

Constructive Play

A Value-Added Strategy for Meeting Early Learning Standards



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This was one of the children's first days using turkey basters in water play. We try to add only one new thing at a time. The children started hooking the funnel to the turkey baster and found ways to fill the baster and squirt out water. They were so excited to discover they had made a fountain. They named it Water Spout. We had read the book *I Wish that I Had Duck Feet*, and the children remembered the water spout in the story.

—Trisha McCunn, Preschool Teacher

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CONSTRUCTIVE PLAY INVOLVES building and making things no one has ever seen before. As young children fiddle with, sort, and arrange materials, ideas and imagination begin to flow. Questions arise naturally. They wonder: What will happen if I put this here? How tall will it go? Where did the bubble come from? In this way, constructive play serves to focus the minds of children through their fingertips and leads them to invent and discover new possibilities, to fulfill their sense of purpose.

Play in a standards-oriented world

In many early childhood programs across the country, time for play is dwindling away. The field of early childhood education is in the midst of a major shift in orientation toward a standards base. Early learning standards specify what young children should know and be able to do in academic areas such as science, literacy, and mathematics. These standards have rapidly become an integral part of state systems of early childhood education. All the states plus the District of Columbia have approved early learning standards for preschoolers. As a structural element of education reform, early learning standards shape the content of instructional curriculum, set the goals of professional development, and establish the focus of outcomes assessment. Standards are increasingly seen as a powerful lever for improving preschool instruction and children's school readiness.

Mature play has three critical components: imaginary situations, explicit roles, and implicit rules.



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This rise of state early learning standards has alarmed many early childhood educators, especially advocates of play-based approaches to teaching and learning. Play has long had a central role in early childhood education, where it has been viewed as an effective means for promoting all aspects of child development. Many early childhood teachers are concerned that the standards movement and its narrowing of educational goals are pushing aside classroom learning through play in favor of more didactic forms of instruction.

Reconciling play and standards

In this article, we take a more positive, pragmatic approach and propose to reconcile constructive play with the standards movement. Recognizing that standards have become an integral part of early education, we believe that mature forms of play, such as the examples presented in which children are focused and intentional, can be effective strategies for helping children learn academic skills stressed in state standards (Kagan & Lowenstein 2004; Van Thiel & Putnam-Franklin 2004; Christie & Roskos 2006). Mature play is mindful make-believe and reasonably self-regulated.

Our proposals are based on field research, observations, interviews, and vignettes focused on constructive play that

uses a variety of open-ended materials to promote learning and development. We share educators' stories, experiences, and ideas around principles of constructive play and include specific suggestions for practice.

Three principles for using constructive play to meet early learning standards

We identify three key principles that explain why developmentally appropriate constructive play is an ideal instructional strategy for meeting early learning standards. These principles are derived from our own experiences as play researchers and teacher educators.

1. During the preschool years, constructive play merges with exploration and make-believe play and becomes a mature form of play that allows children to strengthen inquiry skills and build conceptual understanding.

Constructive play is organized, goal-oriented play in which children use play materials to create or build something (Johnson, Christie, & Wardle 2005). It often begins during the toddler years and becomes increasingly complex with age. Constructive play involves open-ended exploration, gradually becoming more functional in nature, then evolving to make-believe transformations. Four- and 5-year-olds often switch back and forth between constructive and dramatic play, and it can be difficult to distinguish between the two forms of play. According to Bodrova and Leong (2004), the type of mature play that promotes learning and development has three critical components: imaginary situations, explicit roles, and implicit rules.

We typically think of constructive play as building with blocks and other three-dimensional materials. Building a road or castle with wooden blocks, shaping a ball out of



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clay, constructing a spaceship with recycled materials, and putting a puzzle together are all examples of constructive play. But how is the water play, described at the beginning of this article, constructive play (see “Water Play” below)?

Trisha McCunn, a teacher of 3- to 5-year-olds at Lollipop Pre-School in rural Iowa, uses *Exploring Water with Young Children*, the Young Scientist series, and records observations of the children:



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The children discovered that a little squeeze of a water-filled baster made the water bubble, but with a big squeeze the water shot up with great force. They had made water play rules, and one was that the water had to stay in the water table. For today, we decided to set aside the rule because the water could be wiped up. Everyone wiped up

water most of the afternoon, but how exciting it was to make a fountain in preschool.

When I added clear plastic hoses, the children discovered that if they pushed the hose into the water and stuck their thumbs or fingers on the top end, they could make a bubble go up and down inside by moving the hose up or down like a steering wheel. One boy exclaimed, “Look, I’m driving a car!” He drove the car for 20 minutes, pretending the moving air bubble was the road and imagining he was following it.



