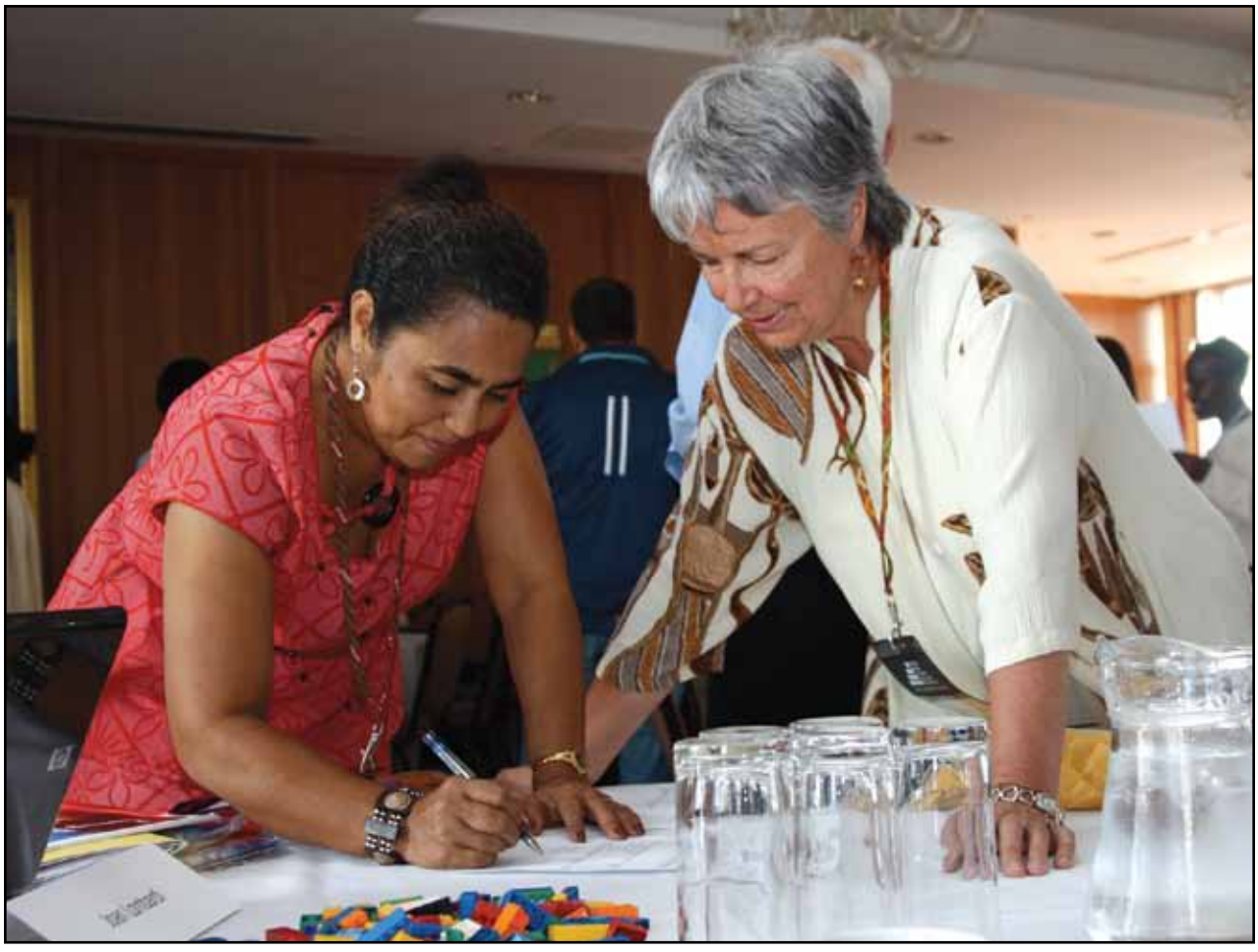

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Beginnings Workshop

how do we know what we know? using evidence-based practice to inform our decisions

by Donna Rafanello

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Every day we are bombarded with new claims that changing our teaching in certain ways will bring desired results to the children in our care.

- Maybe it's a mother asking you to give her toddler a sticker to reward her for potty training.
- Or a coworker who argues that posting preschoolers' artwork in a school gallery increases creativity.
- Or maybe it's your board of directors arguing that all of the ECE programs in your area have adopted a formal reading curriculum with their toddlers and young preschoolers to prepare them for school so you have to adopt it too.

Where do you turn for help in making these decisions? Who can you trust? And how do you cope with the increased demands that your program demonstrates its successes in educating children and preparing them for formal schooling? For answers to these and other questions, you might turn to a growing body of research in our field that offers evidence of best practice.

Accountability

Increasingly, early childhood programs are subject to accountability measures that hold programs responsible for implementing high-quality standards of the profession. According to *Pre-K Now*, "Children will not reach their full potential unless teachers and administrators adhere to proven best practices. But what are these 'best practices'?"

- State standards for preschool programs
- NAEYC accreditation standards
- Early Childhood Environment Rating Scale (ECERS) (and other rating systems)
- Regulations imposed by funding sources (e.g., Head Start)
- Other accreditation systems

While data from a few reputable studies — Carolina Abecedarian, Perry Preschool Project, and the Chicago Child-Parent Center Programs — describe the characteristics of effective model programs, more is needed. Specifically, Ackerman and Barnett (2006) argue that more research on the effectiveness of ECE program elements and children's growth in different content areas is needed, as well as a concerted effort to share these results with the early childhood community for the purpose of replication and program improvement.

