Cast your vote online for SECA President-Elect this September.

Our Candidates

Evelyn Moore, Texas
Evelyn began her career in the early care profession as a classroom teacher in a child care center after graduating from college in 1974. In 1975, she was hired as the Head Start Director of the Child Development Council of Brazoria County, which currently serves 569 children from low-income families on an annual basis and has a staff of 99 employees. In January of 1982, she was promoted to Executive Director of the Agency. Today, Evelyn still holds that position, which in 2007 was renamed President/Chief Executive Officer.

Kathy Attaway, Kentucky
Kathy’s interest in early childhood care and education began when she was asked to volunteer at her children’s school. She then worked in a small private preschool with young children for seven years and fell in love with what became her career. Kathy got her formal education at University of Louisville and Jefferson Community College. After graduating Summa Cum Laude, she began teaching immediately at Chance School, where she continues to teach preschool to this day.

Want to Know More About the Candidates?
Go to www.SouthernEarlyChildhood.org and you’ll find:

- A video of the candidates — The video is hosted by Dr. Janie Humphries, Immediate Past President of SECA and Chair of the 2012 Nominating Committee.
- An interview with the candidates on SECA Radio.
- In the first 2012 issue of Dimensions of Early Childhood, you’ll find the candidate’s responses to questions from the SECA Nominating Committee on pages 20-22.

We wish the best of luck to both of our candidates!
Dimensions of Early Childhood
Volume 40, Number 2, 2012

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President’s Message
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Dear SECA Friends,

Have you ever wondered if you are important? Fred Rogers wrote:

*Do you ever wonder if you've made a difference in this life? I believe that by the time a child grows up, that child's first teacher and second teacher and all the child's important adults will have become incorporated into that child's development. Those of us who were the educators of their early lives will always be a part of who they are* (p.148, 1994).

The Southern Early Childhood Association believes you are important, too. When you watched *Mister Rogers’ Neighborhood*, you realized that Fred Rogers understood the needs, concerns, and fears of children. He helped them learn to become more confident and capable. For adults, he modeled appropriate techniques for listening and talking with children.

SECA and *Mister Rogers* have many similarities. SECA appreciates you as an early childhood professional. We ask you to participate in your local or state affiliate. We provide resources to help you be a more confident, capable, knowledgeable educator. Did you know that your state has a Representative who serves on the SECA Board of Directors so that we can learn about your needs and concerns?

To help you make a difference, SECA provides high-quality professional information. In addition to our journal, *Dimensions of Early Childhood*, members receive benefits on-line, including *Dimensions Extra*. No matter what your position, there is something of interest at www.southernearlychildhood.org.

Have you listened to on-line *SECA Radio*? Invest a few minutes to enjoy an update on your choice of topics. For information on related government issues, check *Public Policy Notes*. Are you an affiliate officer or committee member? The *Leadership Letter* provides valuable insights. Do you teach in a bilingual classroom? Discover our Spanish articles and handouts. ALL members can benefit from the meaningful articles in the *SECA Reporter*!

SECA is dedicated to serving you because YOU ARE IMPORTANT!

Young children can spend countless hours playing with water: pouring it back and forth, watching it spill over the edge of a container, blocking its stream, directing its flow, splashing gently, making waves, and pouring some more. When a water table is not available, they can often be found “washing their hands” in the bathroom for long periods of time, mesmerized by the water. Sometimes it is hard for adults to encourage them to leave the sink.

Few children can resist water’s attraction. What is going on here? Water is fascinating, fun, and multifaceted. Children can play with it endlessly. But play, for play’s sake, is not water’s only value (Crosser, 1994, Tovey, 1993). Indeed, water play is a compelling focus of study for young children (Chalufour & Worth, 2005).

The concepts that young children learn from water play are essential for early childhood educators to be aware of and promote. As educational policymakers and administrators push for more well-defined assessments of learning, teachers need to be able to clearly articulate the specific concepts children learn during all types of play. This article identifies the science concepts involved in a variety of water play activities and the teacher-mediated learning process that can accompany and enhance this learning.

Why is water such a compelling source of learning pleasure for most children? This article convincingly identifies why water play is a key science and mathematics medium that enhances young children’s learning through discovery.

Water Play/Water Study

Water and a few inexpensive tools can provide a sensory and learning experience of immense proportions. What is it children get out of their water study, which looks so much like fun? Free play with water can build the foundation for understanding of a multitude of scientific concepts, including those in

- physics (flow, motion),
- chemistry (solutions, cohesion),
- biology (plant and animal life), and
- mathematics (measurement, equivalence, volume).

Mastery of these concepts will support children’s understanding of academic subjects in later schooling and life. Science is indeed “serious play” (Wassermann, 1990). Science is “everywhere around us. What can children do to increase their understanding of science? Everything!” (Wassermann, 1990, p. 107). Children inquire, observe, compare, imagine, invent, design experiments, and theorize when they explore natural science materials such as water, sand, and mud.

Science Learning Theory

Science is “a way of exploring and investigating the world around us… not only a way of knowing; it is… a way of doing” (Wenham, 1995, p. 2). Science involves the discovery of factual knowledge (that something is true), causes for what is observed (why something occurs), and procedures (how something is investigated) (Wenham, 1995).

“Science education is a process of conceptual change in which children reorganize their existing knowledge in order to understand concepts and processes…more
completely” (Havu-Nuutinen, 2005, p. 259). The word process implies something that happens over time with repeated encounters.

Children benefit the most from in-depth and long-term investigations (Gallas, 1995; Worth & Grollman 2003). Worth and Grollman give vivid, detailed accounts of possible trajectories that projects using the inquiry method can follow. They suggest an investigation of how and where puddles form. They describe an in-depth project about water flow in a pre-K classroom that included creating whirlpools. Some of the children then began to examine small drops of water and how they behave on different surfaces, which led to exploring absorption, as well.

The National Science Education Standards (National Research Council, 1996) call for science to be taught through the inquiry method. Inquiry follows the tradition of hands-on exploration of children’s own questions that eventually lead to discovery of scientific concepts.

“Students should be actively involved in exploring phenomena that interest them. These investigations should be fun and open the door to...more things to explore” (American Association for the Advancement of Science [AAAS], 1993, p. 10).

Given these assertions and standards, recurring water play with varying tools and materials is certainly a natural venue through which to support beginning and ongoing science learning. Play IS investigation. Water is the source of life and, as such, can provide almost unlimited learning.

First Experiences

Children’s first learning experiences with water, at home and in child care programs, usually include all kinds of pouring. The tools need not be expensive and may even easily be found in the kitchen and recycle bin. Safe, unbreakable measuring cups and small containers (margarine tubs, yogurt cups) of different shapes and sizes alone can engage very young children. Sturdy funnels may come next. Ladles, straws, basters, and plastic droppers can be new experiences for young children who are old enough to know not to drink the water. These tools are challenging to manipulate correctly so that they draw in and expel the water. All kinds of sifters/colanders can be added, as well. Many children use these simple water-play experiences repeatedly to practice fine motor skills before they move on to more precise or complex activities with other tools.

Facilitate children’s active involvement in the scientific process by providing materials, encouraging children to observe, predict, describe, and theorize about what they are doing. Raise questions and problems as children play, helping them to grow in their thinking.

Tools for Water Exploration

- measuring cups
- containers of different shapes and sizes
- funnels
- ladles
- straws (when children will not drink from them)
- basters
- droppers
- sifters
- colanders

How to Guide the Science Learning Process

Teachers are researchers, designers, relationship orchestrators, listeners, observers, recorders, documenters of children’s work, collaborators, and mediators (Lewin-Benham, 2011). Expert early childhood teachers facilitate children’s active involvement in the scientific process by providing materials, encouraging children to observe, predict, describe, and theorize about what they are doing. Teachers raise questions and problems as children play, helping them to grow in their thinking.

This is an approach to learning that early childhood educators have
used historically, but has not always been recognized formally as promoting learning. It has been supported by many theorists, including Vygotsky (1978), Feuerstein (2011), Malaguzzi (1993), and many others. Learning happens in the relationships and conversations between novice and experienced learners. Experienced learners facilitate learning by asking questions and commenting as children play (investigate). This approach has been used for decades in Reggio Emilia schools in Italy, now world-renowned for their highly purposeful and in-depth approach to young children’s learning.

Lewin-Benham (2011) describes the teacher’s role, integrating the Reggio Emilia approach with what she refers to as “other inspired approaches” such as Montessori (1967), the Project Approach (Katz & Chard, 2000), and the Creative Curriculum (Dodge, 2002):

- Create an open-flow schedule with flexible amounts of time for exploration
- Recognize that the environment is a teacher and determines the curriculum
- Engage children in meaningful conversation
- Document children’s work and learning
- Assess children’s process and progress

Engage in Meaningful Conversations

At strategic moments, during play with water and tools, teachers typically ask intentional questions to extend children’s thinking, expand their memory, and help use evidence to support their ideas. This can happen either as children are working, during transitions, or afterwards in a more extended small group discussion (Lewin-Benham, 2011).

Discussion during or after an activity is almost always preferable to discussion before the activity (except for making predictions about what children expect to happen or how much a container holds, for example), because children have more knowledge and experience and can contribute more after having explored the medium and tools. Discussion before the exploration usually involves more telling by the teacher than thinking by the children.

Many of these discussions lend themselves to recording and documentation. Children can help create KWL (know, want to learn, learned) charts, predictions, outcome or comparison lists, charts, and/or drawings and models to demonstrate what they think will happen, what they actually observed or caused to happen, and how the two are alike or different. Use these results to stimulate further discussion with children.

Choose Compelling Science Processes

Sink and Float

The concepts of sink and float are common science curriculum at the early childhood level. However, sink and float encompasses many more sophisticated concepts that primary children can also discover when accessories are placed in the water table (or any large basin) with

Subjects & Predicates

Bubbles form in any water, but break quickly. The bubbles last when the water is mixed with soap because the soap acts as a surfactant and allows the molecules to separate more easily.
intentionality to help children to engage in the scientific process and grow their thinking.

Young children can explore the forces of buoyancy, displacement, up thrust, porosity, and density for months (see Table 1 for details) with simple materials that are recycled, found in the classroom, or purchased in inexpensive retail stores.

A teacher might begin these explorations with a group of large and small, heavy and light, items that sink or float—challenging the common expectation of young children that large, heavy things sink and small, light things float. An excellent choice is fruits and/or vegetables that children will wash and cut for snack. Children (and even graduate students) are usually delighted, surprised, and confused when they see a large pumpkin float and a lima bean sink! Another possibility is to offer children a large wooden block of wood (that will float) and coins (that will sink).

Children spend many happy hours finding objects themselves to see whether they sink or float. Eventually, they often figure out for themselves, if they are not told, that what something is made of matters and that shape plays a role in floating and sinking. For example, children can be given clay or foil to shape into boats and try to float them. Record children’s findings from these explorations on simple charts labeled FLOAT and SINK.

The influence of density is a concept that children will not usually discover on their own, without some mediation from the teacher. However, conversations about density are more meaningful and memorable when they come after much play. The delight in this activity can go on for weeks, until children tire of it, having investigated as far as they can, for the moment.