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Water Play

...is about physical science, the study of fluid dynamics. Understanding how the water spout works involves design technology, which is part of the construction of simple systems. It requires a different kind of knowledge than constructing with blocks.

If children have a goal in mind in relation to water flow, they are motivated to learn about forces of gravity, water pressure, and fluids in motion to be successful at what they are doing.

When teachers encourage children to explore and think about what they are doing and talk and plan together, there is potential for skill development in a lot of areas . . . language, science, social competence, as well as positive dispositions toward learning and learning how to learn.

—Ingrid Chalufour, *Young Scientist Series* Author

For Ms. McCunn and the children in her class, constructive play is a form of hands-on inquiry, a way of meeting early learning standards. She knows the children have an innate need to understand their worlds, physically explore, and manipulate materials, and she values the exploring, inventing, and discovering they do together.

Inquiry is a way of looking at the world, according to Parker (2007), a questioning stance we take when we seek to learn something we don’t yet know. And when we are truly into inquiring about something, whatever it may be, we drive ourselves to learn more and more because we seek answers to our own questions. This definition captures the very heart of inquiry-based learning and aptly relates what the children in Trish’s class are doing. Believing that all children have the desire and capacity to explore and better understand their worlds is the foundation of constructive play and inquiry-based teaching in early childhood.

Trisha McCunn provided the kinds of simple constructive play materials that appeal to the children’s natural desire to question and find out things for themselves. She set the stage in a way that encouraged children to construct new knowledge and thus initiated the learning process.

According to Chouinard (2007), humans’ ability to seek out information from one another seems to give us a particular evolutionary advantage and allows us to learn efficiently. Chouinard’s research also substantiates the belief that children need to take an active role in the questioning and information-gathering process. When children are actively involved, they remember the information they gather better than informa-

tion simply given to them. Children build knowledge through active questioning and information gathering combined with hands-on experiences and direct personal-social interactions. This process of active learning and acquisition of knowledge occurs during play with materials, play with ideas, and play with others.

Vygotsky and other well-known theorists have stressed the importance of play in the learning process of young children (Bodrova & Leong 2004). Play provides an intrinsically motivating context in which children come together to understand their world. Constructive play, with its emphasis on hands-on inquiry, is ideally suited for helping children learn the academic skills and concepts found in states’ early learning standards (see “Connections between Arizona Early Learning Standards and Constructive Play”).

Connections between Arizona Early Learning Standards and Constructive Play

Early Learning Standards (Arizona)	Constructive Play, Research Supported
Language and Literacy	
<p>Strand 2: Pre-Reading Processes, Concept 5: Vocabulary Development—The child understands and uses increasingly complex vocabulary.</p> <p>Strand 2: Pre-Reading Processes, Concept 1: Print Awareness—The child knows that print carries meaning.</p> <p>Strand 3: Pre-Writing Processes, Concept 1: Written Expression—The child uses writing materials to communicate ideas.</p>	<p>Research by Cohen (2006) shows that children learn new vocabulary words as they socially interact with partners and in groups during constructive play.</p> <p>Literacy-enriched play centers contain theme-related reading and writing materials. For example, a block center might contain pencils, pens, materials for making signs, storage labels (for large blocks, Legos), and so on. Research indicates that when children play in print-enriched settings, they often learn to read play-related print (Neuman & Roskos 1993; Vukelich 1994).</p> <p>Research by Pickett (1998) shows that adding writing materials to block centers results in a large increase in emergent writing, including making signs to identify function and ownership, regulate behavior, and communicate messages.</p>
Mathematics	
<p>Strand 4: Geometry and Measurement, Concept 1: Spatial Relationships and Geometry—The child demonstrates an understanding of spatial relationships and recognizes attributes of common shapes.</p>	<p>Recent research by Miyakawa, Kamii, and Nagahiro (2005) confirms that block building can help children learn important spatial relationships.</p>
Social-Emotional	
<p>Strand 2: Social Interactions with Others, Concept 2: Cooperation—The child demonstrates the ability to give and take during social interactions.</p> <p>Strand 4: Approaches to Learning, Concept 5: Problem-solving—The child demonstrates the ability to seek solutions to problems.</p>	<p>Creasey, Jarvis, and Berk (1998) contend that a two-way relationship exists between group play and social development: the social environment influences children’s play, and play acts as an important context in which children acquire social skills and social knowledge needed to engage in group play.</p> <p>Children learn attitudes and skills needed for this play from their parents, teachers, and other children. At the same time, play with others has a key role in social development by providing a context in which children can acquire many important social skills, such as turn taking, sharing, and cooperation, as well as the ability to understand other people’s thoughts, perceptions, and emotions.</p> <p>Bruner (1972) proposes that play contributes to children’s ability to solve problems by increasing their behavioral options and suggests that block play encourages inventive thinking and logical reasoning while constructing three-dimensional patterns. Copely and Oto (2006) find that young children demonstrate considerable problem-solving knowledge during block play.</p>