The recent move toward standards-based reform in public education has required schools to demonstrate that they are achieving educational outcomes with students (Stanovich & Stanovich, 2003). This obligates schools and teachers to prove that their instructional methods are effective. But testing is only one way to do this. Evidence can also come from published findings of researched-based evidence that the instructional methods being used by teachers lead to student achievement. Therefore, teachers have the responsibility to be effective users and interpreters of research. This involves examining data to support theories.

Evidence-based practice defined

Buysse and Wesley (2006) define evidence-based practice as a "decision-making process that integrates the best available research evidence with family and professional wisdom and values" — in other words, a mix of scientific proof and professional and family experience and values. According to the University of North Carolina at Chapel Hill (UNC, 2006), "This definition empowers those directly connected to the child, parents and professionals alike, to tap into various sources of knowledge to make informed decisions." According to Buysse and Wesley (2006), evidence-based practice empowers professionals to implement the most effective interventions available; various

sources of evidence are applied to solve real-world problems.

The National Partnership for Reading understands that it can be difficult for teachers to learn about and use the information from the latest research. Efforts to help teachers and others examine published studies and understand how to identify high-quality scientifically-based instructional strategies are needed. As a result, teachers can bring these strategies into their classrooms for the benefit of the children. UNC researchers (2006) agree, saying, "Practitioners typically have limited access to good data or they may follow the latest recommended practices even if that means discounting their own insights."

Let's take a look at one example. The National Academy of Science study (2000), *From Neurons to Neighborhoods: The Science of Early Childhood,* found that many children entering kindergarten were unprepared to learn because practitioners' focus on cognitive development has been at the expense of children's social and emotional development. In addition, parents' and child development professionals' beliefs about how young children learn differ greatly (Zero to Three, 2000):

- The majority of parents surveyed believed that using flash cards would increase young children's cognitive ability.
- Child development professionals, on the other hand, argue that using flash cards does little to help children develop important concepts about their world.

Summarizing the findings from these studies, the Center for Early Childhood Leadership (2000) recommends "refocusing programs in the early years so children can foster strong relationships that enhance confidence, independence, curiosity, motivation, persistence, self-control, cooperation, empathy, and ability to communicate — the building blocks of school and life success."

Further, Bredekamp, Knuth, Kunesh, and Shulman (1992) describe the need for early childhood curriculum and assessment guidelines saying,

"[Recent] reports reflect a growing consensus that the traditional scope and sequence approach to curriculum with its emphasis on drill and practice of isolated, academic skills does not reflect current knowledge of human learning and fails to produce students who possess the kind of higher-order thinking and problem-solving abilities that will be needed in the 21st century."

Specifically, Bredekamp and her colleagues (1992) call for schooling to place greater emphasis on the following things (which will come as no surprise):

- Active, hands-on learning
- Conceptual learning that leads to understanding along with acquisition of basic skills
- Meaningful, relevant learning experiences
- Interactive teaching and cooperative learning
- A broad range of relevant content integrated across traditional subject matter divisions.

At the same time, they criticize rote memorization, drill and practice on isolated academic skills, teacher lecture, and repetitive seatwork.

A proposed model for decision making

Bussye and Wesley (2006) designed a model to illustrate how professionals can use evidence to inform their practice. Their flowchart model shows how sources of evidence (research, wisdom and experience, and core values and beliefs) create judgments (weighing sources of evidence against each other and resolving conflicting information, and considering the local context and needs of individual children) to inform practice (applying knowledge to particular cases or situations). The Center for Evidence-Based Practices is an organization that was designed to bridge the research-to-practice gap in early childhood education and related fields like that described in Bussye and Wesley's model and it provides many resources to practitioners interested in exploring these ideas further.

Evidence-based practices in early childhood education

With that overview of evidence-based practice and its implications for the ECE field, let's examine an issue affecting early childhood programs as illustration: the issue of young children's challenging behavior. As you consider children in your program, you may have received contradictory — or insufficient — information to develop a curriculum or adopt an approach to address the behavior exhibited by children in your classroom. While your staff and the parents of cur-

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With early childhood services under increased scrutiny it is imperative that we begin to use scientific thinking to demonstrate our effectiveness.