The idea of objects being porous, and whether porous objects sink or float, is another concept embedded in children’s exploratory water play. Children can submerge sponges, cloths, and/or paper towels in water, then squeeze them over cups to see what happens when water is absorbed into an object. Find out which item holds more water. Children can investigate this and related ideas over and over again at cleanup time as they wash the tables for lunch, or as an activity in itself.

**Table 1. Science Concepts About Sink and Float**

<table>
<thead>
<tr>
<th>Concept</th>
<th>Definition</th>
<th>Exploration</th>
<th>Meaningful conversation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buoyancy</td>
<td>an upward-acting force exerted by a fluid that opposes an object’s weight</td>
<td>Infant-Toddler—relatively small objects that sink, larger objects that float</td>
<td>What happened when you put the object in water? Why do you think that happened?</td>
</tr>
<tr>
<td>Density</td>
<td>how much material an object has in the space it occupies</td>
<td>Pre-K—small, light objects that sink and large, heavy objects that float</td>
<td>How are these objects different from each other? How are they the same?</td>
</tr>
<tr>
<td>Displacement</td>
<td>to move physically out of position</td>
<td>K-2nd—children form clay or foil into different boat or raft shapes, add small objects, and predict how many items it will take to sink their boats</td>
<td>What do you think will happen next? What happened to the water when the boat sank?</td>
</tr>
<tr>
<td>Porosity</td>
<td>permeability to fluids</td>
<td>Infant-Toddler to Pre-K—sponges, cotton, cloths for everyday cleaning or for exploration in a low container of water</td>
<td>What happened when you squeezed it? What did you find out about this material? Which material held the most water?</td>
</tr>
</tbody>
</table>
Similarly, play with water and soap holds a number of complex science concepts for exploration such as cohesion, surface tension, surfactants, light spectrum, and others (see Table 2). Some dishwashing detergents, particularly Joy® and Dawn®, when mixed with three or four times as much water as soap in a small basin, will produce hundreds of satisfying bubbles. An ounce or so of corn syrup, while not necessary, can add to the lasting quality of the bubbles.

Children use common household or classroom items like these to create bubbles:

- colanders
- slotted spatulas and spoons
- unused fly swatters
- screens
- large-hole buttons

Why are bubbles formed? Cohesion happens when water molecules stick to each other. One way children can find this out is, again, through a mediated process. Children fill a cup of water to the brim. With an eyedropper and another container of water, they continue to add water to the cup drop by drop until it overflows. Children who can count to 50 or so (as some kindergartners and most 1st graders can), can predict and then see how many drops it takes to make the water spill over the edge of the cup. Children are especially excited when the water forms a dome above the edge before it finally spills.

Young children will eagerly do this many times before they fully believe it and internalize the scientific understanding, whether they remember the word cohesion or not.

Actually, bubbles form in any water, but break quickly. The bubbles last

### Table 2. Science Concepts With Bubbles

<table>
<thead>
<tr>
<th>Concept</th>
<th>Definition</th>
<th>Exploration</th>
<th>Meaningful conversation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cohesion</td>
<td>force that holds together the molecules in a solid or liquid</td>
<td>K, 1st—with a dropper, continue to add water to a full cup of water to see how many drops make it overflow</td>
<td>How many drops will it take to overflow? What do you see the water doing? How do you think the water can do that?</td>
</tr>
<tr>
<td>Surface tension</td>
<td>molecules on the surface are attracted to molecules from all sides and below, but not from above</td>
<td>1st, 2nd—use a penny and dropper to see how many drops of water it takes to cover the surface of the penny</td>
<td>How many drops will the penny hold? How many drops do you think it will take to make the water overflow?</td>
</tr>
<tr>
<td>Surfactant</td>
<td>chemical agent that can reduce surface tension of the liquid in which it is dissolved</td>
<td>Pre-K, K—add soap to water</td>
<td>Compare bubbles before and after adding soap. What did we change to make the bubbles last longer?</td>
</tr>
<tr>
<td>Color spectrum</td>
<td>the distribution of colors produced when light is dispersed by a prism or bubble</td>
<td>Pre-K to 2nd grade—try coloring bubbles with paint or food coloring</td>
<td>What color are the bubbles at first? What color do you think they will be if (color) is added? What do you see? Why do you think the rainbow happened?</td>
</tr>
<tr>
<td>Sphere</td>
<td>perfectly round 3-dimensional shape</td>
<td>Pre-K to 1st—mix water with Dawn or Joy dish detergent. Create bubbles with all kinds of objects with holes.</td>
<td>What bubble shape do you think this tool will make? What shapes do you see that bubbles form?</td>
</tr>
<tr>
<td>Transparent</td>
<td>transmitting light, able to see through</td>
<td>K, 1st—experiment with clear objects such as plastic tumblers; bubbles</td>
<td>Why do you think we can see through (items or) the bubbles?</td>
</tr>
<tr>
<td>Dissolve</td>
<td>become an inseparable part of a solution</td>
<td>K to 2nd—provide salt, water, oil, flour, vinegar for children to mix with water</td>
<td>Where did the (mixed item) go? How can we get it to come back like it was? Let’s try!</td>
</tr>
</tbody>
</table>
when the water is mixed with soap because the soap acts as a surfactant and allows the molecules to separate more easily. Families and administrators will be especially impressed if children remember that word. They learned it through play!

If children are asked about the shapes bubbles come in, they may play with and blow bubbles for days before they realize that, no matter what shape tool they use, the bubble always comes out a sphere (except when it is touching another bubble). Later, when children are older, they will learn that this is the case because of the mathematical properties of shape. For now, it simply makes them wonder.

If a teacher asks what color children think the bubbles will be if food coloring or paint is added to the soapy water, they may be surprised at what they discover. Again, children will need time to play with the colored bubble solution before they conclude that bubbles are always transparent, except for the rainbow at the edge. The rainbow is the color spectrum created by the reflection of light on the bubbles.

To record bubble shapes, blow them onto plain paper or use the paper to catch them as they fall. What happens when the bubbles pop on the paper?

**Mixtures and Solutions**

Other mixtures and solutions, equally easy and safe to form, can become fodder for children’s exploration process. This work leads to the ideas of emulsion and suspension, in addition to further understanding of surfactants and more (see Table 3).

To offer children ways to explore solutions, first ask families to help collect clean, clear recycled plastic bottles with tops, such as water and soda bottles. Find a few sturdy funnels. Ask children to help prepare bowls of salt, oil, water, or other substances.

Record responses as children predict whether the two substances will blend together, and then mix and see what happens! Which items dissolve, which mix while being stirred but then separate (are suspended), and which do not mix at all.

At another time, after much experience with mixtures, solutions, and suspensions, children can make mayonnaise. They will discover that some seemingly unblendable substances, such as oil and egg, can mix and stay mixed when added slowly while stirring. Offer the word emulsion, which describes this type of mixture.

Children are delighted to learn these technical terms. Of course, enjoying big words is not necessary to children’s understanding of the concepts, but learning them now adds to the integrity of the learning process.

Children can mix water and cornstarch to play with, the concoction many teachers are familiar with known as Oobleck or Goop. Is Oobleck solid or liquid? One principle of scientific investigation is that, if teachers refrain from teaching/telling answers to questions like this, children will continue to explore. After an answer is given, exploration and learning often come to an end. Sustain learning by refraining from the urge to answer such questions!
## Table 3. Science Concepts for Study With Solutions

<table>
<thead>
<tr>
<th>Concept</th>
<th>Definition</th>
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<th>Meaningful conversation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solution</td>
<td>homogeneous mixture of two or more substances</td>
<td>Pre-K to 2nd—bottles or bowls and substances for children to mix; e.g., water, pepper</td>
<td>Where did the salt (flour, etc.) go? How do you know?</td>
</tr>
<tr>
<td>Suspension</td>
<td>system in which particles are dispersed through a less dense liquid or gas from which they are easily filtered but not easily settled because of viscosity or molecular interactions</td>
<td>Pre-K to 2nd—containers with oil and vinegar, or water and salt, cinnamon, or other items for children to try to mix</td>
<td>Which ones mix? Which ones don't mix? Why do you think some do mix and some don't mix?</td>
</tr>
<tr>
<td>Emulsion</td>
<td>mixture of two unblendable liquids</td>
<td>Pre-K to 2nd—oil and egg to make mayonnaise</td>
<td>What happens when we just put them together? How could we get them to really mix? (add gradually while stirring)</td>
</tr>
<tr>
<td>Mixture</td>
<td>when two or more substances are combined, each retains its own identity</td>
<td>3 year to 2nd—substances for children to mix and bowls for mixing</td>
<td>What do you think makes some things mix and others not?</td>
</tr>
<tr>
<td>Absorption</td>
<td>to take in</td>
<td>All ages—use sponges, cloths, or paper towels to mop up water during cleaning or play</td>
<td>Where do you think the water went? Which one holds the most water?</td>
</tr>
<tr>
<td>Solid</td>
<td>of definite shape and volume</td>
<td>Infant to K—make or find ice to hold and watch while it melts</td>
<td>How does the ice feel? What is happening to it? How long do you think it will take to completely melt?</td>
</tr>
<tr>
<td>Liquid</td>
<td>a characteristic readiness to flow and little or no tendency to disperse</td>
<td>Infant to K—all water play or other liquid play, such as Oobleck (see non-Newtonian)</td>
<td>What else do you know that is solid? What are some other liquids?</td>
</tr>
<tr>
<td>Gas</td>
<td>the state of matter distinguished from solid and liquid by its low density and viscosity, expands and contracts with changes in pressure and temperature, diffuses easily, and is distributed uniformly</td>
<td>All—place bowls of water in different places (window sill, outdoors, refrigerator) to see which ones evaporate faster</td>
<td>What happened to the water? Where did it go? How do you know?</td>
</tr>
<tr>
<td>Evaporation</td>
<td>the process of becoming a vapor</td>
<td>Toddler to pre-K—paint with water on a chalkboard, sidewalk, fence, or brick building in summer</td>
<td>What happened to the wetness?</td>
</tr>
<tr>
<td>Non-Newtonian</td>
<td>a fluid (yogurt, mud) whose flow properties differ from those of Newtonian fluids (water), usually in viscosity</td>
<td>Toddler to 1st grade—mix cornstarch and water in roughly equal proportions</td>
<td>Is this stuff liquid or solid? Can we make a ball of it?</td>
</tr>
<tr>
<td>Viscosity</td>
<td>thickness, semi-solid quality</td>
<td>Toddler to pre-K—explore water, ketchup, paint, honey</td>
<td>How are these the same? Different?</td>
</tr>
</tbody>
</table>
Cooking and the effect of water in recipes is another appealing area for exploration. When children measure, mix, freeze, and more, cooking becomes full of science learning, as well as math and literacy. This is a topic for another article.

**Water Flow**

Flow is another concept that children can understand through the simple process of playing with intentionally chosen materials. Provide transparent plastic pipes and connectors, found in a hardware store. Children can build pipe systems, and then pour water and watch it flow down through their system into the water table or a bucket (Dinwiddie, 1993; Sible, 2000).

Children are fascinated by making water flow. Provide them with opportunities to understand how flow works and what stops it as they solve problems over and over in different ways at a water table or outdoors. One school offered these materials outside so children could make longer systems all over the playground. The teachers then took children to the school basement to see the pipe system. A more complex water system that children can help design is shown in Figure 1.

