

voices of **PRACTITIONERS**

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Frances Rust

Introduction

Barbara Henderson, *Voices* Coeditor

Welcome to the 2017 volume of *Voices of Practitioners*. This online journal of teacher research features inquiry done by early childhood teachers as they look at their daily practice with children. We present in this annual compilation five teacher research articles, including for the first time, one translated into Spanish. The volume also includes an article by Frances Rust addressed to teachers and to teacher educators about the practice and value of teacher research.

It is notable that this year marks the first full year that our teacher research articles have also appeared in print in every issue of NAEYC's flagship journal, *Young Children*. This practice of publishing our teacher research throughout the year began in July 2016, and we are pleased that NAEYC has been able to continue this dual publication. This practice provides NAEYC members, and others who have access to *Young Children*, immediate physical access to these examples of teacher research and likely reaches a different audience than the online journal. The versions published in *Young Children* are, in some cases, excerpted from the full articles, due to space limitations in the print journal. In our online format, the reader can find the full version of each article.

These articles and many prior articles published by *Voices of Practitioners* are available and searchable on the NAEYC website. They are free to access and use, for example, in your course materials and for professional development activities, and to share with colleagues. We hope you will take advantage of this feature and share them widely.

Looking ahead, we are interested in your submissions of teacher research articles for future issues. Teacher research can and should be a foundational practice in early childhood education that informs how we educate teachers and how we work with young children to support them as theory makers, knowledge builders, and discoverers. Indeed, we cannot fully implement this kind of progressive curriculum and learning environment for young children unless we as teachers also embrace these same roles.

We hope you will enjoy and learn from how the teacher researchers published in the 2017 volume contribute to our knowledge base about teaching, learning, and how best to support early childhood settings that see the child at the center.

Teacher Research



Spreading Happiness

A Preschool Classroom in Washington, DC, Investigates Citizenship and Makes a Statement—"Be Happy!"

Georgina Ardan

Thoughts on the article

Ben Mardell, Voices Executive Editor

In her essay "What is Education For?" classicist and political scientist Danielle Allen (2016) offers a compelling case that education's contribution to equity is not, as many assume, vocational training but through promoting civic agency. By this measure, teacher Georgina Ardan's Title One preschool classroom in a Washington, DC, public school does a great deal to promote social justice. In her article, Ardan explains how, by using documentation to listen closely to children, she facilitates a long-term project that expands their literacy skills and their ability to discuss, debate, and think critically. As a teacher researcher, Ardan explores ideas, enlists colleagues to help her think more broadly, and envisions new possibilities for her community while offering her students opportunities to do the same. This is more than coincidence; taking up the mantle of teacher researcher is one way to promote social justice.



Georgina Ardalan is an early childhood educator at J.O. Wilson Elementary School, a District of Columbia Public School. Georgina draws on inspiration from her first career in architecture to create a nurturing and collaborative environment within a thinking culture where teachers and children both question and listen.

In winter 2016, I began a long-term project to engage the 16 three-year-olds in my Title I Head Start class at J.O. Wilson Elementary School, in the District of Columbia Public Schools, in an exploration of citizenship. The idea sprouted from the Children Are Citizens (CAC) project in Washington, DC. The CAC project coordinates collaboration between schools (public, private, and charter) and three civic or cultural centers to connect children to the city.

The CAC project is premised on the belief that young children are not just future citizens but present-day citizens with the right to express their opinions and engage in the cultural and civic activities of their city (Project Zero 2016). They have a right to understand their roles as “citizens of their classroom, their schools, and of the larger community” (Mardell 2011, video). While previous CAC work focused on 4- and 5-year-olds, I wondered how I could help my 3-year-olds develop a better understanding of citizenship and meaningfully connect them with our city.

I have long believed that being inclusive and caring for others are part of what constitutes a good citizen. These aspects of citizenship build on the set of conditions I establish in my classroom every year, such as respectful exploration, idea sharing, and open communication. By setting the groundwork cognitively, socially, and emotionally, I convey to the children that we are citizens of the classroom. The CAC project provided an opportunity to extend our classroom conditions and ideas about citizenship outside the walls of our school and into the wider community of Washington, DC. But how, exactly? I decided to leave that up to the children.

The following questions guided my teacher research study:

- How can I expand my 3-year-olds’ understanding of citizenship beyond the classroom?
- How can I use the rich cultural resources of Washington, DC, to foster the idea of citizenship?
- How can I listen closely to the children and document my observations to help them guide the project?
- When I allow children to guide the project, what are the results?