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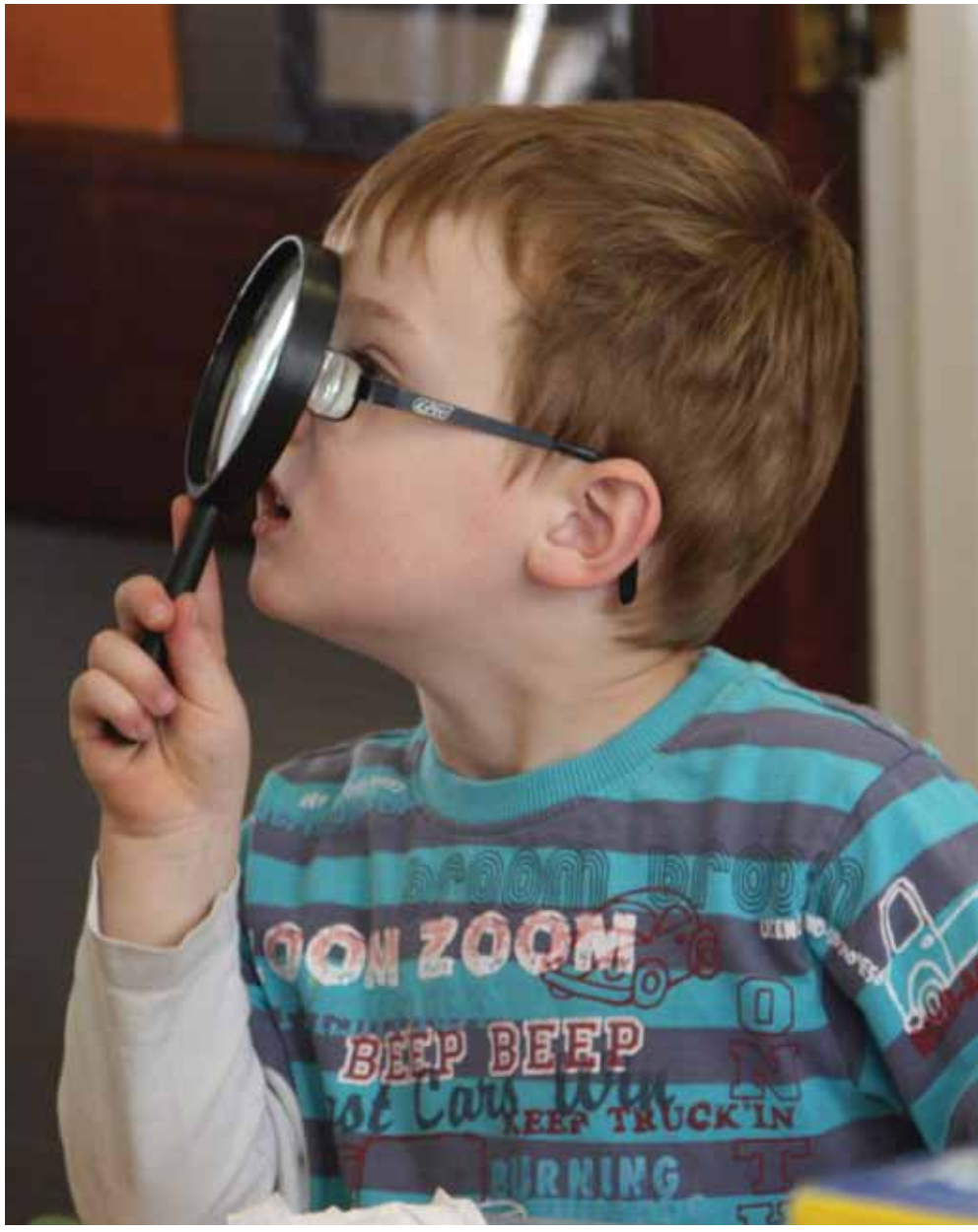
rently enrolled children may each have their own opinion about what works, you want proof before making decisions in this area. One of your chief sources of information is the current research on this topic that can inform your decision making. Your research might take you to the work of Joseph and Strain (2003), who summarize the evidence on effective social-emotional curricula:

- Early experiences and relationships at home and school set the stage for how a child learns self-regulation skills, as well as the ability to manage emotions, take the perspective of others, and develop close relationships (National Research Council and Institutes of Medicine, 2000).
- Children's social and emotional competence (marked by more cooperation and less aggressive behavior) is integrally linked to their cognitive and academic competencies manifested in their ability to learn and be successful at school (Raver & Knitzer, 2002).
- Without intervention, emotional and behavioral problems in young children (e.g., aggression, anti-social behavior patterns) may be less amenable to intervention after age 8 (Dunlap, et al., 2006; Eron, 1990).
- Conversing with other children, solving interpersonal problems, entering into play with groups of peers, and regulating emotional responses to frustrating experiences are skills that contribute to success in making friends (Crick & Dodge, 1994).
- Nurturing and positive parenting is associated with children who have healthy relationships and reduced challenging behavior (Dunlap, et al., 2006).
- High-quality early education environments and caregiver interactions are associated with fewer behavior problems and the development of social competence (Dunlap, et al., 2006).
- Interventions based on a functional assessment of the relation between the challenging behaviors and the child's environment are effective for reducing challenging behaviors of young children (Dunlap et al., 2006). For example, interventions may be developed that modify the antecedent events (the presence of materials, peers, or adults), modify consequences (e.g., a teacher's attention, a break



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from an activity), or provide instruction on specific communication or social interaction skills (e.g., teaching the child to make requests).

- Teaching procedures have been demonstrated to be effective in developing children's skills and reducing challenging behaviors (Dunlap et al., 2006). For example, a young child may lack the language skills to request attention from an adult. Teaching young children skills that can be used to replace challenging behaviors is one of the most effective, scientifically-based interventions available.
- Interventions involving alterations to features of the child's activities and the child's social and physical environment have been demonstrated to reduce challenging behaviors (Dunlap et al., 2006).
- Multi-component interventions implemented over time and across many environments can produce lasting increases in children's prosocial behavior and reductions in challenging behaviors (Dunlap et al., 2006).
- Family involvement in the planning and implementation of interventions facilitates durable reductions in the challenging behaviors of young children (Dunlap et al., 2006). Interventions that focus on helping families teach young children behavior expectations and social skills, use positive reinforcement, teach compliance, and address challenging behavior have resulted in impressive outcomes.
- Children and their families who access mental and physical care are less likely to have behavioral and social problems (Dunlap et al., 2006).

