementing these strategies in their classroom.

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## NEWS BRIEFS

### Introducing a new scoring level for the OnlineCOR!

We are very excited to announce that a new scoring level for our OnlineCOR, preschool version, is now available. Based on research that we have been conducting during the last year, as well as in response to customer feedback, we will have a **Level O** option available for OnlineCOR, preschool version, in addition to the existing Levels 1–5. This feature has been research-validated and will be especially helpful when assessing children who have not yet met Level 1, and for children with special needs. For more detailed information about this new **Level O**, and the research supporting it, [please click here](#).

### Need a jump-start on your plans for large- or small-group times this fall? HighScope's Ideas From the Field can help!

Ideas From the Field is a place where real teachers share their favorite activities for large- and small-group times. We choose the most innovative plans teachers send us and then post them in an easy-to-follow format on HighScope's Forums so that you can quickly go from looking at an activity online to adapting it for your classroom. Ideas From the Field is updated on a regular basis, so be sure to check back often to see a fresh idea for a teacher-tested activity that you can use in your classroom ([see our latest Ideas From the Field now](#))

### Save the date! 2011 HighScope International Conference

Plan to join us in Ypsilanti, Michigan, May 4–6, 2011, for this popular annual event! Watch our Web site for details at [highscope.org](http://highscope.org) as more information becomes available.

[Click here for entire newsletter](#)

## ASK US

BY SHANNON LOCKHART, M.A.

**A child in my classroom is having a difficult time following through with routines. He tends to wander or run around at recall or snacktime and does not follow through with what he is supposed to be doing. This is very frustrating to the teachers and disruptive to the class. Do you have any suggestions on how to help him?**

— A Preschool Teacher

The first suggestion is to make sure that you are following a consistent daily routine and that the child knows all about the routine. One way to make the routine concrete for this child is to display it pictorially on the wall, so he can see and refer to the daily routine segments throughout the day. Another way would be to get pictures of this child during each part of the day and put them in a small photo album that he can look at in the classroom and with his parents at home. This will help build the child's memory of what takes place first, second, third, etc., and how he is involved in each part of the day.



The second suggestion is to make sure that you are incorporating active learning. Take a look at your routine and determine what parts of the day the child is having the most difficulty with. Then determine if all the ingredients of active learning are present (materials, manipulation, choice, child language and thought, and adult scaffolding). If he is not being allowed to make choices, this can lead to his not wanting to participate because his interests are not being challenged. For example, if he never participates in large-group time, which is active and engaging, you could give him two

ASK US, CONT.

choices that you can live with. For example, you might say, “If you don’t want to participate in the group, you can stay at the table or you can get a book to look at, but it is not a choice to play with the toys during large-group time.” Be consistent about following through with whatever choices you are giving him.

A final suggestion: If the child is having problems following routine tasks like getting ready for mealtimes or going to the bathroom, then you may need to make a step-by-step pictorial sequence of what he is supposed to do so he can remember each part of the routine task. Children who have problems with self-regulation and executive function are often unable to remember each part of a simple task. They only remember the last thing you told them. For example, for washing hands you could take photographs of the child (1) turning on the water, (2) wetting his hands, (3) rubbing soap on his hands, (4) rinsing the soap off his hands, (5) turning the water off, (6) getting a paper towel, (7) throwing the paper towel away, and (8) going to the table for snack. In this sequence, the child learns how to follow each step so that he knows what he is to do with his body during this time. After reviewing this repeatedly, these steps will eventually become a habit for the child and will be internalized in his long-term memory.



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