Conceptual foundation

When my preschool class ventures out from the classroom on field trips, strangers often smile and comment on how adorable they are. Although the children may appreciate the attention, labeling them cute is demeaning. It disempowers them: “cuteness is ultimately dehumanizing, paralyzing its victims” (Harris 1992, 180). The label of cuteness ignores what children can contribute as citizens of their community: innovative ideas, a unique perspective on the world, and real relationships with adults. Children are capable. And because they are capable, they deserve to be recognized as citizens and given a place in our collective efforts to solve important problems.

CAC projects in Providence, Rhode Island, and Washington, DC, were a constant source of inspiration for my teaching. In 2011, the mayor of Providence asked preschoolers to write on their area of expertise—places to play (Mardell & Carpenter 2012). This engagement of an important public figure elevated the importance of the project in addition to placing children in the role of the expert (Krechevsky, Mardell, & Romans 2014). In 2014–15, children in Washington, DC, were invited to explore and research topics about their city that inspired them, from museums to parks to the metro system.

Another source of inspiration was the Reggio Emilia philosophy that insists children are protagonists and therefore active participants in directing their lives and learning (Krechevsky et al. 2016). (Reggio Emilia is a city in Italy known for its high-quality early childhood education.) I intended that the 3-year olds would be the protagonists of their classroom, actively directing their learning (Krechevsky, Mardell, & Romans 2014). To extend their learning environment from the classroom to the city, I borrowed an idea from Graziano Delrio, a former mayor of Reggio Emilia, Italy, who wrote:

Responsibility toward children concerns ethical liability. Ethical liability toward children means that you recognize their dignity as citizens, as bearers of rights related to the city. The child is, therefore, a competent citizen. He or she is competent in assuming responsibility for the city (Delrio 2012, 83).

To begin, I sought to engage the children in a democratic way by building on their current knowledge of citizenship. This was the starting point for them to determine the direction of the project (Biermeier 2015).

Methodology and research design

Since I intended for this to be an emergent, child-directed project, at the outset I simply asked the children, “What is a citizen?” to encourage them to share thoughts and opinions. This is a key point of Reggio Emilia’s philosophy, in which children actively engage their minds and hands to experiment with ideas (Davoli & Cagliari 2003). Conversation, artwork, dramatic play, early writing, and other outlets nourish the children’s creativity and desire to express themselves.

As the children began grappling with the question, I collected data and documented their communication both in the classroom and on our field trips. I recorded group conversations, collected artwork, and took photographs. I observed the children at play and transcribed their conversations. On field trips, the children documented their activities and thoughts by drawing; I encouraged adult chaperones to be mindful of the children’s voices and transcribe the children’s words as they drew. Many parents volunteered to participate in our field trips and became adept at documenting. Documenting was necessary for my planning, and for helping the children reflect on and guide the project. It also had a side benefit—it was easy for me to keep parents informed about our project with weekly newsletters.

Visual and verbal documentation allowed me to observe the children, reflect upon their learning, and inform my analysis. I reviewed the details after school and used them to ground conversations about the project with my colleagues at school and CAC. My reflection on the material and the project as a whole led to the creation of the narrative that follows.

“The Happiness Project”

“What is a citizen?” is a brief, yet challenging question that worked well to sow the seeds of enquiry. The children were full of ideas, and soon were building on their classmates’ thoughts:

Christine: People!

Jim: But what about orca whales?

Ben: Octopus!

Teacher: So can animals be citizens?

Children: Yes.

Teacher: What about plants? Plants are alive as well; can they be citizens?

Children: Yes.

Our letter of invitation:

Dear Mr. Charles,
Can you please help us
answer these questions?

- Are plants citizens?
- Are people citizens?
- Why are we called
Washington, DC?
- Do good citizens do
everything people ask
them to do?
- Do citizens take care of
table toys?
- Are citizens alive?
- Are animals citizens?
- Are bad guys citizens?
- How do you know so much
about Washington, DC?
- What makes a good
citizen?

Love,
The Statues

Our classroom spent the following three weeks discussing citizenship while I sought ways to help them explore the concept. Gradually, our initial working hypothesis took shape: a citizen is “a person, big or small, an animal, or a plant that lives in Washington, DC.” I reinforced the elements of early literacy with letters and words to make a statement of our hypothesis; we signed it collectively with our child-chosen class name, “The Statues,” and each child added his or her own signature. Then, the children eagerly explored ideas and gathered data to test their hypothesis.

We decided to compose a letter to experts accessible to the classroom. Ms. Shoshana, our gardening teacher, offered her expert perspective on plants: “Yes, of course, plants are citizens because they are alive.” Next we invited Charles Allen, our local city councilmember, to our classroom.