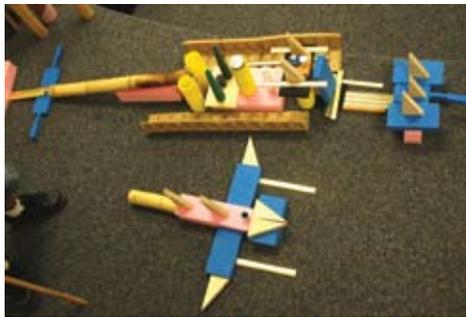
Source: Arizona Early Learning Standards, www.azed.gov/earlychildhood/downloads/EarlyLearningStandards.pdf

2. Teachers who are knowledgeable about the purposeful use of materials, the process of constructive play, and intentional strategies for interacting with children succeed in helping children develop essential concepts and skills in all content areas.

Making things is an activity that is key to successful learning for young children. They combine the dexterity of their little fingers with the power of their brains to develop a knack for representation and the capacity for creative visual symbolizing. It is interesting to consider this as the ability to imagine the future. The ability to physically construct new connections between thoughts and objects is the act of innovation and change. Teachers who understand and encourage this process of learning help children develop a very important talent.

By taking known elements and creating new connections, children demonstrate the lifelong process of accommodation and improvisation. In this regard, current research emphasizes the importance of school readiness factors covering all developmental domains and including active approaches to learning (Bowman & Moore 2006). Child-focused inquiry learning that involves constructive play with an array of three-dimensional materials, fosters positive learning, such as enthusiasm, resilience, creativity, decision making, and persistence in completing tasks (Day 2006).

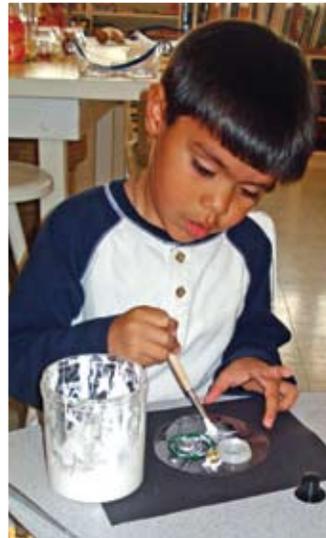
For optimal learning to occur through play, children need support, time, and open-ended materials that stimulate the brain to think imaginatively. The materials teachers choose to bring into the classroom reveal the choices they have made about knowledge and what they think is important for children to learn, including the content of applicable learning standards.



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Pauline Baker, a cooperating early childhood resource teacher in the Tucson Unified School District, supports the constructive play of 4-, 5-, and 6-year-olds who come to her studio.

I pick up interesting materials all the time . . . sticks, stones, wire, wood, and use them all with the children. I organize materials by color and keep them in baskets, bins, boxes, and lettuce trays. Some materials are organized by “circleness,” both man-made and nature-made.



Photos © Pauline Baker

Quality early childhood programs reflect the knowledge of teachers, like Ms. Baker, who understand their roles during children’s constructive play and learning and routinely allocate ample time for children to choose and engage in a wide variety of play-related activities, including constructive play with different types of blocks and other open-ended materials (Drew & Rankin 2004).

By age 4, children begin to move from sorting, lining up, stacking, and pushing blocks to constructing and symbolically representing a tree house, for instance, as in the classroom description (opposite page). As children practice building, their constructions become more detailed, more complex, more coordinated, and balanced.

In addition, constructions are more likely to be used in dramatic pretense. Children may use foam blocks to make a forest of trees, while using other materials to represent people and animals that have adventures in the forest. Constructive play becomes more popular with age, accounting for more than 50 percent of play activity in pre-school settings (Rubin, Fein, & Vandenberg 1983).

Linda Vinson, a pre-K teacher of children with disabilities in Brevard County, Florida, offers a variety of materials to the children in her class.



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The eight 2- to 4½ -year-olds in my class are socially and emotionally developmentally delayed. At the beginning of the year they did not know how to play. I put something in their hands to get them started.

Gradually, I've offered more open-ended and natural materials to help the children express their thinking through words and actions and gain a sense of competence. Now the children have wooden blocks, foam rectangles, purple cylinders, stretchy fabric scraps, soft wire, cardboard tubes, colorful plastic caps, and mat board, all collected from our local reusable resource center. The materials are arranged in straw baskets that add a homelike atmosphere to my classroom.