What you have here is a body of research you can use to determine your own program/approach in addressing children's challenging behavior. Specifically, these findings offer you support in:

- Designing individual interventions for children exhibiting challenging behavior
- Planning activities for family support and involvement
- Designing classroom environments to support children's social development
- Planning a program for ongoing staff development in this area
- Accessing community resources for early identification and intervention for children in need.

Conclusion

With early childhood services under increased scrutiny, it is imperative that we begin to use scientific thinking to demonstrate our effectiveness. This involves understanding the research literature and using our own experience to inform our practice. According to Stanovich and Stanovich (2003), "Scientific thinking in practice occurs when teachers engage in action research . . . research into one's own practice that has, as its main aim, the improvement of that practice." In this way, action research permits teachers to develop a 'what works' repertoire of skills to draw on.

So the next time you hear a claim about an educational practice that you question — like those listed below — stop and consider the evidence:

- Exposing your toddler to educational videos early on will make him smarter.
- Infant massage is the best method for sensory stimulation for high-risk newborns.
- Yoga improves developmental progress in children with developmental disabilities.
- A woman's diet while pregnant affects her unborn child's mental well-being.
- Punishing children's challenging behavior with time-out teaches good behavior.
- Flash cards are an effective strategy for teaching young children to read.
- The use of video modeling increases parents' sensitivity to their children.

Considering our practice from an evidence-based perspective is part of your role as a professional. Thinking critically about issues related to our work allows us to bring best practices to the children and families in our care.

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Thinking critically about issues related to our work allows us to bring best practices to the children and families in our care.

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Resources

Center for Evidence-Based Practices
www.evidencebasedpractices.org

Clearinghouse on Early Education and Parenting (CEEP) http://ceep.crc.uiuc.edu

Doing What Works: ECE
http://dww.ed.gov/priority_area/links.cfm?PA_ID=7

Early Childhood Research Collaborative
www.earlychildhoodrc.org

ERIC Clearinghouse on Elementary and Early Childhood Education www.eric.ed.gov

National Center for Research on Early Childhood Education (NCRECE) www.ncrece.org

National Early Childhood Technical Assistance Center: Evidence-Based Practice
www.nectac.org/topics/evbased/asp

National Institute for Early Education Research (NIEER)
www.nieer.org

The University of North Carolina at Chapel Hill, Frank Porter Graham Child Development Institute (FPG)
www.fpg.unc.edu

Using Research on Early Childhood Development and Education www/naeyc.org/resources/research

What Works Clearinghouse
http://ies.ed.gov/ncee/wwc/reports/topic.aspx?tid=13

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"Try it out and test it": children as researchers

by Ann Pelo

Ann worked as a teacher and teacher mentor for 16 years at Hilltop Children's Center, a full-day child care program in Seattle, Washington. She is the author of three books: *Rethinking Early Childhood Education*, *The Language of Art: Inquiry-based Studio Practices in Early Childhood Settings*, and *That's Not Fair: A Teacher's Guide to Activism with Young Children*. Ann travels nationally and internationally to consult with programs on Reggio-inspired, child-centered curriculum and on social justice teaching and learning. Her current work is focused on helping children connect to the natural world, and on sustainable farming and food-ways. She gives a bow of gratitude to Nick Terrones for his collaboration and insights.

'Researcher' is not a job description. It is a way of engaging with the world. It's how children — and the best teachers — live.

Researchers value questions as highly as answers; they're comfortable with uncertainty, and enjoy unanticipated turns in a story. Researchers are curious about unfamiliar perspectives and appreciate the disequilibrium that comes when their assumptions are challenged. Researchers are persistent, committed to inquiry as a process rather than as a path to quick answers. Children are researchers, and good teachers — researchers themselves — nurture this orientation in children.

This doesn't happen by scouring activity books for science projects. Teachers support children's disposition to be researchers when they pay close attention to children's pursuits, listen for questions with numerous angles and potential complications to explore, and take up those questions with children.

Sink-and-float can be a classic activity book project: gather a bunch of disparate objects together, have children put them into a tub of water, and make a chart detailing which ones sink and which ones float.

Or sink-and-float can be a journey into the mysteries of our natural world, full of confounding encounters with contradiction and surprise. It can be an invitation into research. That's how I experienced an eight-month study of sinking and floating with a small group of three-, four-, and five-year-old children and their teacher at Hilltop Children's Center.

The birth of a new idea

The research began informally, a handful of children gathered around a water table with rocks, round, shimmery glass beads that they called 'jewels,' and boats they'd built with Legos®. Jonah, Lucy, Eric, and Felix chatted as they tried to ferry the rocks with the boats. Their teacher, Nick, eavesdropped on their conversation and wrote down what he heard:

Felix: "My Lego® boat floats because the bottom is smooth and the water is strong enough to float it."

Eric: "Rocks make things sink because they're strong."

Jonah: "Because they don't have enough air."

Lucy: "Jewels sink, because they have no air. They're heavy for water, but not for us."

Felix: "People are too heavy. They can't float."

Jonah: "Eric would float because he's little. But I'm big and heavy, so I would sink."

Curiosity piqued by the children's conversation, Nick brought the notes he'd made to the weekly hour-long meeting of his teaching team and me, the mentor teacher. At our team meetings, we study observations of children's play, watching for threads to follow and questions to pursue. From this study, we plan curriculum. As we read and discussed Nick's transcription of the children's conversation, we laid out the theories held in the children's exchange:

- heavy things sink
- strong things sink
- things with no air sink
- shape matters: certain shapes lend themselves to floating
- little things float
- water has an inherent strength that can hold things up, but its strength can be overwhelmed by heavy objects.