The children enthusiastically prepared for Mr. Allen’s visit. It was important to build on the elements of early literacy to convey their thoughts to Mr. Allen and make his visit meaningful for them. Every one of the children had an index card with their question on it and a pictorial representation that would help them remember the question.

The interview included the following dialogue:

Jim: Are people citizens?

Mr. Allen: Yes, we are all citizens.

Christine: Are plants citizens?

Mr. Allen: I like trees and plants, but they are not citizens.

Heidi: Are citizens alive?

Mr. Allen: Yes, they are alive. We need to be able to talk and communicate with citizens.

Mara: Are animals citizens?

Mr. Allen: If I were to ask the bunny what he wanted, would he be able to tell me? He wouldn't, but while he's not a citizen, we all still care for animals. *[The children were alert to the newsworthy bunny reference. The day before Mr. Allen's visit, we received a foster bunny for our classroom.]*

Elizabeth: Are birds citizens?

Mr. Allen: No, they are not citizens.

Kristen and Ben: Do citizens take care of table toys?

Mr. Allen: Absolutely! Good citizens take care of their table toys and the space they use, including the classroom and their neighborhood.

Tamika: What makes a good citizen?

Mr. Allen: Take care of your community. Take care of the outside. Be nice to people. Follow the rules. Next week you're going to visit the Wilson Building *[the capitol building of the District of Columbia]* where I work and where people in government make lots of decisions.

Janet: I didn't even know that!

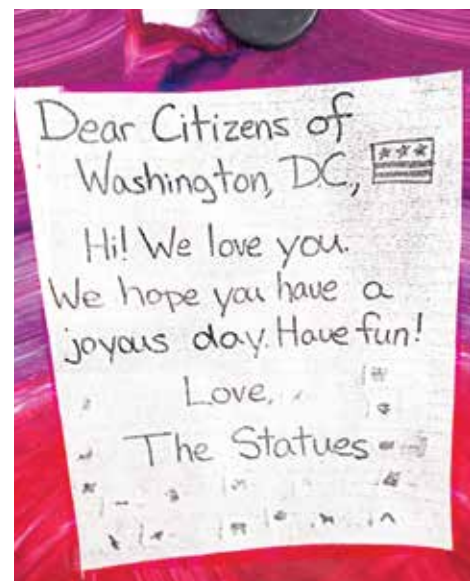
Mr. Allen: What you can also do with a letter is to ask for things, such as clean rivers or safe playgrounds. It's important that you tell people who are elected to represent you what you want them to focus on, or what your community needs. I'm looking forward to seeing you next week at our capitol!

The turning point

After this visit, I wanted to help the children think more deeply about Mr. Allen's responses. To enhance their memories and spur discussion, I shared documentation of Mr. Allen's visit visually and through documentation panels with a transcript of the conversation. As I read portions of the transcript with the children, they seized on Mr. Allen's comments about writing letters and being kind to people. This marked a turning point in the project—the children were taking charge of guiding it.

The children already knew the joy of receiving mail; they loved to send postcards to the classroom from their adventures around the city and beyond. We had classroom mailboxes for each child and they often wrote letters to themselves, their friends, and their families. The concept of being kind—and spreading happiness—to strangers through writing letters soon emerged from the children. In the message center, I heard Stephanie and Alex discuss what came to be the project's pivotal question: "Can we make other people happy who are not in our classroom?" During our class reflection meeting (after center time), we shared this key question with our class. The children figured a card would be the best way to reach out, but this led them to wonder: How could we disseminate our cards to people who don't have classroom mailboxes? Could we bring mailboxes on our field trips?

The children's card:



After deciding that their ideas could be pursued safely, I asked the children a series of questions to help them plan their project. What would the cards look like? What do we want to say in our cards? Did we really think that if we gave this to someone, it would make them happy? To find out, we decided to write cards, sign them with animal symbols chosen by the children, and deliver them on our first field trip to the Wilson Building.

To carry their cards, the children created mailbags made from donated curtains and staples. (These bags were perfect for carrying their documentation tools—clipboards, paper, and pencils—too.) Before we embarked on our field trip, we created some safety rules for sharing the cards. The children had to hold an adult's hand; they could give cards to parents, people who walked near us, bus passengers, and bus drivers. We also thought about the words to begin conversations:

"Here is a special card for you!," or as Kristen remembers, "We have a card for you to make you feel happy, too!"

As we made our way to the Wilson Building, the children began to deliver their cards. During our break in Mr. Allen's office, they gave his staff cards. The children also gave cards to the mayor's chief of staff and other staff members. By the end of our tour, the Statues were so excited from the positive responses that some people even got two cards.