**Measurement**

Children can, of course, learn much about measurement through water play. The simplest materials for this are containers of various sizes for pouring. Teachers can ask which container has more water, which has less and which is the same, or equivalent.

Then, children can be asked how many of one container or baster it will take to fill a larger bottle. They will often do this over and over, comparing their answers with each other. They will be surprised if they notice that it is the same number for each container when they are of different shapes.

When children are ready to consider more precise measurements, add marks on plastic containers with fingernail polish for half- and/or quarter-full places to extend the mathematical learning. Measuring cups, in various sizes, will also enable children to use more accurate measuring and introduce both the metric system and fractions.

Pouring alone provides practice in counting, one-to-one correspondence, fractions, volume, conservation, and many other math and science concepts. Young children may not yet understand the concept of conservation, but their experiences with water play will move them closer toward that comprehension. This play/study will fill hours of exploration for children from 4 year olds to at least age 7.

**Evaporation**

Young children can explore evaporation in numerous ways through play. As mentioned earlier, they can investigate it while washing the table after lunch or any messy activity. They can explore it outside in summer, with paint brushes on warm bricks or other dark surfaces where they can watch the water evaporate almost instantaneously. Children can examine evaporation inside by painting with water on a chalkboard and watching it evaporate, albeit a little more slowly. The risk of a slippery floor can be eliminated and evaporation can be observed again while mopping. Make sure to have small mops so children can participate.
For a responsive, intentional, and reflective teacher, these concepts are only the beginning of the science that children can learn from water play/study.

Water play can branch into social studies for older preschool and elementary children in investigations of waves, rivers, lakes, oceans, the environment, and even natural disasters (Davis, 2005; Dove, Everett, & Preece, 1999; Frost, 2005; Hendrick, 1997; Maynard & Waters, 2007; Trisler, 1996).

Children can use experiences with water as opportunities for art and creativity, as well (Dove, Everett, & Preece, 1999; Szekely, 2003). When children paint with water on a chalkboard and it evaporates quickly, they can easily change their work or try another technique. Painting with water on a chalkboard is also a good introduction to art and painting before children ever use paint, or as a beginning to paint at the start of the year. With water, children explore the possibilities of movement with a brush. They can be less concerned with drips and spills as they express ideas and feelings through art media. Children can also experiment with mixing colors in water without the finality of doing it on paper.

The social learnings from water play include collaboration, concentration, turn taking, problem solving, perseverance, self-regulation, and more. Social skills may be one of the most long-lasting learnings children gain through water play, possibly helping them develop these attributes for a lifetime.

Young children also gain physical learning through water play, such as precision in pouring, eye-hand coordination, and other skills. When children pick up buckets or other objects filled with water, they build muscle strength.

Water play is particularly useful and therapeutic during the learning of children who have special needs (Dodge, 2002; Goltsman, 1997; Texas Department of Human Services, 2001). Water often helps children with behavior problems calm themselves. It is multisensory for children who have vision and hearing impairments. It is a more forgiving, less frustrating material than other media, especially for children with learning disabilities.

Children’s learning from water play/study clearly is multidisciplinary. It can help children further their understanding of how the world works, where things come from, and how things are made. Water study belies the notion that young children have a short attention span. Exploring with water is captivating, engaging, engaging and absorbing to almost all children and even the adults who care for them.

**References**


**About the Author**

Carol M. Gross, Ed.D., is an Assistant Professor at Lehman College of the City University of New York in Bronx, New York. She has taught young children and pre- and in-service teachers at the undergraduate and graduate levels for almost 40 years. She currently teaches methods courses in science for early childhood teachers and supervises student teachers.
Connect “Science Concepts Young Children Learn Through Water Play” With a Children’s Book
by Janie H. Humphries

Bubbles, Bubbles
Written by Kathi Appelt. Illustrated by Fumi Kosaka.

The delightful, simple illustrations of Bubbles, Bubbles enhance the rhyming text of the book. The text and pictures illustrate the fun a child can have in soapy, bubble-filled bath water. Along with a yellow duck and a green frog, bath bubbles are enjoyed while tummy, knees, and elbows are scrubbed clean. The book shows how a child can use bubbles to make a moustache, a scary hair-do, or a hat for ducky while getting squeaky clean. Saying good-bye to dirt can be fun.

Classroom Ideas!
Bubbles, Bubbles introduces a variety of learning activities children can have with bubbles and water. It illustrates the fun children have when they play and learn using water and bubbles.

MOVEMENT & MUSIC: On a sunny day, go outside. Half the children have jars of bubble solution and wands to make bubbles. Put on a favorite active song, such as “Singing in the Rain,” Rock n’ Roll Songs That Teach With The Learning Station, or “Kids Pop Party Hit” by Drew. Encourage the children not making bubbles to dance to the music and pretend the bubbles are rain.

SCIENCE: Children explore ways to make bubbles. They can make strong, big bubbles using 1/8 to 1/4 cup of liquid detergent (Dawn or Joy works best), 1/2 cup of water, and 1 Tbsp. of clear corn syrup. Experiment with making bubbles by using items that have holes in them such as colanders, fly swatters, and buttons. Plastic soft-drink holders, plastic berry baskets, or rings from canning jars make fun large bubbles. Ask children to predict what shape the bubbles will be when made with different items. (They will always be spheres unless the bubble is touching other bubbles.)

LITERACY: While making and playing with bubbles, use and introduce terms such as cohesion, solution, mixtures, suspension, sphere, dissolve, and transparent. Children enjoy using these terms and families are pleased to hear the terms.

ART: Make soap paint by mixing 2 Tbsp. tempera paint, 2 Tbsp. liquid detergent, and 1/2 cup water. Use a straw to blow gently into the soap mixture. If the mixture is too thick, add more soap. Blow bubbles until they come to the top of the container. Place a sheet of white construction paper over the container. As the bubbles pop, they will leave rings on the paper. Place the paper over several different colors to get a tie-dye effect. Don’t let the paper get too wet.

MATH: With children, count how many bubbles are in the air at one time. Together, compare the number of bubbles. How do you know which numbers are smaller or larger? Children can write the numerals with sidewalk chalk for comparison. When children make their own bubble mixture or soap paint, they better understand the concept and need for measurement, so they are solving math problems.

SOCIAL/EMOTIONAL SKILLS: Working together to reach a goal is an important skill. Identify children who can share tasks and help children who need help making these decisions. Recognize different tasks that children complete to reach a goal.

Janie H. Humphries, Ed.D., Early Childhood Professor Emeritus, Louisiana Tech University, Immediate Past President of the Southern Early Childhood Association, and an early childhood consultant.
Using Routines-Based Interventions in Early Childhood Special Education

How can early childhood educators embed developmental interventions into daily routines? Find out how families and teachers can partner to promote the development of young children with special needs.

Danielle Jennings, Mary Frances Hanline, and Juliann Woods

Tania, who has Down syndrome, began attending an early childhood program sponsored by her father's place of employment when she turned 2 years old. Because of her disability, Tania received Part C early intervention services and had an Individualized Family Service Plan (IFSP).

At her second birthday, her IFSP identified specific developmental outcomes including (1) increase her ability to verbally communicate with others, (2) encourage her to move through her environment by cruising and walking, and (3) feed herself using a spoon. These outcomes were addressed through early intervention services for Tania and her parents provided by Ellen, an intervention specialist from the Part C program, in their family home.

Tania’s father gave the early childhood program a copy of the IFSP so that her teacher, Janelle, could collaborate with Ellen to help integrate Tania’s developmental interventions into her daily activities at the center. When Tania and her family visited the program, Janelle was very positive about having her in class. Tania’s family was concerned that it would be difficult to include her interventions into the busy toddler room. Ellen had helped them integrate Tania’s developmental interventions into their family routines, but they were not sure how this could be done at the center while concentrating on all of the 2-year-olds in the class.

Young children with special needs, such as Tania who is described in the sidebar, receive developmental early intervention services provided by Part C of the Individuals With Disabilities Education Act (IDEA, 2004). The goal of Part C is to provide coordinated services for children from birth to 3 years who have identified disabilities, like Tania, or have or are at risk for developmental delays.

Because Tania’s disability was evident at birth, she began receiving services as an infant. However, many children who have developmental disabilities or delays are not referred for services until after their second or third birthdays. When education professionals suspect that a child is eligible for early intervention services, they encourage parents to contact local Part C or Child Find agencies for a developmental assessment. (See page 22 for contact information for these agencies, whose links can be found at the National Dissemination Center for Children with Disabilities [NICHCY] Website.)

Early Intervention Services

If a child is assessed and qualifies for early intervention, the family and early intervention professionals working with the child collaborate to develop an Individualized Family Service Plan (IFSP). Part C services are recommended based upon child and family outcomes identified in the IFSP and are provided through a team approach that can include:

- developmental early intervention
- speech/language therapy
- occupational therapy
- physical therapy
- behavioral therapy
- nutrition counseling
- social work
- service coordination

Tania’s IFSP team members included Ellen, the intervention specialist, her parents, and a Part C service coordinator. Her original evaluation was conducted with a physical therapist, an occupational therapist, and a speech–language pathologist. Her family liked working with Ellen and wanted to limit the number of people and appointments for Tania. They requested that Ellen provide early intervention services directly, with an understanding that therapists were available for consultation and could be included on the team as needed.
Services in Natural Environments

Early intervention services for young children with special needs are required to be provided in the child’s natural environments, places where children and families spend their time in settings typical for infants and toddlers who have no disabilities. Tania’s early intervention services were provided in the natural environments of her

- family and grandmother’s home,
- neighborhood playground, and
- early care and education center.

The emphasis on natural environments is about much more than service locations. Providing services in this method offers valuable opportunities to observe and learn about children’s routines and activities so that early interventionists can support their development in everyday settings, enhancing their daily functioning at home and in the community.

Services provided in clinic offices or specialized classes are not considered natural environments because children’s experiences in these settings are not representative of their daily lives at home and other places. Early intervention services provided in natural environments more effectively promote children’s development than traditional intervention models provided in clinic offices or specialized programs (Raab & Dunst, 2004; Jung, 2007).

The natural environment approach supports families and teachers who collaborate with therapists and intervention specialists to target developmental interventions within a context of regular routines and activities occurring throughout the child’s day (Rush, Shelden, & Hanft, 2003). When there are children with special needs in an early care and education program, teachers and aides become partners in each child’s early intervention services.

What Are Routines-Based Interventions?

Routines that occur within natural environments for young children provide the most effective framework to support and sustain early intervention activities. When
child is familiar with routines, the intervention specialist can focus on scaffolding new and more complex learning based on those experiences (Vygotsky, 1933).

When care providers use daily routines as the context for a child’s developmental interventions, they can integrate them into natural activities without disrupting the flow of what children are doing and learning (Csikszentmihalyi, 1998). When developmental interventions are embedded in children’s regular routines and activities, skills learned are functional and meaningful for children and their caregivers (Kashinath, Woods, & Goldstein, 2006).

Typical routines provide a base for successful intervention strategies integrated into activities to promote specific developmental outcomes for children with special needs.