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Children are researchers, and good teachers — researchers themselves — nurture this orientation in children.

Louise Boyd Cadwell writes, "We want to know what the children think, feel, and wonder. We believe that the children will have things to tell each other and us that we have never heard before. We are always listening for a surprise and the birth of a new idea. This practice supports a mutual quest for understanding."

The children's conversation held "the birth of a new idea." They'd jumped into sinking and floating with complex ideas: the role of shape, the strength of water, the relationship between size and weight. This complexity held the possibility for rich investigation.

We began a list of questions that we could explore with the children:

- Which has more influence: size or weight? Can small objects sink? Can big objects float? Under what circumstances?
- Is it possible to change an object's character and its buoyancy?
- What makes water strong? Is there anything we can do to make water stronger?

We considered which of these research questions would create disequilibrium in the children's thinking, which questions would generate more questions. Our intention was not to teach the children about sinking and floating — about density or water displacement. Instead, our intention was to invite the children into a cycle of inquiry in which they could revisit and revise their theories. We wanted to strengthen in the children the dispositions to linger with questions, to take new perspectives, to collaborate, to stick with an undertaking even when their assumptions are challenged — the dispositions of researchers.

We decided to begin the formal research with the question of the water's strength, looking at sinking and floating from the water's perspective. We'd use jewels as our primary material for this first round of research because of Lucy's comment that "jewels are heavy for water."

The following week, Nick and I met with Lucy, Felix, Eric, and Jonah — now a 'work team' convened to study sinking and floating — and began the research.

The first research question: Can we make water stronger?

Nick opened our first work team meeting by reading aloud the notes he'd made of the children's water table conversation. As he finished reading, he commented, "Lucy said that jewels are too heavy for water to hold up. Do you think there's any way to make the water strong enough to hold up the jewels?"

That provocative question launched the children into their research. They proposed adding things to water that would strengthen it:

- shaving cream, "because shaving cream floats"
- playdough
- sparkles, "because sparkles are light"
- paint: "If it's a light color, it will sink. If it's a dark color, it will float."

The children poured and mixed and tested. None of their additions increased the water's strength enough to float the jewels. And none of those failed attempts decreased the children's enthusiasm for the research.

As we finished the day's experiments, Jonah startled us by inventing sign language to summarize the water's perspective about sinking and floating (". . . a surprise and the birth of a new idea"):

"You know how to say 'sink' in sign language? Like this." He scrunched his face into a grimace and clenched his hands tight. "That means the water is so strongly trying to hold something up that is too heavy. The water has to work hard, but it can't do it."

"And this is how to say 'float.'" Jonah relaxed his hands in the air and smiled. "That means that the water held it up! It was easy for the water and the water was happy that it was so easy."

Another question to explore: Does size really matter?

The work team met every few weeks to continue the research. They tested toys from the classroom, and brought toys from home to test. In these early rounds of research, the children's thinking about the influence of size seemed sloppy. Sometimes they'd emphasize size as the determining factor in whether an object sank or floated, and other times, they'd emphasize weight, reversing their earlier declarations about the importance of size. Which was it, size or weight? Nick and I wanted to challenge the children to clarify their thinking about these two factors. We brought two objects to the fourth round of research: a grape and a grapefruit.

The work team had a well-established protocol by now: make predictions, test them, make meaning of the results, then move through the cycle again. That protocol offered structure for the children's research with the grape and grapefruit.

First, the predictions:

Lucy: "The grape will float, because it's small."

Eric: "Maybe because it's wet — it has water in it. But maybe it will sink, because it doesn't have enough air."

Jonah: "It will float because it has some air in it and it's little."

Lucy: "But the grapefruit will sink, because it's very big and heavy."

Jonah: "Yeah, it will sink, because it's giant and it doesn't have air."

Eric: "It will float, because it has water and water floats on water."

Then, the testing. With much splashing and laughter, the children plopped the grapes into the tub of water — where they sank quickly and surely to the bottom.

The meaning-making:

Eric: "They sinked! Because I told you they don't have enough air."

Lucy: "Let's smash them. Then they'd be thin and they would float."

Jonah: "If we smash them, they'd sink because they won't have air."

Another round of inquiry. The children smashed the grapes until they were flat and pulpy. They slid the mashed grapes into the tub of water, where they promptly sank.

The children, bemused, scooped the grapes out of the water and turned their attention to the grapefruit. They tossed the softball-sized fruit into the tub, where it bobbed on the water as the children watched, absolutely silent — dumbfounded, I think.

Lucy broke the silence with her exclamation: "It's the other way around! What Eric said was right. There's water in the grapes. But there's more water in the grapefruit; I've tried them, to eat them."

Eric: "They're juicy."

Lucy: "We should cut it in half, like the grapes. Then it would sink because it's smaller."

Jonah: "I think an apple will float because it's juicy and humongous."

Lucy: "I think they would, too, because you can bob for apples."

We sliced the big round fruit in half and popped the pieces into the water, where they floated. "Cut it again!" Eric suggested. So we did. The quartered grapefruit floated cheerfully on the water. "Cut it until it sinks," urged Jonah. "Until it's really tiny."