The recipients warmly responded to the children's enthusiasm. To document the results of their efforts to spread happiness, the children made drawings of the recipients of the cards while their adult chaperones wrote down what the adult recipients said:

"I am going to really enjoy my day, you know why? Because you opened up your heart to me. Thank you, baby!"

"Can I have this card, even if I am not a citizen of Washington, DC? I am going to take it back to Italy!"

A child's drawing of a card recipient, and the recipient's reply:



Reflecting, improving, and trying again

Ever since they learned from Mr. Allen that kindness is a part of citizenship, the children's questions and discussion always returned to the challenge of how to spread happiness. Pleased with, but not confident in, their efforts to date, their thoughts turned into a question: "Did our Spreading Happiness card actually make that person happy?" I steered the children to discuss questions that we were more likely to be able to answer: "What happened to the cards after we gave them out? Were the cards trashed or treasured?" We thought about a world in which people smiled at each other and did not want anything else but to brighten someone's day. Would a card affect people's outlook on the world? The children loved the experience of handing out the cards and decided they wanted to spread more happiness. They elected to pass out more happiness cards on our remaining field trips in the city.

This time, the children wanted more evidence as to how successful they were in making people feel happy, so we created an email address and pasted it on the back of each card along with an explanation of our project: We also thought about how to improve our card. Upon reflection, we realized we should address it to “People” instead of “Citizens of Washington, DC,” because we understood, thanks to an Italian recipient, that people we meet might not be DC residents.

After the Wilson Building, we visited the National Gallery of Art, Atlas Theater (twice), National Building Museum, and the White House. These places lay in waiting for The Statues, our 3-year-old citizens, to awaken the city through their ideas (Guidici, Rinaldi, & Krechevsky 2001).

The security guard at the National Gallery, the construction worker on the sidewalk, and the visitor to the White House all responded to the children. During our six field trips, we gave out about 300 cards and received about 20 personal email messages. Here are a few representative responses:

“Do you know what? You made me very happy today when one of you gave me a card! I will keep it on my desk at work and every time I see it, I will smile.”

“I like your little mailbags, too, and I bet it is fun to wear them and to give out a card and surprise people.”

“They say it’s the small things that count, and you Statues are pretty amazing and make such an impact!”

“Thank you for the sweet note you shared at the National Gallery on Wednesday, May 11. It was a rainy, dreary day, and your note spreading happiness and joy made us all smile. It made my day and I am saving it, as it will make me smile whenever I look at it!”

“I wanted you guys to know I was having a very sad morning and when you guys gave me the card I almost cried because I thought it was so sweet and awesome! Keep spreading the joy and happiness; it’s contagious! Thank you :)”

Our request for feedback:

Hello!
We are a preschool classroom
from J.O. Wilson Elementary
School. We are exploring the idea
of spreading happiness and joy
to the people that we meet in our
adventures around Washington,
DC. If you enjoyed this card
please send us a message at
JOWilsonStatues@gmail.com. We
look forward to hearing from you.

Conclusion

Our “Spreading Happiness” project empowered the children to peel back their cuteness label and initiate a meaningful relationship with adults. It proved that we do not have to wait until we are 18 to take civic action; in fact, this can begin at the foundation of children’s education. Education has morphed from learning a vocation into embracing citizenship. Civic agency involves three core tasks: assembling publicly for deliberation around a problem, working to shift the mindset of the public, and having a public figure who adopts the cause (Allen 2016). Our project proved that our youngest learners are capable of engaging in their cities and of understanding their responsibilities: as citizens in the here and now, they play an important part in the well-being of their school and community.