**Importance of Routines**

Daily routines are meaningful contexts for young children to learn new skills because they are predictable, functional, and occur numerous times throughout the day (Woods, Kashinath, & Goldstein, 2004). Interventions can be integrated into play, caregiving, and other activity-based routines as appropriate for the setting and individual child needs. Play routines within an early care and education program include

- dance to music
- play outside
- finger paint
- center time
- splash table
- dress up

Caregiving routines include

- change diapers
- wash hands

- eat foods
- put on shoes

Routines can also occur within transitions such as to

- select a book to look at
- put away toys
- greet a friend upon arrival

Each routine (such as play outside) includes many different activities (swings, slide, or sandbox). Each activity (such as a swing) offers multiple learning opportunities to address specific developmental intervention strategies (skills such as check that helmet is fastened, climb on the swing, hold on with both hands, ask for a push, talk to others, or pretend to be flying).

**Effects of Embedding Interventions**

Basing developmental interventions on children’s routines is the core feature of service delivery in natural environments (Dunst,
Bruder, Trivette, Raab, & McLean, 2001). Targeted skills identified from IFSP outcomes are embedded into daily activities for home and early care and education centers. This way, children learn and practice developmental skills as they interact with materials and activities in their environment that have targeted interventions infused into them.

The impact of routines-based interventions is illustrated on the Website Family Guided Routines Based Intervention (FGRBI) (Woods & Goldstein, 2007) listed on page 22. FGRBI contrasts two young males receiving speech-language therapy: Michael during traditional clinic visits, and Miguel through intervention based in his natural environments.

The one hour per week of speech-language therapy that Michael receives within a traditional model of intervention was compared to the 25 hours per week (5 hours x 5 days) that Miguel receives when specific speech-language intervention is embedded within routines of his early care and education center. By embedding intervention into his daily routines and activities, he increased the frequency of his language practice, which contributed to higher achievement of his targeted communication outcomes than had he received once-a-week outpatient therapy.

Routines-based intervention is often linked to similar concepts in early childhood education such as activity-based instruction, embedded instruction, and naturalistic teaching. It is unique in its use of specific intervention strategies targeting individualized developmental outcomes for a specific child by embedding the strategies in daily routines (Pretti-Frontczak, Barr, Macy, & Carter, 2003). Routines-based interventions for a child with special needs can be combined with or adapted to other naturalistic teaching methods used with all children.

**How to Implement Routines-Based Interventions**

Planning and implementing routines-based interventions in early childhood programs involve many considerations. Some questions to ask might include:

- What routines are best to include the child’s targeted interventions?
- What intervention strategies can teachers and center staff use regularly?
- How can a plan be made with intervention strategies that everyone will understand and follow consistently?

One approach is the sequence recommended by Flores and Schwabe (2000) to implement routines and activities-based interventions:

1. **Identify child's targeted developmental outcomes**
   Early childhood educators should be included in conversations with specialists and families/guardians when developmental outcomes are considered. They are in a unique position to know what the child would like to do that they cannot or need support to participate in, and skills they need to be more functional in daily routines and program activities. Teachers benefit from hearing other team members’ perspectives and knowledge about children’s skills and abilities.

   Teachers can be identified as providing services that are routine based (such as assisting the child in using a cup with handles at meals or creating opportunities for the child to play with another child), but also as receiving services from specialists to embed techniques or equipment into early education and care center routines.

2. **Identify natural environments where interventions will occur.**

3. **Analyze activities and routines in those environments that have potential for targeted interventions linked to developmental outcomes.**

4. **Develop and implement a plan with embedded intervention strategies in routines.**

5. **Collect child data and review to monitor progress.**

Routines-based intervention relies heavily on communication among specialists, families, and teachers about implementation in order to be effective in promoting desired developmental gains. Coordination through conversation is essential among all team members, including family (Flores & Schwabe, 2000). Each step of the process is described here.
The IFSP service plan states *early childhood program teacher will or occupational therapist will demonstrate to teacher to describe how services will be supported in order to coordinate team member efforts.*

For example, a physical therapist (PT) could come to the early care and education program in consultation for a toddler with cerebral palsy who has an IFSP outcome that the child will be able to roll over. The PT works with the teacher and center staff to demonstrate and explain techniques to help the child learn to roll over, and asks them to practice with the PT observing and coaching until they feel comfortable. All could identify routines in which the rolling over technique would be embedded.

If therapists are not able to come to the center, they can videotape the techniques being used with the child for the staff to view together and follow up by phone to discuss how to make the service routines-based. In each case, the program staff and the PT collaborate to embed intervention strategies that are specific to needs of the child, consistent with individual routines, and will be supported by the intervention specialist (Raab & Dunst, 2004).

**2. Identify environments where interventions will occur**

Most early intervention services for children with special needs are provided in family homes, but early education and care programs are the next most common natural environments where toddlers receive services (Copple & Bredekamp, 2009). Teachers know which activities and routines are best to embed intervention efforts. For success in developing doable strategies and accomplishing outcomes in the early childhood environment, teachers and caregivers must be involved in planning, because ultimately they will implement the agreed-upon intervention strategies in their center.

Early learning environments provide excellent opportunities for intervention strategies that are interesting and fun for children, that can result in more frequent and longer participation in activities, and contribute to subsequent growth in targeted developmental outcomes. When strategies embed interventions into daily activities, teachers can maximize learning opportunities in daily routines and activities, and children have many opportunities for interventions to occur. No matter how many unexpected events come up or activities change in any given day, the same familiar and necessary routines of early care and education centers take place, such as naptime, outside play, diapering, and snack.

**3. Analyze routines and activities with potential for intervention**

Early education routines selected for intervention should be positive and functional for children and teachers. Activities and routines with the greatest potential for embedding intervention are those predictable and meaningful activities that match children’s interests. Not every activity

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*Routines-based intervention is often linked to similar concepts in early childhood education such as activity-based instruction, embedded instruction, and naturalistic teaching. It is unique in its use of specific intervention strategies targeting individualized developmental outcomes for a specific child by embedding the strategies in daily routines.*
or routine is appropriate for intervention in every program with every child. For example, putting on shoes may be a perfect opportunity for one child to work on developmental outcomes, but not for another child, or could be embedded in some of a child’s routines but not others, such as not after naptime with a child who wakes up slowly.

Both simple and complex routines provide opportunities to embed intervention strategies. Routines can be brief and simple—such as giving a hug when a parent arrives at day’s end—or can be complex with several related activities. Hand washing is an example of a complex routine with many activities to choose for developmental intervention including:

- turn on water
- pump soap on hands
- wash hands with soap
- rinse off soap
- dry hands with towel
- turn off water with towel

Teachers frequently identify caretaking routines that occur on a regular basis, such as diapering, meals, and hand washing, for intervention strategies. However, routines and activities with greatest potential for developmental intervention are those activities that keep the child engaged and interested (Dunst, et al., 2001).

Play-based learning is very effective for all young children.

Interventions embedded into the child’s favorite play routines increase motivation and engagement of child and teachers while promoting skill development. Play-based learning is very effective for young children with and without special needs (Frost, Wortham, & Reifel, 2008) in that it is developmentally appropriate (Sandall & Schwartiz, 2002).

Whether they are play or caretaking routines, intervention strategies should be related to realistic activities in which toddlers without disabilities would engage (such as playing peek-a-boo during diapering).

### 4. Develop and implement intervention strategies

After gathering information about child, environment, and routines, the teacher and intervention specialist and/or therapists collaborate to develop strategies to embed interventions within class activities. Determining which child outcomes align well with which routines, and what interventions easily fit into those routines, can be challenging when the team creates embedded strategies that support children’s skill growth without disrupting daily activities.

Considerations for Planning Routines-Based Intervention (TaCTICS, 1999) lists key areas to address interventions within a given routine:

- What are the targeted outcomes that fit within the routine?
- What are the opportunities for intervention on each targeted outcome?
- Who will facilitate the intervention being used in the routine?
- What methods of intervention strategies will be used?
- How will the child’s participation be cued in the routine?
- What contingencies will be required for the child’s response in the routine?
- Are all locations where routine occurs included for consideration?

Another methodology for implementation is using the acronym ROUTINE (Jung, 2007) for guidance in developing intervention strategies. Jung’s recommended implementation strategies, summarized in Table 1, are:

- Routines based
- Outcome related
- Understandable
- Transdisciplinary
- Implemented by family and caregivers
- Nonjudgmental
- Evidence based

These concepts are identified as evidence-based practices to support successful implementation strategies by families, early education and care professionals, and intervention specialists without interrupting normal routines.

An activity matrix is a tool to assist in embedding planned intervention strategies within identified routines. An activity matrix is a visual display that identifies routines selected for embedding intervention and outcomes to be targeted. It is often referred to as a Routines-by-Outcome Matrix.

The process of developing a matrix provides opportunities for conversations among teachers, specialists, and parents to identify potential routines and activities in which to embed intervention strategies for targeted outcomes. Information listed typically includes:

- who will implement the intervention (e.g., teacher and/or early education and care program staff),
how the intervention is done (e.g., what the adult does, what the child does), and
where and when the intervention will be implemented (e.g., details beyond daily schedule).

An activity matrix can be adapted to include intervention strategies, with reminders how to cue the child and/or to monitor child progress on outcomes. Several examples of activity matrices are available online at the Websites listed in page 22.

6. Collect child data and review progress

Used effectively and consistently, routines-based interventions can improve developmental growth in young children with special needs. This effect is ensured by using a data collection system to track interventions and child responses in order to monitor progress (or lack of it). This can be documented within an activity matrix or on a separate chart by caregivers each day or week. It does not need to be elaborate or time consuming, but it must be used on a regular basis in order to document information about children’s progress toward their targeted developmental outcomes. This is important information when discussing intervention strategies in conversations among teachers, families, and specialists.

A child’s IFSP is reviewed every 6 months (or sooner if requested by parents) and information about progress toward outcomes from teachers and early childhood staff should be included in the process. As it is developmentally appropriate for young children, outcomes are measured on a functional basis (i.e., holding a cup independently when hand is placed on the handle).

This is the time when family and team members consider progress-monitoring data and determine whether each outcome has been reached and intervention is no longer needed. If an outcome has not been achieved, the team identifies how to address it differently. During this process, child outcomes change or are modified. Each IFSP review changes child outcomes and services that require alterations to implementing routines-based interventions in the early care and education program.

### Table 1. Jung’s ROUTINE Concepts and Criteria for Early Intervention Strategies (2007)

<table>
<thead>
<tr>
<th>Concept</th>
<th>Criterion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Routines based</td>
<td>Intervention strategies fit normally into routines without taking time and attention away from following them.</td>
</tr>
<tr>
<td>Outcome related</td>
<td>It is easy to identify the connection between the intervention strategy being used and the developmental outcome it is targeting.</td>
</tr>
<tr>
<td>Understandable</td>
<td>Intervention strategies are written in ways so that all team members understand what to do without knowing professional jargon.</td>
</tr>
<tr>
<td>Transdisciplinary</td>
<td>Strategies combine several discipline-specific interventions into a single activity that fits into routines and meets goals.</td>
</tr>
<tr>
<td>Implemented by family and caregivers</td>
<td>Intervention strategies are designed to be carried out by families, teachers, and aides in daily activities and routines.</td>
</tr>
<tr>
<td>Nonjudgmental</td>
<td>Intervention strategies emphasize shared roles and responsibilities of team members without compliance being an issue.</td>
</tr>
<tr>
<td>Evidence based</td>
<td>Intervention strategies use approaches most appropriate and proven effective in supporting targeted developmental outcomes.</td>
</tr>
</tbody>
</table>

### Routines-Based Interventions for Tania

Janelle talked with Tania’s parents frequently at drop-off and pick-up times about her progress and strategies they found effective to encourage her development. Although her home and the toddler room were different kinds of natural environments, Tania’s family and Janelle faced similar challenges in addressing her developmental outcomes, and they felt supported in their shared successes and frustrations.