We cut and cut, dicing that grapefruit into smaller and smaller pieces. But even the tiniest bit of grapefruit floated. The children tried pushing the pieces under the water, but they bobbed right back to the surface. This grapefruit would not sink!

The evolution of researchers

The first few times that the work team met, the children had held tight to their initial theories that big things and heavy things sink and that light things and small things float. Those theories were the lenses through which they conducted their research. With their encounter with the grape and grapefruit, though, the children's thinking shifted; they began to see complexities and nuances, and to revise and expand their theories.

First, the children reiterated their early theories, noting the multiple factors that are at play:

"The grapefruit will sink! Because it's giant and it doesn't have air."

"The grape will float because it has some air in it and it's little."

But, already, the children began to pose new possibilities for which these theories didn't account:

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At our team meetings, we study observations of children's play, watching for threads to follow and questions to pursue.

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The goal that Nick and I brought to this study was to create disequilibrium for the children.

"The grapefruit will float, because it has water and water floats on water."

And they began to identify uncertainties:

"Balloons float because they have air in them."

"But balloons are big. But they do have air."

"Maybe it will float, because it has water on it. But maybe it will sink, because it doesn't have enough air."

The children's next step was to test the fruit and observe the results, their initial nonchalant confidence replaced by uncertainty. They were willing to be surprised by what they saw.

"It's the other way around!"

But instead of being frustrated by the unexpected outcome, the children worked to resolve the contradictions between their theories and their observations. They did this in several ways.

- They noted that multiple factors are involved, and that one factor may outweigh another: grapes may be small, but they don't have much air.

  "They sinked! Because I told you they don't have enough air."

- They noticed nuances in the factors that make things float or sink:

  "There's water in the grapes, too. But there's ***more*** water in the grapefruit."

- They took action, changing the properties of the grapes and grapefruit, in an effort to understand the interplay of factors. The children began to see themselves as involved in the dynamic of sinking and floating, and they began to posit that sinking and floating are not absolute qualities of an object, but related to properties which can be adjusted and tested.

  "Smash the grapes. Then they'd be thin and they would float.

  "No, they'd sink because they won't have air."

The goal that Nick and I brought to this study was to create disequilibrium for the children. The encounter with the grape and the grapefruit sparked that disequilibrium, disrupting the children's habits of thinking and their assumptions, challenging them to look with new eyes and to notice contradictions. They integrated new understandings into established ways of thinking, and also generated new questions.

The research continues: How do we influence the results?

The encounter with the grape and the grapefruit was pivotal in the children's investigation. From this point on, the children took on increasing leadership for the research. They added themselves into the equation about sink/float, building on their bold action of smashing the grapes and cutting up the grapefruit. They began to explore the ways in which they influenced the research, a core issue in all scientific study. Their ideas for action and interaction with objects grew from their accumulated knowledge, developed over months of research.

The children experimented with the manner in which they placed an object into the water, discovering that a light touch often resulted in floating — at least momentarily — while an emphatic toss of an object into the water led to sinking — at least momentarily.

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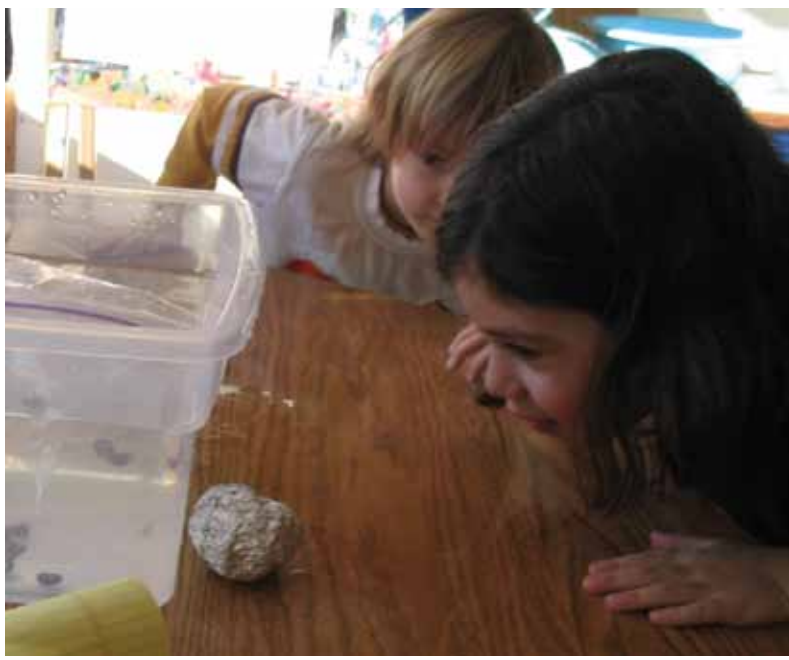

Put it in carefully so it floats.

Put it in hard and fast to make it sink.

When it says 'Galunk' [GAC], it sinks.

The whoosh sound [WH] means float.

The children experimented with ping pong balls, which always float, no matter how "hard and fast" they're put into the water. They experimented with marbles, which always sink, no matter how light the touch. They added pebbles to ping pong balls, and poked holes in the balls so they filled with water. They made rafts for marbles, and little buoys to make them float.

Eight months of study brought us to the edge of summer, and we began to wind down the research. Nick and I invited the children to look back at their experience as researchers, asking them what they'd tell other children about how to be scientists. Listen to their reflections:

"To be a scientist, you think about things, like about water and things floating. You plan that you're going to listen to other people on the team. You think up experiments and you make a plan. Like you put Legos®

in the water because they're so light that you want to test them out because you think they might float."