References

- Allen, D. 2016. "What Is Education For?" <http://bostonreview.net/forum/danielle-allen-what-education>.
- Biermeier, M.A. 2015. "Inspired by Reggio Emilia: Emergent Curriculum in Relationship-Driven Learning Environments." *Young Children* 70 (5): 72–79.
- Davoli, M., & P. Cagliari. 2003. "Reggio Tutta: The Evolution of a Research Project." *Innovations in Early Education: The International Reggio Exchange* 10 (3).
- Delrio, G. 2012. "Our Responsibility Toward Young Children and Toward Their Community." Chap. 4 in *The Hundred Languages of Children: The Reggio Emilia Experience in Transformation*, eds. C. Edwards, L. Gandini, & G. Forman, 81–88. 3rd ed. Santa Barbara, CA: Praeger.
- Guidici, C., C. Rinaldi, & M. Krechevsky, eds. 2001. *Making Learning Visible: Children as Individual and Group Learners*. Reggio Emilia, Italy: Reggio Children.
- Harris, D. "Cuteness." 1992. *Salmagundi* 96: 177–86.
- Krechevsky, M., B. Mardell, & A.N. Romans. 2014. "Engaging City Hall: Children as Citizens." *The New Educator* 10 (1): 10–20. www.pz.harvard.edu/sites/default/files/Engaging%20City%20Hall%20-%20Children%20as%20Citizens.pdf
- Krechevsky, M., B. Mardell, T. Filippini, & M. Tedeschi. 2016. "Children Are Citizens: The Everyday and the Razzle-Dazzle." *Innovations in Early Education: The International Reggio Emilia Exchange* 23 (4): 4–15. <https://reggioalliance.org/wp-content/uploads/2016/12/Innov.23.4web-1.pdf>.
- Mardell, B. 2011. "Learning Is a Team Sport: Kindergartners Study the Boston Marathon." www.pz.harvard.edu/resources/learning-is-a-team-sport-kindergartners-study-the-boston-marathon.
- Mardell, B., & B. Carpenter. 2012. "Places to Play in Providence: Valuing Preschool Children as Citizens." *Young Children* 67 (5):76–78.
- Project Zero, Harvard University Graduate School of Education. 2016. "Children Are Citizens." www.pz.harvard.edu/projects/children-are-citizens.

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Parallel Voices Commentary

Spreading the Happiness: By Seeing Children as Citizens, a Teacher Helps Them Be Big

Ben Mardell, Voices Executive Editor

Big and small

I imagine many early childhood educators have had experiences similar to this one. Early in my teaching career I was out for a walk when I ran into one of my students and her family. At school Nora was a leader, full of ideas for play, theories of how the world worked, and insights into the feelings of others. Talking to Nora I would sometimes forget that she was only three—she was just another person to me. She was big. But that day, seeing her teacher outside of the context of school, Nora shrank. Hiding behind her mother, barely able to talk, she seemed so small.

I have observed this phenomenon many times: young children are both big and small. By big I mean young children's insightful ideas, creative drawings, block structures, and their capacity to bestow acts of kindness. By small I mean their physical size and dependency on adults. Whether children appear big or small—both to adults and to themselves—has a great deal to do with the context and how they are treated.

Helping children be big: Children are citizens

The 3-year-olds in Georgina Ardan's Washington, DC, public school prekindergarten are big. They have important and thoughtful conversations about citizenship. They apply their emerging literacy skills to effectively communicate with each other and people outside their classroom. They reach out to members of their community in frequently successful attempts to make others feel happy.

The children's bigness did not just happen. Ardalan provides a context for them to explore ideas, collaborate, and connect with the community. She listens to them carefully. She documents their ideas and uses the documentation to reflect on their thinking (Krechevsky et al. 2013). Based on what she is seeing, she provides experiences and resources to support children's individual and collective understandings. By seeing them as citizens—of their classroom and their city—she creates opportunities for the children to be big.

Political scientist and classicist Danielle Allen, building on Hannah Arendt's work, takes citizenship to be "the activity of cocreating a way of life, of world-building. This cocreation can occur at many social levels: in a neighborhood or school; in a networked community or association; in a city, state, or nation; at a global scale" (2016).

But how can young children, inexperienced in the ways of the world, participate in world building? For those of us who know preschoolers, the answer is clear—in many ways. Children can create stunning works of public art as they have in Reggio Emilia, Italy (Vecchi 2002; Krechevsky et al. 2016). They can contribute to planning urban spaces as they have in Boulder, Colorado (Hall & Rudkin 2011). They can respond to an invitation from the mayor with creative ideas to make the city fairer and more interesting to children as they have in Boston (Haywoode 2016). Children can share compelling and fanciful stories about their city as they have in Washington, DC (Krechevsky, Mardell, & Reese 2017). And they can, as Ardalan's children do, share kindness with their fellow citizens.

In *The Kindness of Children* kindergarten teacher and educational theorist Vivian Paley explores how young children can teach older children and adults important lessons about caring and compassion. Paley shares examples of what can be called a "multiplier effect," in which young children's acts of kindness spread by inspiring acts of kindness in others. Paley notes that this spreading of kindness is "a remarkable gift to bestow" (1999, 58).