Yesterday, after reading the *Three Little Pigs*, we talked about the wolf and the forest and the different houses the pigs built. The children retold the story, using stuffed animals and puppets. Afterwards, they went to the shelves of materials and began building. Kevin made a tree house of foam rectangles. He built it up and knocked it down 15 or 20 times—each time confidently building it a little higher, laughing as it toppled, and exclaiming, “I can build anything all the way to the sky!”

Linda Vinson's account of the children's play shows the opportunity for conceptual understanding in the area of structural engineering as Kevin makes his tree house. He explores the forces of gravity, compression, tension, and the relationship between the characteristics of materials and successful design to achieve balance, stability, and even aesthetic sensibility. During construction play, Kevin discovers the science of quantity (arithmetic) and shape (geometry) in the making and testing of different design patterns. In short, in construction play activities, children do both science and mathematics. Ms. Vinson is aware of the value-added benefits that come from joyful play—like Kevin's feeling a sense of personal power, competence, and a positive disposition about himself and learning.



In construction play activities, children do both science and mathematics.

3. Professional development experiences that feature hands-on constructive play with open-ended materials help early childhood educators extend and deepen their understanding of constructive play as a developmentally appropriate practice for meeting early learning standards.

Providing professional development opportunities that supply rich, hands-on play experiences using a variety and abundance of open-ended materials, time for reflection on those experiences, and guidance in applying new insights to teaching practice is a powerful strategy for helping teachers develop deeper understandings of developmentally appropriate practice and the essential role of constructive play in quality early childhood programs. Adults who engage in active inquiry and construct knowledge through creative exploration with materials are more positively disposed to encouraging children to do the same. In this way teachers come to understand and appreciate how play helps children develop character virtues, such as tenacity, flexibility, creativity, courage, and resilience—all are characteristics practiced in constructive play, by child and adult.

The adults' hands-on experience is consistent with recommended developmentally appropriate practices for young children. Just as with children, constructive play stimulates an inner dialogue between the teacher and the materials. Ideas, feelings, questions, and relationships begin to take form. The teacher becomes the protagonist—exploring, assuming control through objects, creatively inventing, and becoming the empowered initiator of inquiry and self-discovery.

In *The Ambiguity of Play*, play scholar Brian Sutton Smith describes play not only as about learning important concepts and skills but also as about playing with interpreting one's own feelings and thoughts instead of primarily representing the external world. He says, “What is adaptive about play, therefore, may be not only the skills that are a part of it but also the willful belief in acting out one's own capacity for the future” (2001, 198). Teachers and children who are most likely to succeed are the ones who believe in possibilities—optimists, creative thinkers, people who have flexibility along with a sense of power and control. Adult constructive play helps to inform teachers of the kinds of insights, issues, and feelings children experience during their play. Teachers discover new ways of thinking about play and compelling new insight into children's learning. Constructive play becomes an effective self-reflective professional practice that stimulates the creativity of teachers to construct new play strategies to meet early learning standards.

In *Teaching Adults Revisited: Active Learning for Early Childhood Educators*, Betty Jones reminds us that, “Wherever they are in their educational journey, teachers of young children need to tell their stories, hear other stories, and



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practice reflective thinking about children's development—over and over again" (2007, ix).

Conclusion

Professional development activities in which teachers play together using construction materials can foster a deeper understanding of how

to employ materials and engage young children in positive constructive play. Play can be a bridge to school readiness and academic success for all children. Three key principles in using constructive play to meet early learning standards are interrelated in this way.

Players are active agents in learning, imagining, and creating together. This kind of mature or quality play involves imaginary situations, explicit roles, and implicit rules and is recognizable by its persistence and tendency to become more elaborate over time.

Social interaction and shared imaginings often emerge in the context of constructive play, adding values over and above the benefits of reaching academic standards. These extra benefits include creativity, imagination, problem solving, eagerness to learn, ability to cooperate and stay on task, and learning how to self-regulate and be more responsible overall for one's own learning and development in general.

Finally, setting up and supporting positive constructive play in the early educational setting rests on teachers' creativity, sound judgments, and wise decisions. Although constructive play involves objects, good teachers do not focus on these per se but instead on the actions that take place and especially on the children playing. Learningful play, or "play learning" as it is called by some (Pramling-Samuelsson 2007), occurs when children have teachers who are empathic, playful, and intentional. Open-ended, fluid, and natural materials for creative constructive play are important. In addition, teachers must guide exploration and play, helping children as needed, stepping in and out at the right times, and scaffolding in appropriate ways during constructive play episodes.

Constructive play must connect to other kinds of play and activities and be networked with different aspects of the curriculum to maximize its value. To be sure, for the benefit of young children, we must see clearly the value-added connection between constructive play and meeting early learning standards. The challenges are great, as is the reward. Teachers will be helping to restore play to its proper place in early education.

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