"Scientists listen to each other. They find out things and they find out other things."

"Sometimes when scientists do an experiment, it can do different things than you think. Some big things float and some big things sink. When it's different than you think, you just get another thing and try again. You don't give up and you keep on trying. Just try it out and test it."

Children are researchers. They're eager for sustained inquiry and able to accept not knowing. They understand that "you don't give up and you keep on trying," that you enter into research willing to be surprised and ready for unexpected detours. When we join with children as researchers, we become, in the words of Boyd Cadwell (2003), "a community of seekers" in "a mutual quest for understanding."

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. . . our intention was to invite the children into a cycle of inquiry in which they could revisit and revise their theories.

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teacher as researcher: getting started in your own classroom

by Carol R. Keyes

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". . . I pursue questions that I find relevant within the context of my own teaching in order to better understand and respond to the dynamic individual learning processes that my students and I engage in every day" (Avery, 1990, p. 33).

Classroom research is a planned "systematic intentional inquiry by teachers about their own school and classroom work" (Lytle & Cochran-Smith, 1990, p. 83). The questions arise from what is happening in their classrooms; the data collection method designed can be easily undertaken in the classroom; and the findings can be used immediately to make improvements in their classroom (Flake, Kuhs, Donnelly, Ebert, 1995, p. 405). The central question asked by teachers is: How can I change what I'm doing in the classroom to bring about change in my students? Classroom research is one strategy.

Briefly, classroom research involves the following steps:

- identifying a problem
- developing questions and examining your assumptions
- gathering, analyzing, and interpreting data
- taking action.

In the classroom research process you are both the teacher and the researcher.

Why is classroom research important?

Classroom research has immediate applicability because the research stems from a teacher's own questions and reflections on his/her classroom practice. Teachers really get to know what's happening in their classrooms and have the information to improve their practice. When teachers do classroom research, they often begin to view themselves as learners, their classrooms as places where they are learning, and the data collected as data to be understood. The findings are more valid since the teachers are using data rather than preferences or hunches to guide improvement (Castle, 1995).

Classroom research is important for programs seeking NAEYC accreditation. The findings from classroom research can provide evidence for certain indicators and can show how learning is occurring in the classroom. Conducted by an early childhood advocate, classroom research can document for others the value of active, engaged, and meaningful learning.

Examples of teachers doing research in their own classrooms

In one pre-kindergarten classroom, the teacher was concerned about a boy who seemed to be the instigator of trouble. She told the children that she was going to videotape the classroom at different times of the day. She did this regularly until the children became very used to it. Then she focused on videotaping the boy. With a camera that has a zoom lens, it's easy to capture what's going on in one area of the room while standing in another area. She discovered that it was not the little boy she thought was the instigator, but rather another who would subtly do something — kick a piece of the puzzle the boy was working on, or surreptitiously knock into his building — that caused the trouble.

Several teachers decided to document aspects of their classroom for NAEYC accreditation. One NAEYC indicator is that" Teachers work to prevent challenging or disruptive behavior through effective

transitions." The teacher documented what was taking place in her classroom generally. Then she instituted a new procedure whereby one of the three adults in the classroom would be at the next place the children were to go, a second would be managing the overall completion of the activity, and the third would be monitoring the children who were a little slower to finish up. She again documented what was then taking place. She analyzed the data and wrote a paper documenting what had been the original procedure, the change she made and why, and how the transitions were much smoother after her changes.

Another teacher decided to record the choices children made. This was part of her documentation of Using Time, Grouping, and Routines to Achieve Learning Goals, and the section that states "Teachers provide time and materials daily for children to select their own activities." The teacher created a chart that she used for several weeks, recording what each child chose during Free Choice time. She summarized her observations, showing the children's range of choices. In analyzing the data, she identified which children might need help to expand their choices and used her observations as a basis for talking with each child about why she chose what she did and other interesting opportunities.

What do teachers think about classroom research?

During one classroom research project, teachers anonymously wrote their reflections of the process on a survey when they completed their first classroom research:

- *Now that I have done my own classroom research, I don't think I'll ever look at teaching the same way. I have always believed that in order to be a good teacher, one must constantly reflect and be open to changing practice. I feel that classroom research is the most effective way of being your own change agent in your classroom and school.*
- *Classroom research has shown me that concrete study can bring a lot of answers — as well as questions that one may not have considered or thought of before. It forces the individual to examine why they do certain things. Classroom research allows teachers to examine their practices and find the purpose and meaning behind what we do.*
- *What I have learned the most through this process is what an incredible impact teachers can have on the lives of students.*
- *During the course of research, I really enjoyed discussing my work with colleagues in and out of school and researching similar studies in the literature. I thought of teaching as a very insular process; I had never before asked, thought about, and answered questions with other teachers and educators. When I began this process, I sought out my colleagues for their opinions on my research. Indeed, my colleagues were eager to see what I was doing and were often better judges of the data than I was.*

Beginning your classroom research

The first step in conducting classroom research is to reflect on your teaching and your classroom:

- What's bugging you?
- What's not working?
- What would you like to change?
- How does your classroom, one aspect of your teaching, or the children's actions look in comparison to how you want it to look?

It's possible that you have a number of things you'd like to change. If so, list them all and pick the one you'd like to focus on first. Be sure to choose a focus that is the most important and meaningful to you or that you think might be easiest to undertake, if this is your first experience with classroom research.