Tania’s parents were reassured that Janelle and the early care and education program staff were able to include developmental interventions for Tania during regular routines and activities despite distractions of other toddlers in their care. Tania had adapted to her class without difficulty, was using more vocalization and gestures to communicate, and seemed to gain more independence in her personality after being in a group with other toddlers.
### Table 2. Tania’s First Embedded Developmental Interventions Based on Toddler Room Routines

<table>
<thead>
<tr>
<th>Toddler Room Routines</th>
<th>IFSP Learning Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tania will make sounds or gestures to express her needs.</strong></td>
<td><strong>Tania will cruise or walk to get where she wants to go.</strong></td>
</tr>
<tr>
<td><strong>Arrival</strong></td>
<td>Point to where the toy or friend is located, and ask her to go there. Provide support with one hand or with toy walker if needed.</td>
</tr>
<tr>
<td><strong>Circle</strong></td>
<td>Point to the class circle, and ask her to walk to circle. Provide support with one hand or with toy walker if needed.</td>
</tr>
<tr>
<td><strong>Transitions</strong></td>
<td>Offer hand or toy walker to her in preparation for moving to new location or activity.</td>
</tr>
<tr>
<td><strong>Centers</strong></td>
<td>Point to a center she prefers, and ask her to walk to the center. Provide support with one hand or with toy walker if needed.</td>
</tr>
<tr>
<td><strong>Outside</strong></td>
<td>Tell her it’s time for outside play. Help or carry her out the door, and provide support with one hand or with toy walker if needed.</td>
</tr>
<tr>
<td><strong>Bathroom</strong></td>
<td>Offer hand or toy walker to her to move to the diaper-changing area.</td>
</tr>
<tr>
<td><strong>Snack</strong></td>
<td>Point to the snack table and ask her to walk to the center. Provide support with one hand or with toy walker if needed.</td>
</tr>
<tr>
<td><strong>Story time</strong></td>
<td>Point to where the story is going to be read and ask her to walk to it. Provide support with one hand or with toy walker if needed</td>
</tr>
<tr>
<td><strong>Departure</strong></td>
<td>Tell her it’s time to go home. Point to the door and ask her to walk to the door to meet her parent. Provide support with one hand or with toy walker if needed.</td>
</tr>
</tbody>
</table>
How did Tania’s experience in the early care and education program turn out so well? The challenge for her teacher and other team members was to effectively integrate intervention strategies targeting her developmental outcomes into toddler room routines. Ellen’s role as an intervention specialist included collaborating with Janelle to share ideas that worked so that Tania’s family could implement the recommended interventions at home and her other natural environments. She was committed to supporting open conversation between home and school to provide a solid base for Tania’s transition and development.

As an intervention specialist, Ellen supported the consistency of interventions between home and center routines. For instance, because Tania was learning to use a spoon to eat soft solids, Ellen made sure parents and teachers knew that everyone who fed her at home or center should use Tania’s bowls, spoons, and plastic mat to limit the predictable mess as she practiced self-feeding.

**Tania’s Routines-By-Outcomes Matrix**

Ellen shared several versions of a Routines-By-Outcomes Matrix with Janelle to determine which format would be most helpful for embedding her interventions into daily class routines. Table 2 is the matrix format they used. Janelle and Ellen tried to be creative in embedding skills practice across routines for each outcome that could be reasonably addressed in that activity. Tania’s matrix served as a reference for information that made it easy for Janelle and program staff to embed her developmental interventions consistently into their daily schedule.

**Tania’s Progress Review**

Tania’s IFSP team decided to review her progress after she got settled in the early care and education center and to discuss any changes needed. Three months after she started in the toddler room, they met during lunchtime at the center so Tania’s father and Janelle could attend.

Everyone agreed Tania had reached her goals related to feeding herself soft foods with a spoon and increasing her responsive communication. She had not made progress in cruising or walking to where she wanted to go.

The team updated her IFSP to address Tania’s mobility outcomes by having a physical therapist join her service team to work with her at home and in the center to demonstrate how to facilitate her movements. They identified new outcomes for Tania’s communication and fine-motor functional skills. Ellen and Janelle updated Tania’s Routines-By-Outcome Matrix with new outcomes in collaboration with the physical therapist who was added to Tania’s IFSP team.

**Conclusion**

Embedding early intervention activities into routines and activities of early care and education programs can result in increased skill development for young children with special needs or developmental delays. Using established program routines in which to embed early intervention is supported by research and evidence-based practice.

Routines-based interventions in early childhood programs are supported by best practices identified by the National Association for the Education of Young Children (Copple & Bredekamp, 2009) and the Division of Early Childhood of the Council for Exceptional Children (Sandall, Hemmeter, Smith, & McLean, 2005). These statements support practice validity for this approach in early childhood programs.
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Mary Frances Hanline, Ph.D., is a Professor in the School of Teacher Education at Florida State University in Tallahassee. She has more than 25 years of experience with university teaching and research in early childhood special education. Hanline coordinates the Early Childhood Special Education programs at FSU. Her research interests include play-based intervention, inclusion, and supports to young learners with severe disabilities in high-quality inclusive early childhood programs.

Juliann J. Woods, Ph.D., CCC-SLP, is a Professor in the Department of Communication Science and Disorders at Florida State University in Tallahassee. She teaches and conducts research in early communication development and intervention, family-centered services, and intervention in natural environments. Woods is currently directing research and demonstration projects in family-guided routines, intervention with young children with autism spectrum disorders, coaching caregivers, and strategies to enhance effectiveness and generalization of family-implemented interventions.
Sandall is an Associate Professor of Special Education and Program Director of Early Childhood and Family Studies at the University of Washington. Schwartz is a Professor of Special Education and Director of the Experimental Education unit at the University of Washington.

Their book is a framework built on research findings from successful educational practices in inclusive early childhood settings. The authors use evidence-based practice to guide the reader through the use of Embedded Learning Opportunities for all children. Routines offer great opportunities for systematic instructional interjections that are salient to a child’s learning objectives. These sound like simple tricks of the “teaching trade;” however, the authors emphasize children’s learning is based on teacher planning. If teachers fail to plan, children will not be competent learners.

Practitioners using this source may pick and choose adaptations to fit each child’s abilities. The book’s second edition partners well with The Creative Curriculum, HighScope, and AEPS Curriculum Three to Six Years. The curriculum modifications guide in chapter 5 is a definite strength of the book for teachers who are constantly modifying curriculum to meet learners’ needs. The authors include many useful documents to assist classroom teachers to identify, plan, and use strategies for meaningful learning experiences within a preschool classroom without the cost of additional resources. This chapter highlights opportunities for teacher to make modifications: in the environment, with materials, within activities, adult support, peer support, invisible support, and special equipment.

The authors mine curriculum modifications by activity and routine while never forgetting about their target audience. They even offer lines for readers to make notes. The authors encourage readers to apply suggestions for improvement by first making observations and then writing down reflections.

Blank forms located in Appendix A are also an outstanding resource for all teachers. With the implementation of universal pre-K, many early childhood teachers have been thrust into inclusive environments in which they have little or no experience. Building Blocks can be an immediate aid to all teachers interpreting Part C, Part B, Section 619, of the Individuals with Disabilities Education Improvement Act (IDEA) of 2004 (PL 108-446). With ever-increasing accountability expectations, Building Blocks offers a refreshing tool of practicality for the teaching tool belt!
Understanding a story is an active process, whether children have listened to it being read aloud or, when they are older and read it for themselves. When children grasp a story, they

- attend to what is important,
- anticipate what is to come, and
- build meaningful patterns from the many details.

These active interactions with a story can be called habits of the mind. They involve both a disposition to engage with a story and the mental skills needed to make sense of its meaning.

Like many dispositions and skills, reading for understanding grows stronger when it is regularly exercised. When used intentionally, story time can build habits of the mind that help young children interact with texts in active and purposeful ways. In particular, story time is a natural context for alerting children to story structure, using graphic organizers, and asking skillful questions. This article will discuss how these three strategies can build in children some habits of the mind needed to understand stories that they hear, and that they will soon read for themselves.

Important Elements of Story Reading

Story time, a natural context for making meaning, is an important experience for the children who are listening. Comprehension is the heart of reading and listening. Comprehension involves “the process of simultaneously extracting and constructing meaning” (Sweet & Snow, 2003, p. 1).

At story time, the pleasure of a good tale gives children a reason to interact with a text, and that pleasure can then lead them to think about what they are hearing. When children experience a story, they do far more than just understand each word, important as that is. They also build a mental picture of the characters and events, often filling in the logical but unexpressed connections.

Because it puts listeners so intimately in touch with the story, “reading aloud to/with children can begin to develop skills and strategies that lead to comprehension of texts required of competent readers and writers” (Combs, 2006, p. 137). As young children learn to listen to stories with understanding, they practice skills that will also help them to read stories with understanding.
While the research on the effects of reading aloud to children is mixed, teachers are urged to use an interactive approach, noting that in order to get the greatest benefits, “the way books are shared with children matters” (McGee & Schickedanz, 2007, p. 742).

Often research on this topic uses the term interactive shared book reading to describe an engaging approach to read-alouds. In this approach, not only do teachers read the story aloud, often to a small group, but they also use “a variety of techniques to engage the children in the text” (What Works Clearinghouse, 2007). The National Early Literacy Panel also emphasizes the importance of interaction when reading aloud to young children (Shanahan & Lonigan, 2010).

At a more theoretical level, the interactive approach to reading aloud exemplifies Vygotsky’s emphasis on the zone of proximal development; in sharing a story this way, the adult scaffolds the children’s experience, leading them to an understanding they could not achieve on their own (Vygotsky, 1978).

Sharing a story interactively can take many forms, including using story structure, graphic organizers, and open-ended questions. Literacy research suggests that teaching story structure is powerful (Adler, 2001).

Story structure, also called story grammar, refers to the predictable elements that make up most stories: characters and setting, as well as a plot that involves some sort of problem, and its resolution.

Familiarity with story structure is likely to help build comprehension because it provides children with a mental map they can use to organize all the details of a story that they read or heard (Garner & Bochna, 2004). It is also good practice to provide young children with experiences that are as concrete as possible, something that is especially important when dealing with ideas as abstract as story elements. Graphic organizers are “an effective way to teach concepts and to engage children” (Bredekamp, 2011, p. 282). Graphic organizers that are suitable for young children include story maps, T-charts, and simple timelines.