We are fortunate that Ardalan chronicles how her students spread kindness, or as they refer to it, happiness, throughout Washington, DC. By handing out their happiness cards as they travel around the city on numerous field trips, the children's simple message of love brightens the days of others. As one recipient of their message wrote to the children:

I wanted you guys to know I was having a very sad morning when you gave me the card. I almost cried because I thought it was so sweet and awesome! Keep spreading the joy and happiness—it's contagious. Thank you :)

Teachers telling stories: Narrative as research

Reading Ardalan's article one cannot help but think of Paley, the consummate teacher storyteller. In *The Boy Who Would be a Helicopter* (1990), *The Girl with the Brown Crayon* (1998), *Wally's Stories* (1981), and other publications, Paley vividly describes

classroom life, children's thinking, and teacher decision making in story form. The result is an important body of insights about teaching, learning, and what it means to be a person (Cooper 2009).

Cochran-Smith and Lytle define teacher research as "systematic, intentional inquiry by teachers about their school and classroom work" (1993, 24). Ardalan undertakes such systematic examination, recollecting, rethinking, and analyzing her children's learning and her teaching practice through a close look at documentation (e.g., children's work, recordings of conversations). She uses this reflection to construct, like Paley does, a story about the children's learning. Jerome Bruner (1987) famously explained how narrative—the creation of stories—is a central strategy for meaning making. This narrative approach to meaning making is the research orientation Ardalan employs.

A call for kindness and the need to help children be big

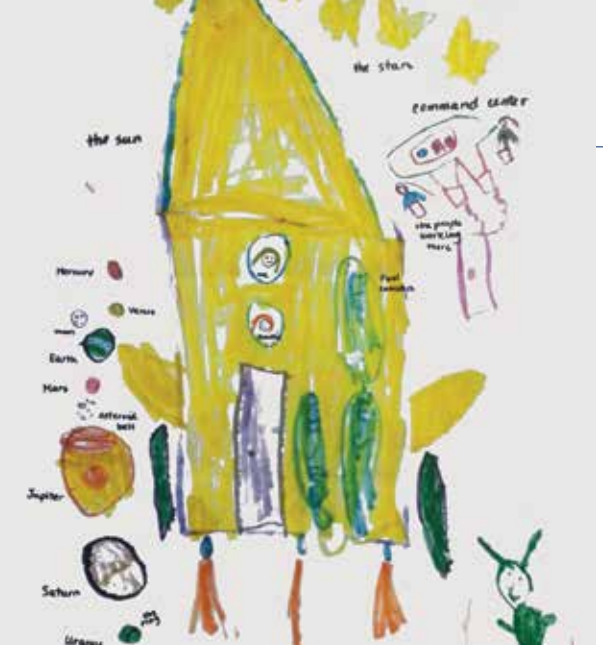
Writing about the preschool years, Erik Erikson observes, "The child is at no time more ready to learn quickly and avidly, to become bigger" (1950, 258). As we see with Ardalan's students, a good preschool classroom is the perfect place for children to become bigger.

As we move further into the 21st century, events around the globe make clear the need for kindness—for compassion, caring, and the desire to help others. And kindness, as Paley observes, is something that "children already know and can teach us." Children can "remind us who we were and can be again" (1999, 129). It is a wonderful coincidence that in becoming bigger, young children as citizens enrich their communities.

References

- Allen, D. 2016. "What is Education For?" *Boston Review*. <http://bostonreview.net/forum/danielle-allen-what-education>.
- Bruner, J. 1987. *Actual Minds, Possible Worlds*. Cambridge, MA: Harvard University Press.
- Cochran-Smith, M., & S. Lytle. 1993. *Inside/Outside: Teacher Research and Knowledge*. New York: Teachers College Press.
- Cooper, P. 2009. *The Classrooms All Young Children Need: Lessons in Teaching from Vivian Paley*. Chicago: University of Chicago Press.
- Erikson, E. 1950. *Childhood and Society*. London: Norton.
- Hall, E., & J. Rudkin. 2011. *Seen and Heard: Children's Rights in Early Childhood Education*. New York: Teachers College Press.
- Haywoode, A. 2016. "'Our Boston'—Kindergartners Design a Better City." <https://eyeonearlyeducation.com/2016/05/03/our-boston-kindergartners-design-a-better-city/>.
- Krechevsky, M., B. Mardell, & J. Reese. 2017. *The Children Are Citizens Book*. www.pz.harvard.edu/resources/the-children-are-citizens-book.
- Krechevsky, M., B. Mardell, T. Filippini, & M. Tedeschi. 2016. "Children Are Citizens: The Everyday and the Razzle Dazzle." *Innovations in Early Education: The International Reggio Emilia Exchange*.