Teachers have conducted research on particular children or interactions between particular children, on their own language, on specific parts of the day. Recently some teachers have used particular indicators from NAEYC accreditation to examine and use as evidence for accreditation.

If you don't have a particular problem to focus on or just want to try classroom research with something more general to get some practice, here are some possible questions that teachers have used before:

Beginnings Workshop

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Beginnings Workshop

Once you've answered these questions make sure that what you've decided is actually doable.

- How do I make Show and Tell more learner-centered?
- How can I change my teaching to improve student behavior?
- How can I improve my classroom management?
- Which children need close monitoring during transitions?
- Are children learning how to work together?
- How do children enter play?
- How long does it take a new child to adjust to the classroom?

Carol Avery (1990) wrote, "Kid watching is a fascinating business. Children's behaviors and conversations tell us much about their individual styles of learning . . . watching children in the classroom on a regular basis provides me with new awareness of their progress and their individual ways of attacking learning" (p. 39). If you are interested in starting your classroom research looking at one child, consider these questions:

- Is the child's development on track?
- How does this child learn best?
- What are this child's strengths and talents?
- What are this child's interests?
- Is this child in need of support services or full evaluation?

Decide how you will collect the data

There are a variety of ways to collect data for your classroom research, depending on what you are looking to research. As early childhood professionals, you know about most of these and have probably used them in your classroom already to complement your teaching, though probably less systematically than you will as you embark on this classroom research. Though not an exhaustive list, data collection methods may include:

- reflective journals
- weekly descriptive records of a child's interests, involvement, social relationships, and friendship patterns
- checklists
- anecdotal records
- time sampling
- interviews
- participation charts
- head counts
- interaction charts.

In recent years tape recorders and video cameras have also been used with some frequency. Vivian Paley (1986), wrote about using the tape recorder for classroom research:

"Then I discovered the tape recorder and knew, after transcribing the first tape that I could be my own best witness. The tape recorder, with its unrelenting fidelity, captured the unheard or unfinished murmur, the misunderstood and mystifying context, the disembodied voices asking for clarification and comfort. It also captured the impatience in *my* voice as children struggled for attention, approval, and justice. The tape recordings created for me an overwhelming need to know more about the process of teaching and learning and about my own classroom, as a unique society to be studied. . . . The act of teaching became a daily search for the child's point of view accompanied by the sometimes unwelcome disclosure of my hidden attitudes. The search was what mattered — only later did someone tell me it was research — and it provided an open-ended script from which to observe, interpret, and integrate the living drama of the classroom" (pp. 19-20).

Video recording can fit into a classroom situation. The camera can capture multiple dimensions of classroom action and provide a systematic and permanent record rather than just spontaneous impressions and what teachers remember. There are opportunities for immediate or delayed feedback. Teachers can look again and again. The camera also eliminates the need for extensive note taking and gives a quality visual and auditory record of what transpired. As far as skill goes, you really only have to be able to point and shoot. The camera is flexible enough to pick up at a moment's notice to videotape an interesting occurrence. I worked in partnership with teachers using a hand-held video camera and feel that it is an excellent tool for classroom research. The teachers reported:

"The video caught all the action you couldn't catch by plain observation. I have now watched the video three times. Each time I have noticed something different."

"The video was really useful and gave me the opportunity to observe my students in several different learning situations without being distracted."

Consider the following questions in selecting a data collection method:

- Which of the data collection methods described will allow you to produce evidence to show what's happening?

- What exactly are you going to collect?
- Who is going to collect the data?
- Where and when and for how long will you collect the data?
- How will you record the data?
- When will you review and analyze the data?
- Will you have a partner for your classroom research, perhaps your assistant teacher or co-teacher?

Once you've answered these questions make sure that what you've decided is actually doable. Try it out and see if it works for you and can be accomplished easily within your teaching role.

Consider organizing a 'classroom research community' or 'professional community' with the teachers in your program. Many teachers find that in such a community teachers help each other with data collection, reflection and analysis, and share their findings. In some communities the teachers even decide to do the same classroom research in their different classrooms, if they have similar concerns.

It's important to check to see whether you need permission for your classroom research. It may not be important if you are only doing the research for your own improvement and do not intend to share it. If you do intend to share it in a public setting, or write about it, you may want to check with your director or principal to see what permissions may be necessary.

Collecting and analyzing the data

Once you've decided on the question, the method, and the timing, begin collecting data on the children or the classroom events that concern you. Periodically look at the data to make sense of it. Look for patterns across the evidence:

- What are you learning?
- What new questions have come up?

Sharing your experiences with colleagues can be very helpful. Referring to professional knowledge and articles is also useful.

Drawing conclusions and next steps

When you think you have enough data, analyze and interpret the data, and draw some conclusions.

- What can you do about what you discovered?
- What will you and the children do differently now?

Think about whether you have successfully answered your question:

- What do you still want to know?
- How do you feel about what you found out?

Share what you've learned with your colleagues and think about what's next.

Finally, consider what the following teacher researcher said about her first classroom research:

"In the end there is no end. The end of this project is the beginning of another. Changes to practice were made and they were good, but many other questions came up along the way. Where do I go from here? How can I apply what I've learned to other areas of my teaching? The process has only just begun" (Sheffield, 1997).

Beginnings Workshop

Share what you've learned with your colleagues and think about what's next.

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