A teacher’s questions help children build understanding of texts. Answering questions about a story helps make reading and listening more purposeful by focusing children’s attention on the task, and it provides an opportunity to “review the content and relate what they have learned to what they already know” (Adler, 2001, p. 3). In this article, the use of questions, particularly open-ended ones, is embedded in the discussion of story grammar and graphic organizers.

Teaching Strategies

These three strategies for building comprehension—story structure, graphic organizers, and open-ended questions—can be applied to many simple picture books, including Sit, Truman! (Harper, 2001), which is featured here with Mrs. Ortiz, a teacher of 4-year-olds. The book takes readers through a day with
Truman, a beloved but troublesome pet. The entire story is told through the commands of the faceless and hapless owner as he tries to civilize his enormous dog. Because of his size, this well-intentioned but ill-mannered puppy overpowers the house. Through the exasperated commands of his owner, children learn that Truman drinks from the toilet, steals food, and strains on his leash, all while drooling.

Truman’s struggles to fit into the household mirror the struggles of young children as they learn to adapt to adult expectations. Despite all these problems, Truman learns. The illustrations in Sit, Truman! show how powerfully pictures can contribute to the meaning of a story, especially for preschoolers (Evans & Saint-Aubin, 2005).

This story works well for teaching story grammar because it draws upon children’s knowledge of families and makes it easier for them to visualize the characters and setting and to predict events in the plot. The witty pictures introduce a family, including the owner, a sophisticated and somewhat superior cat, and Oscar, the little dog who never does anything wrong. Children can identify with this cast of characters because they illustrate common family dynamics.

### Introduce New Vocabulary

Before reading a story, skilled teachers like Mrs. Ortiz usually introduce new vocabulary. For Sit, Truman! two words may lend themselves well to direct teaching before reading—the name of the character, Truman, and an adjective for his size, enormous. Mrs. Ortiz introduces the dog’s name by showing the book cover and asking children who they think Truman is. Several children are likely to figure out that the word is the name of the dog that fills the cover.

To introduce enormous, Mrs. Ortiz asks children to help her make a list of all of the words they can think of that mean really big. Huge, gigantic, and immense are suggested, as well as enormous. If it had not been mentioned, Mrs. Ortiz adds this word to the list and explains that all of these words mean really big.

In contrast, Mrs. Ortiz handles the word drooling a little differently by using a strategy called “turn and talk” (Pinnell & Fountas, 2011, p. 118). She points to the title page’s picture where Truman is obviously drooling and poses an open-ended question such as, “What is Truman doing in this picture? Turn and talk to your neighbor about what you see.” After the children’s brief discussions, many of which use terms like slobbering or dribbling, she explains that the book uses another word that means the same thing, drooling.

### Identify Problems and Solutions

Next, Mrs. Ortiz introduces the ideas of problems and solutions. These concepts and the words that represent them are abstract. As a result, it is often helpful to stage a hypothetical but concrete problem. For example, Mrs. Ortiz might deliberately find a marker with no cap. She could then react to the situation first by saying “Oh, we have a problem!” and then ask the children to name the problem and suggest how it could be solved. By deliberately creating teachable moments like this, teachers promote children’s understanding of the words problem and solution, two abstract terms that are essential to grasping the nature of story grammar.

### Focus on Pictures and Make Predictions

The next strategy is to guide children to notice the book’s cover and title. As part of a brief review of the illustrations, or picture walk, probe for prior knowledge about pets and review newly introduced vocabulary.
While holding the book to show the cover page, pause for another turn and talk activity. This time, Mrs. Ortiz asks, “What do you think this story is about?” After the children have briefly talked to a neighbor, one response might be, “Yes, it is about a dog and the dog is named Truman.”

The teacher then opens the book to the title page and asks, “What size of dog do you think Truman is?” She pauses to give children time to recall the new word, and then confirms their responses by saying, “Yes, he is a very big dog. In fact, we might say Truman is enormous.”

At this stage, Mrs. Ortiz might return to the notion of a story’s problem by asking, “What do you think Truman’s problem could be?” Many children will likely note the drool emerging from Truman’s mouth. Some will have had first-hand experience with drool and make more comments, perhaps about a younger sibling. When asked if they have seen a dog that drools, the children are likely to have many answers. As part of this conversation, it is helpful to turn to the “Truman, stop drooling” page. The illustration there shows a human hand wiping up Truman’s mess. The illustration sets the stage for the children to talk not only about a problem, but also about one solution to it.

**Ask Purposeful Questions During the Story**

During the actual read-aloud, Mrs. Ortiz returns often to the pictures, posing thoughtful questions that emphasize different parts of story grammar. The pages in Harper’s book are not numbered. One page that would work well for this purpose is the page that comes immediately after the title page. The text says “Truman, sit!” and the picture shows Truman’s owner with all his pets gathered around him in the kitchen. Mrs. Ortiz takes the opportunity to ask purposeful questions about character and setting such as these:

- What people and animals are in this family?
- What room are they in?
- What do you think the family members are like?
- What things remind you of your home?

In addition to directing attention to aspects of story grammar, these questions are a mix of open-ended and closed ones. In particular, the open-ended questions prompt thought and language development. Some questions, particularly the first two on the list, might be posed to the entire group. Because they are closed questions, the answers will be quick and mostly predictable. In contrast either of the two open-ended questions would be suitable for a turn-and-talk experience because the children will want to explain their ideas.

**Attend to Story Structure**

The lynchpin of most plots is the main character’s problem and attempt to solve it. Helping children become sensitive to the problem/solution pattern is an important step in teaching about story structure.

Now that the children in the example with Mrs. Ortiz are becoming familiar with the story and its main character, she may well return to her earlier question, “What is Truman’s problem?” As the children respond, the story will naturally be retold. However, by asking about Truman’s problem, the teacher highlights story structure to frame what would otherwise be a simple retelling.

Truman has a mass of problems, a laundry list of personal needs that children will readily identify. They typically note his enormous size, his poor hygiene, and his constant drool. They will giggle that he drinks and eats where he shouldn’t, steals toys, and jumps on humans. Some will even notice that he can’t heel or fetch and often sticks his nose where it doesn’t belong. Harper gives Truman so many problems that every child is likely to notice at least a few.

To enhance children’s understanding, Mrs. Ortiz asks the logical question, “How does Truman solve his problems?” The answer appears on the last page of the story. Truman goes to sleep and is no longer causing chaos in the house. Some children will even notice the thematic point that every new day is a new beginning.

The text on the book’s last page, as on every other page, is just one sentence long: “Good boy, Truman!” But for the first time in the story, the text is not a command or a reprimand. Finally, Truman receives praise. The picture, which spreads across two pages, tells it all. Truman is curled up on his bed, asleep with the smaller dog, Oscar. Bedtime fixes everything. Most children will be able to identify this problem and solution. In addition, they will likely empathize with Truman.
Making these personal connections with the character and the story, what Keene and Zimmermann (2007) call text-to-self connections, can help children remember the academic point about problems and solutions in stories.

Make Ideas Visible With Graphic Organizers

Teachers who use graphic organizers after interactive read-alouds help solidify what children are learning about story grammar. Because they help make ideas visible, graphic organizers lend themselves especially well to the teaching of reading or listening comprehension. They are also powerful tools for organizing information because they make the relationships among ideas concrete.

Teachers implement organizers of various styles and increasing complexity throughout a student’s education, so an ability to use graphic organizers is a life-long skill. In a world that has become increasingly dependent upon icons and images, people are both consumers and producers of graphic organizers. For example, the joint statement of the International Reading Association and the National Council of Teachers of English points to viewing and representing as two of the essential language arts, along with the arts of reading, writing, speaking, and listening (International Reading Association & National Council of Teachers of English, 1996).

For very young children, simple graphic organizers are the obvious choice. Teachers can engage young children both in understanding graphic organizers produced by adults and in creating organizers for themselves (Bredekamp, 2011).

T-Chart

Many teachers choose to introduce children to graphic organizers by addressing only a single narrative element, perhaps characters. For example, a simple graphic organizer such as the T-chart (see Figure 1) can be built around a question about a character such as, “Do you think Truman is polite?” The same format can and should be used repeatedly on other occasions to deal with other aspects of story grammar, particularly setting.

At the top of chart paper, write a simple yes/no question, in this case, “Is Truman polite?” Then fold the paper vertically to create two columns, one headed with Yes and the other with No. On this Yes/No-chart, the children’s pictures and/or names can be placed below the column representing their answer to the question. Reusable cards with both the picture and the name of each child work well for this type of graphic organizer. Not only do the children get the benefit of helping to make a T-chart, they also are encouraged to read their own name.

Webs as Story Maps

A more sophisticated type of graphic organizer is a web, which might be used to illustrate the major elements of story grammar: characters, setting, problem, and solution. For Sit, Truman!, a web resembling a doghouse is thematically appropriate (see Figure 2).

To create this graphic organizer, use a large piece of chart paper with the top corners folded toward the middle to resemble a roof on a doghouse. Divide the remainder of the chart paper into four boxes (or rooms) for each of the parts of story grammar: characters, setting, problem, and solution. Ask the children to draw pictures in each portion of...
the chart for these story grammar parts, and add appropriate labels.

**Timelines and Venn diagrams**

Graphic organizers should suit the teaching purpose and pattern of the book. Timelines (see Figure 3) and Venn diagrams (see Figure 4) are graphic organizers commonly used with young children; however, they are less directly applicable to *Sit, Truman!* than the T-chart and the web.

Timelines can support almost any retelling, but they are most effective with texts that have a strongly sequential pattern. For example, after reading a version of the old nursery counting rhyme, *Over in the Meadow* (Galdone, 1986; Wadsworth, 2002), children can use simple picture cards representing each character and the number associated with the character, such as one turtle, two frogs, or three beavers. Encourage children to help make these cards. Children then place the cards in the appropriate order. A pocket chart, chalkboard ledge, or even the floor can be used to hold the cards.

A Venn diagram is ideal for helping children visualize how relationships compare and contrast in simple stories such as a *Corduroy* (Freeman, 1968) or *Where’s My Teddy?* (Alborough, 1994).

After reading a book about a teddy bear, the teacher asks children if they have pets. As the conversation continues, write key phrases on cards about the children’s pets. Then place two plastic hoops on the floor or make intersecting circles with masking tape. Label the first hoop “Our Pets” and the second hoop “Teddy Bear.”

As the children discuss their pets, the word and/or picture cards describing only their pets go in the Our Pets hoop. As the children talk about the teddy bear in the story, the teacher records key words about the teddy bear. For example, in the Our Pets hoop, the word *living* might describe the pet whereas in the Teddy Bear hoop, the words *non-living* or *pretend* might describe the teddy bear. A card that might fall into the overlapping section of the hoops might be two eyes.

In a follow-up discussion, teachers can help children see likenesses and differences between the two categories. For young children, the conversation that ensues can be just...
as important as the words that are placed in the diagram. Intentionally use rich vocabulary to scaffold the children’s learning of new words.

**Literacy Extensions**

*Sit, Truman!* has many possibilities for meaningful literacy extensions.