- Krechevsky, M., B. Mardell, M. Rivard, & D. Wilson. 2013. *Visible Learners: Promoting Reggio-Inspired Approaches in All Schools*. San Francisco: Jossey-Bass.
- Paley, V. 1981. *Wally's Stories: Conversations in Kindergarten*. Cambridge, MA: Harvard University Press.
- Paley, V. 1990. *The Boy Who Would Be a Helicopter*. Cambridge, MA: Harvard University Press.
- Paley, V. 1998. *The Girl with the Brown Crayon*. Cambridge, MA: Harvard University Press.
- Paley, V. 1999. *The Kindness of Children*. Cambridge, MA: Harvard University Press.
- Vecchi, V. 2002. *Theater Curtain: Ring of Transformation*. Reggio Emilia, Italy: Reggio Children.



The Command Center Project

Resolving My Tensions with Emergent Curriculum

Luvy Vanegas-Grimaud

Thoughts on the article

Daniel Meier, Voices Executive Editor

With the increasingly complex array of curricular choices in early childhood education, teachers and administrators are constantly evaluating the most effective models, approaches, and materials to support children's learning. As Luvy Vanegas-Grimaud shows in this insightful and genuine article, the process of teacher inquiry and reflection is a critical lens for finding one's place in a new curriculum, and evaluating its worth for self, children, and families. Luvy, like many educators, had moved from a more structured, academic-based teaching environment to a new school with a more play-based, emergent curriculum approach. Through the time-honored teacher research tools of close observation, written notes of children's actions, photographs of their constructions, and documentation of children's conversations, Luvy reorients her "inner teaching self" to the external realities of her new environment and context. By listening closely to the children's interest in creating a space command center, and watching and participating in their unfolding constructions, Luvy honors the children's innermost learning desires and affirms her own commitment to early childhood education as the critical foundation for empowering and transformative education for children and adults. Luvy's is an honest and open account of this process—and a testament to the power of teacher research for sharing one's innermost concerns, fears, and doubts, as well as joys and triumphs.



Luvy Vanegas-Grimaud, MA, is an adjunct professor in the Department of Child Development at Merritt College, in Oakland, California, and concurrently works at University of California, Berkeley's Early Childhood Education Program. Luvy is actively involved in various international teacher trainings, particularly for preschool educators in Latin America and China. She is a member of the Early Childhood Education Community with Action Research Network of the Americas (ARNA).

"Let's make a mission control center!," Anne says. "Yeah! Let's make a control center!" the rest of my preschool class eagerly agrees. "Don't we want to learn about astronauts first?" I ask. "No. We want to learn about mission control first! We don't want to learn about astronauts anymore," Doug responds. I try to quiet the voice in my head: But what about the books I found on astronauts and the plans I made?

Having taught preschool for 13 years, I have long thought of myself as a teacher who follows and respects the interests of the children in my class. However, when my 23 three- to five-year-old students abruptly shifted from astronauts to mission control, my immediate fear and resistance revealed to me how uncomfortable I was with changing our focus. I kept wondering, "Now what? What do I do next?" When my two coteachers and I introduced the original astronaut project, I had a plan in mind. Faced with this shift to mission command centers, I felt lost and as if I had to start all over from scratch.

As an early childhood educator, I have thought of myself as an emergent teacher who follows my students' lead and supports their explorations. In the past, had I truly followed the children's lead? Or did I assume what they wanted to learn and then develop activities of my choice?

As a result of these questions and reflections, I decided to conduct a self-study of my teaching practices and how they support child-initiated projects. My students were expressing a strong desire to engage in the inquiry process and learn more about command centers. I wanted to support them in the best way possible, but I struggled with the sudden change. I had to remember that one of my personal teaching goals was to support them. Wanting to support their learning process, I decided my research questions would be:

- How can I help children carry out their emergent project without directing their learning?
- How can I support their enthusiasm for inquiry while still providing them with valuable learning experiences?

Framing my study

Revisiting the literature on emergent curriculum reminded me about the importance of keeping an open mind, avoiding leading the children down my preferred path, and assisting the children in making meaning of their learning journey (Dutton 2012).

Given my questions about my teaching practices, I focused on accepting that project work grows in many directions and with no predefined progression, and that no outcomes are decided before the journey even begins (Rinaldi 2006).

When I prepared for the astronaut project, I had a desired outcome in mind before the children had had an opportunity to engage in the learning process. If I had insisted on my astronaut project, it seems likely that the children's wonder and curiosity would have decreased because their interests and questions would not be driving the

curriculum (Dutton 2012). I wanted to engage in learning with my students (Ballenger 1999), no longer allowing my predetermined plans or insecurities to direct their learning.