- **Class-made book** on responsible pet ownership. What a natural follow-up to the repeated reading and discussion about the pets in *Sit, Truman!*
- **Art center.** Children paint pictures of their pets, find pictures of pets in magazines, and use modeling compound to form pet sculptures.
- **Pet-themed dramatic play** with stuffed animals, a cardboard box to turn into a doghouse, pet toys, and dog care items such as a collar and a leash, a comb and brush, dog bowls, dog tags, and lots of books about dogs. Pet food containers and boxes both provide environmental print and suggest children’s homes.
- **Veterinary clinic.** Literacy items for dramatic play may include a clipboard for calling patients into the clinic and notepads for prescription writing. Leashes and collars, pet tags, and stuffed animals for patients give more realism to the setting. A rebus picture chart of children’s drawings of pet-related words such as *dog, cat, bowl, food, leash, and collar* affords a viable opportunity for drawing and writing words for the center.

*     *     *

**In this article* Sit, Truman!* was used to illustrate how open-ended questions can make a read-aloud more interactive and engaging. Teachers of young children can also promote comprehension by introducing story structure and graphic organizers. By applying these teaching strategies in the meaningful context of story time, teachers have the opportunity to build habits of the mind that promote both reading and listening comprehension. The interactions a teacher chooses during story time can help young children see patterns within a story and actively create meaning. By embedding this teaching of comprehension strategies in the magic of a story, teachers can also make the reading experience a joyful one.

**Figure 4. Venn diagram for Where’s My Teddy?**

Use graphic organizers after interactive read-alouds to help solidify what children are learning about story grammar. Graphic organizers lend themselves especially well to the teaching of reading or listening comprehension. They also make the relationships among ideas concrete.
References


About the Authors

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Susan Hall, Ph.D., is a Professor of Education at the University of the Incarnate Word in San Antonio, Texas, where she is the Director of the Center for Teaching and Learning. Together, Hall and Moore have authored numerous articles on early literacy and children’s play.
A Sick Day for Amos McGee
Written by Philip C. Stead. Illustrated by Erin E. Stead.

This book tracks the day of a zookeeper, Amos McGee, and his visits with all of his animal friends. He follows a specific routine each day, taking time to play chess with the elephant, race the tortoise, sit with the penguin, lend a handkerchief to a rhino, and read stories to an owl. When his routine is disrupted by the sniffles, sneezes, and chills, Mr. McGee's animals decide to catch the bus to spend the day with him instead.

This heartwarming story of compassion for one another follows a repetitive pattern that children will love. The Caldecott award-winning illustrations add to the book's appeal.

Classroom Ideas!
A Sick Day for Amos McGee is an excellent book to teach children about caring for one another, daily routines, patterning, and emergent literacy skills.

LITERACY: In small or large groups, guide children through comprehension strategies—predict, question, clarify, and summarize—during a read-aloud. Use one of the graphic organizers identified in the Moore and Hall article to represent children’s ideas.

ART: Display pictures of various animals from the story in the art center. Children create their own illustrations related to vocabulary found in the story.

SOCIAL/EMOTIONAL SKILLS: Teach children about the predictable routine of the classroom schedule and caring for one another. After reading the book, provide props for children to act out how Amos cares for his friends. Role play ways children may care for one another.

MATH: Show images from the story to create the predictable pattern Mr. McGee follows each day. Then discuss how the pattern changes on his sick day. Offer additional manipulatives for children to create their own patterns.

PRETEND PLAY: Create a zoo theme for dramatic play. Include stuffed animals represented in the story so children may act it out after a read-aloud. Be sure to display the book so children may use it as a reference for their play.

SCIENCE: This book portrays fantasy interactions among a zookeeper and animals. Find nonfiction texts about each of the animals represented in the story so children may learn facts about how these animals really live and interact in their natural habitats.

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Music and Movement for
Young Children’s Healthy
Development

What music and movement activities are appropriate for toddlers and preschool children? This article offers practical curriculum ideas and useful Websites for teachers and families.

Satomi Izumi-Taylor,
Vivian Gunn Morris,
Cathy D. Meredith,
and Claire Hicks

Upon entering his preschool classroom and hearing music, Elijah began bouncing up and down in place and said, “This is how we dance at home!” Nathan joined in with his break dancing. Soon, everyone in the classroom started to dance to the music, including the teachers.

Young children enjoy moving around when they hear music. Children take pleasure in physical activities that contribute to their healthy development. Physical activities are vital to retain healthy bodies, and inactivity is one cause of obesity in young children (Dow, 2010; Izumi-Taylor & Morris, 2007).

Importance of Physical Activity

In today’s mechanized society, children’s lives are much more sedentary than those of their parents and grandparents (Pica, 2010; Stewart & Phillips, 1992). Several factors contribute to the decrease in children’s physical activities, such as hurried adult schedules, societal changes including consumption of fatty foods and larger portion sizes, development of technology that makes daily living less physical (Anderson & Butcher, 2006), increases in academic pressures, and a decrease in safe outdoor play spaces (Rogers & Taylor, 1999). Children rarely experience enough outdoor play and spend a great deal of time playing indoors with computer games or watching television (Anderson & Butcher, 2006; Caprio, 2006). All of these factors contribute to their risk for obesity.

Childhood obesity is now recognized not only as a major health problem in the United States, but also as a national epidemic (Caprio, 2006; Sorte & Daeschel, 2006). The rate of obesity is rapidly increasing even among babies and toddlers. Factors that may predispose children to obesity sometimes begin to affect children within their first 3 years of life (Lumeng, 2009).

Children who are obese are at risk for some of the same health conditions as obese adolescents and adults:
• diabetes 2,
• liver disease,
• high cholesterol, and
• high blood pressure,
all of which are risk factors that contribute to heart disease and stroke (NIHCM, 2004). Because of growing concern for these risk factors, medical care providers have begun checking children at age 3 for high blood pressure during routine office visits. Addressing this issue at a young age has become a high priority (NIHCM, 2004).
Overweight children are affected academically, behaviorally, and physically (Datar, Sturm, & Magnabosco, 2004). Children who are overweight have significantly lower test scores in math and reading than do their non-overweight peers. The researchers further report that childhood obesity has been associated with several immediate health risk factors, including orthopedic, pulmonary, gastrointestinal, and endocrine conditions. Obesity also has psychological effects. Low self-esteem and depression tend to result when children are overweight (Marotz, Cross, & Rush, 2005; NIHCM, 2004).

To fight obesity, the U.S. Department of Health and Human Services recommends that all children 2 years of age and older get at least 60 minutes of active physical exercise on most days (2005). However, the U.S. Department of Education reports that many elementary school children receive only 15 minutes of recess or fewer (Santa, 2009). For many children, school is the main environment for being active (Bailey, 2006). School is the primary place for children to participate in physical activities and learn about physical development.

For these reasons, movement and physical activities need to be a daily component of learning in all early childhood programs and elementary schools. Children learn by doing, so teachers are encouraged to find ways for children to experience all content areas in the curriculum in a physical way. Not only does this integration aid children's learning, but it also promotes physical fitness and active living (Pica, 2009).

What Can Schools Do?

Increase Children’s Physical Activity

Childhood obesity has been linked to inactivity at home and school, unwholesome food, and school vending machines (Cline, Spradlin, & Plucker, 2005). Young children need to engage in daily physical activities in order to use calories, to maintain muscle tissue, to develop coordination skills, and to learn to express themselves as well as to develop social skills (Aronson, 2002).

Many items found in school vending machines are of minimal nutritional value and may be high in calories as well. Items that may contribute to childhood obesity include “soft drinks and fruit drinks containing large amounts of sugar; foods of high energy and low nutrient density, such as chocolate; chewing gum and candy; and chips or other salty snacks” (Cline, Spradlin, & Plucker, 2005, p. 3).

A change in school policies with regard to physical education (PE) may be part of the solution. Scheduling “one additional hour of physical education in first grade compared with the time allowed for physical education in kindergarten” (p. 1501) reduced BMI (body mass index) for girls who were overweight,
or were at risk for becoming overweight, in kindergarten (Datar & Sturm, 2004).

Therefore, increasing PE time to allow kindergartners to have at least 5 hours of activity per week could potentially decrease the occurrence of overweight girls in first grade by about 4% (Datar & Sturm, 2004). On the other hand, the effect of increasing PE for overweight boys by the same level was much smaller than for girls (Datar & Sturm, 2004).

Movement also provides children with opportunities to learn about themselves, the environment, and other people around them (Curtis, 1982; Parlakian & Lerner, 2010). Early childhood educators can create an authentic learning environment that encourages children's imagination and fantasy through the use of music and movement activities (Edwards, Bayless, & Ramsey, 2009).

An authentic environment refers to a setting where children can play and explore freely and be safe. In such an environment, teachers and families implement play activities that encourage children's imagination and fantasy through the use of music and movement activities (Edwards, Bayless, & Ramsey, 2009).

The curriculum guidelines set by the National Association for Music Education (1994) for young children delineate that children should have ample opportunities to experience music as they • sing, • move, • listen, and • play musical instruments.

Additionally, teachers are urged to provide children with opportunities to verbalize and to visualize musical and play-related activities, such as • chanting, • imitating sounds, • rocking, • patting, • touching, and • moving.

Young children benefit by experiencing music through their senses of hearing and feeling, as well as by experimenting with their vocalizations (Edwards, Bayless, & Ramsey, 2009).

Early childhood educators also help children learn about the importance of healthy lifestyles (Sorte & Daeschel, 2006). Teaching children healthy habits is vital to maintain healthy weights and build strong muscles. Encouraging children to engage in movement activities with music can help them appreciate the importance of vigorous physical activity and eating healthy foods.

Because music naturally enhances a curriculum and environment by providing energy, life, joy, and playfulness (Kieff & Casbergue, 2000), here are some ideas on how to implement music and movement activities for preschoolers.

**Integrate Music and Movement Activities**

Teachers and family members teach toddlers and preschoolers about healthy habits when they set a good example and • provide children with abundant opportunities to eat healthy food, • include children in healthy cooking activities, • talk with children about how their bodies are growing and the importance of physical activity, and • encourage them to build their physical motor skills (Sorte & Daeschel, 2006).

Young children are likely to participate at different levels in music and movement activities. Some preschoolers may just listen to music, some may just observe others’ movements, and others may join in the activity (Humpal & Wolf, 2003).
The most compelling music and movement activities are enjoyable and voluntary so that all children can appreciate the joy and beauty of the experience for its own sake. When teachers offer intriguing activities to children daily, reluctant children are likely to join in over time.

Children’s early experiences with movement activities influence their later knowledge, concept development, skills, and attitudes (Isenberg & Jalongo, 2001), so selecting appropriate teaching strategies is critical. See the sidebar for tips on how one preschool teacher with a small playground manages to incorporate children’s daily physical activities.

Music is joyful and predictable, as well as nonjudgmental and noncompetitive (Humpal & Wolf, 2003). Some teachers may say, “I don’t sing to the children in my classroom because I can’t sing.” Rest assured that it is not musical talent that teachers need to worry about, but rather the importance of embedding children’s music experiences in the classroom (Isenberg & Jalongo, 2001).

In one preschool, teachers believed that music and movement were very important components of early childhood education, so they arranged their classrooms with a music center that included:

- an MP3 player
- rhythm instruments
- illustrated music books
- song charts with pictures to help with the words
- keyboard
- scarves

Sometimes the children and teachers record their singing and music making. They listen to themselves with rapt attention and excitement. About twice a year, the teacher and children invite family members to come to their “concert and dance presentations.”

Here are a few more suggestions for teachers and families to enjoy moving and music together.

Sing using adults’ own voices (Isenberg & Jalongo, 2001). Live music is so much more compelling! Teachers and families can practice songs to get more comfortable with the tunes and words (Kieff & Casbergue, 2000). Then ask children to join in the singing.

Choose developmentally appropriate songs (Ringgenberg, 2003). Observe children’s reactions to music. In a Head Start classroom, children were watching a slide show of photos of themselves. Two children began crying. When asked why they were crying, they independently both said, “Because it’s sad.” So a volunteer asked, “Why are the pictures so sad?” The children explained that it was not the photos but the background music (“Memory” from the musical “Cats”) that was so sad. The music was changed immediately!

Teachers are urged to talk with children’s family members to find out what kind of music and movement they share at home. Ask families to teach the group favorite songs, play traditional instruments, or dance steps from their heritage.

Active songs and games that are usually popular include: Hokey Pokey, Pop Goes the Weasel, If You’re Happy and You Know It Clap Your Hands…, Ring Around the Roses, Mulberry Bush, Lost My Handkerchief, Musical Chairs, Duck Duck Goose, Happy School Song, I Caught a Fish, Mama Kangaroo, Mr. Turkey, Ten Little Frogs, Six Little Ducks, and Two Little Blackbirds.

Use simple instruments to promote young children’s participation in music and movement (Isenberg & Jalongo, 2001; Pica, 2010). Involve children in making their own shakers (see sidebar on p. 38). Children can march down the hall and around the playground playing instruments.

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**Delores Makes the Most of a Small Playground**

Delores is a lead teacher in an urban preschool. She wants to make certain that the children in her classroom experience the amount of physical activity required for healthy development.

Her center has a small fenced playground that can only accommodate 13 children at a time. Many of the children live in neighborhoods with unsafe playgrounds, so outside play in fresh air during the day is very important.

Consequently, Delores provides outside playtime for her class even during cold or hot weather. When it is rainy, children play on tumbling mats and dance vigorously in a large former dining room. Music and singing are regular components of both indoor and outdoor activities.

Because the center has a bus, the group makes weekly excursions to well-equipped playgrounds in the city’s park system. They take along sidewalk chalk, balls, hoops, and sunscreen.

During the week of one July 4th, children made musical instruments and hats. They sang and drummed patriotic songs as they marched around a city block.

All summer long, children participate in outdoor activities in their swimsuits. They play games in small swimming pools. They splash water and blow bubbles in water tables. They carry buckets of sand, mud, and water from one area to another. They “paint” sidewalks and fences with water and large paintbrushes. They sweep the sidewalk with brooms and climb through recycled tires that have holes drilled in them to let water escape. The children also play active outdoor games while listening to music.

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**Insert Delores Makes the Most of a Small Playground**

Dimensions of Early Childhood
such as triangles, bells, maracas, and tambourines. Kitchen gadgets, such as wooden spoons, make good drum or rhythm sticks. Recycled pan lids are perfect cymbals. Teachers and families alike can be creative when it comes to making music!

**Provide enough room** for toddlers and preschoolers to move. Carefully arrange space for children to explore and move around so that their music and movement experiences are positive and creative. For toddlers, creatively structure the environment so that they can move around freely and safely (Curtis, 1982). Suggest spaces for physical activities by laying out large mats, for example, to help them find a suitable spot (Edwards, Bayless, & Ramsey, 2009).

**Invite families** to play musical instruments, sing songs, or teach traditional dance steps with children. Record the music and make enough copies for children to take home. Use this recorded music for dancing, too.

**Read books related to music, dance, and play.** One preschool teacher read *The Big Bug Ball* (1999). Children asked if they could act out the story while dancing to music. They made their own costumes in the colors of different bugs, selected their favorite music and instruments, and started dancing. The teacher took pictures and showed them to the children and their families. Later, children drew pictures of their experiences and created a book about their work.

**Be an advocate.** Talk to school administrators and families about how vigorous physical activities can prevent children’s obesity and support healthy development (Edwards, Bayless, & Ramsey, 2009). Focus on the importance of eating healthy food, engaging in outdoor and indoor active play, and modeling active, healthy habits for children.

**Use technology** to get families involved in children’s activities at home and in school. At one preschool, a video camera setup enables families to observe the children’s daily activities. Families can talk to their children about their daily activities at home. Children are usually delighted that their families are familiar with songs and movements from school.

**Websites for Teachers**

**Music and early childhood development**
http://www.amc-music.com/maecf.htm

**Vigorous movement**
http://artsedge.kennedy-center.org
www.movingandlearning.com
www.naeyc.org/tyc/missjackie
www.aahperd.org/nda

**Healthy eating habits**
www.cdc.gov/nccdphp/dnpa/obesity/defining.htm
www.choosemyplate.gov
http://www.nature.com/oby/journal/v12/n1/pdf/oby20049a.pdf
Keep activities short. Toddlers usually stay engaged for about 10 minutes (Miller, 2005). Scarves, instruments, and other props are likely to maintain their interest longer.

When preschool children are active, they sometimes can be engrossed for long periods of time. In a Head Start program, a visiting teacher from Africa played drums, wrapped scarves around their heads and shoulders, balanced baskets on their heads, and danced with children for most of the morning. Encourage children to participate but respect their choice of level and length of involvement. Some may wander in and out several times.

Use the direct approach, which includes modeling, demonstrating, and imitating, when implementing music and movement activities for preschoolers (Edwards, Bayless, & Ramsey, 2009). Nursery rhymes and fingerplays are enjoyable and fun. Some examples are Simon Says, Follow the Leader, Where is Thumbkin?, Rain Rain Go Away, One Potato, Pussy Cat Pussy Cat, Five Little Monkeys Jumping on the Bed, Head and Shoulders 1 2 3, Mother May I?, Teddy Bear Teddy Bear Turn Around, and Funky Penguin.

Integrated music and movement activities are components of a high-quality early childhood education curriculum. When teachers and family members understand how to provide appropriate physical activities, children experience the joy of music and movement. These activities offer daily opportunities for children to develop and learn in authentic environments with careful attention by adults.

Subject: & Predicates

The most compelling music and movement activities are enjoyable and voluntary so that all children can appreciate the joy and beauty of the experience for its own sake. When teachers offer intriguing activities to children daily, reluctant children are likely to join in over time.

Make Music Shakers With Preschoolers

1. Ask families to save appropriate sizes of recycled, safe, clean, empty containers such as plastic coffee cans, water bottles, paper towel rolls, and oatmeal boxes.
2. Ask children and families to help collect small recycled materials such as pebbles, shells, sand, outdated seeds, and buttons.
4. Children decorate the outside of their shakers with construction paper, markers, feathers, and other art supplies.
5. Have fun making music and moving together!

References

Music and Movement for Young Children’s Healthy Development


**About the Authors**

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Alligators wiggle, giraffes bend, gorillas thump, and monkeys wave their arms. The interactive dialogue asks, “Can you do it?” The fun-filled, confidence-building response is “I can do it!” A variety of colorful cut-paper collages of familiar animals and diverse children invite infants, toddlers, preschoolers, and early school-aged children to move and play individually or as a group. There is no story, but the repetition of a simple vocabulary and movement covering body parts and familiar animal names makes the book accessible to early readers as well.

También, este libro divertido interactivo está disponible en español. En De la cabeza a los pies, como este libro en inglés, los movimientos sugeridos han sido cuidadosamente escogidos de manera que sirvan como ejercicios para cada una de las partes del cuerpo. Un pingüino puede girar la cabeza, o un loro puede mover los dedos de pies. Siguiente es una invitación “¿Puede hacerlo?” “¡Yo puedo hacerlo!” Es como si Eric Carle dijera a su manera, “Ven a jugar conmigo”.

Books about animals are delightful ways to explore various ways of moving, indoors and outdoors. Make the most of the space and resources available with these ideas!

**LITERACY:** Go to Mister Rogers’ Neighborhood at PBSKids.org to see Eric Carle read *From Head to Toe* to Mister Rogers. Recommend this to families. Ask children to recreate or expand the story. Take photographs of children as they write and draw to put in the literacy center. Ask families to read the story in their home languages and record it for children at school.

**MOVEMENT & MUSIC:** Read the book with a mirror. Encourage children to mimic the actions. Video the action to watch and imitate again and again. Think of other animals and how they might move. Find music that is reminiscent of each animal’s movements.

**MATH:** With older children, estimate distances or speeds that animals move. Graph them. Run outdoors, pretending to go at the speeds of the animals.

**HEALTH AND SAFETY:** At home or school, refer to books and Websites that show how bones and muscles work together to move. Talk about foods that help muscles and bones grow strong.

**PRETEND PLAY:** Provide materials to create a veterinarian’s office in the pretend play area or construct a wildlife conservation workers’ truck in a huge recycled cardboard box.

**ART:** Children use recycled materials to construct animals. Children can create dioramas in recycled boxes to show animals’ natural habitats. To make end sheets for their original storybooks, children tear colored tissue paper and glue it to large sheets.

Jorja Davis is a retired classroom teacher and center director, Marietta, Georgia.
Thank You, Reviewers

The Southern Early Childhood Association expresses its gratitude to these content experts who reviewed the manuscripts published in this issue of Dimensions of Early Childhood.

Megan Blackburn  Michelle LaRocque
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Do You Have an Exemplary Outdoor Classroom?

The Southern Early Childhood Association believes that quality outdoor learning spaces can provide valuable learning experiences for young children. We have designed this contest to encourage early childhood programs to share their achievements in this area and to complement our 2013 conference theme of Hand-in-Hand: Children and Nature.

The purpose of the contest is to:

- Highlight quality, nature-friendly outdoor learning environments that can be used as models for programs seeking to improve their own outdoor spaces.
- Identify models of quality outdoor spaces in each of the SECA states.

Some Contest Facts:

- Applications for the contest will be due in the SECA office on or before September 30, 2012.
- One outdoor classroom per SECA state will be recognized as the State Outstanding Outdoor Classroom. Recipients of the recognition will be honored at the 2013 state affiliate conference by a SECA Representative and the classroom will be acknowledged in the first 2013 issue of Dimensions of Early Childhood. Note: If no applications meet our criteria, no award will be given for that state.
- A SECA Exemplary Outdoor Classroom that represents the best of the region will be selected from the group of State Outstanding Outdoor Classrooms and the recipient will be recognized at the SECA 2013 Conference in Mobile, Alabama. The classroom will be acknowledged in the first 2013 issue of Dimensions of Early Childhood.
- Visits will be conducted to selected classrooms prior to confirmation of the awards.

For more detailed information and the contest application, go to http://www.southernearllychildhood.org/seca_conference.php
JOIN US IN MOBILE FOR SECA 2013!!

64th Annual Conference of the Southern Early Childhood Association

Hand in Hand: Children and Nature
February 28 - March 2, 2013
Mobile Renaissance Riverview Plaza Hotel
Mobile, Alabama

For more information, go to www.southernealrychildhood.org/seca_conference.php or scan the QR code with your mobile device.