Having decided on a teacher research project, I engaged in systematic inquiry to evaluate my teaching practices (Meier & Henderson 2007). I had never before undertaken self-study to challenge my methods, values, and goals as an educator. I wanted to adopt a more reflective practice, to deliberately scrutinize my work and thoughts (Perry, Henderson, & Meier 2012), and to begin a process of ongoing redefinition and renewal (Stremmel 2002).

Research design

My self-study took place in a play-based, emergent, year-round preschool in Berkeley, California, where I had been employed for two years prior to the study. It stretched through the spring semester, beginning in January and ending in May. The fall semester had been dedicated to helping the children transition into the program.

Over the course of the study, I collected qualitative data in several ways. Each day, I wrote journal entries in which I recorded my feelings and perspectives on the children's progress and ideas, and I focused on my role in their activities. I also made detailed notes on a weekly basis about the children's activities and play related to their mission control project. Photographs, videos, and audio recordings of the children's interactions with one another and with me were taken by my coteachers and myself. My data collection did not disrupt the children's daily routines. I transcribed the recorded conversations and found that reading and reviewing the transcriptions was valuable in identifying my role.

To identify and analyze emergent themes in the data, I reviewed them daily and weekly throughout the course of the study. I created and applied codes to track repeated concepts, then reviewed my coded data to identify overarching themes. Three themes emerged in relation to my teaching role: (1) children's level of engagement and focus; (2) teacher's actions; and (3) teacher's tensions.

Research findings

My most important findings identified the tensions I experienced throughout the course of the study and how my becoming aware of these influenced my actions as a teacher. These tensions and feelings of insecurity caused me to second guess my students' commitment and ability to direct their own learning. I wanted to be the one in control. I wanted to be the one to teach them what I thought they should know and as a result I found myself wanting to take over. Seeing my role in a new light, I reconnected with viewing and treating my students as my learning partners.

Teaching is a journey that requires constant reevaluation to stay true to one's teaching philosophy. My journey required me to take a closer look at my reluctance to give up control. I learned how important it is for the teacher to trust that children are capable of forming their own learning (Dutton 2012).

Creating Our Command Center



Students engaged in developing different elements of their command center. They wrote a sign informing everyone that their command center was in progress.



The children created multiple computer monitors and keyboards to launch space shuttles and communicate with astronauts in space.



They drew large monitor screens to see what was happening in outer space.

Children also drew outer space scenes accompanied by detailed stories, which led to designing and engineering their own spaceships.



With the flag on the wall and the computers installed, the command center took shape.

Children's engagement and focus

Even after my initial fear of shifting from astronauts to mission control subsided, I remained hesitant. I thought my students would be unable to focus enough to maintain interest in, and derive meaningful learning from, their project. I believed that as one of their teachers, I had to “teach” them—which meant redirecting them back to learning about astronauts. Little did I know that by allowing the children to engage in their emergent project I would see them focus at levels I had not seen before. John Dewey (1962) suggested that adults play a key role in supporting and guiding children's interests. The moment I decided to follow the children's lead and help them create their command center, I took on the role of supporter and guide, fostering opportunities for them to do their best work. Their focus, research, knowledge, and skills are documented in the photo story “Creating Our Command Center.”

Reflecting on my role

The photographs capture the intensity and focus that the children demonstrated while creating the different parts of their command center. As I reflected on the beginning of the project, I realized that my feelings of insecurity and need to control almost prevented me from experiencing what my students were capable of doing.

Becoming aware of the tensions I experienced influenced my actions. Realizing that this project belonged to the children, not to me, I wondered how I could help them without taking over. I began to observe and listen closely to see where and how I could extend their learning. By regularly analyzing my data, I discovered that my observations and listening were extremely valuable—I took advantage of teachable moments across several learning domains while respecting the children's ownership of their command center and learning about outer space. The excerpts below come from my observation notes, photographs, and journal.

Resolving my tensions

Data excerpt #1—Journal entry (01-30-14)

I don't know what happened today. The children completely changed the focus of the project. I don't completely understand when they changed their minds. We asked them what they wanted to learn about, and they all agreed on astronauts. We even made a big deal about it and had Vicky dress up like an astronaut. I guess the book Anne brought in changed their minds. It had a picture of a command center and I guess it sparked their interest. I have no idea how to proceed. I tried to change their minds, but they were not listening to what I was saying. I really want to support their project, but I guess I'm going to have to take a different approach now. I'm going to have to follow their lead and see where it goes.

Data excerpt #2—Journal entry and observation photo (02-03-14)

Dillan, Anne, Chris, and Nick are working collaboratively to move the furniture around in the downstairs part of our loft. They unanimously decided that they wanted to create a mission control center after reading Anne's book. I guided them by providing pictures of different mission control centers. I printed them out so that they could use them as



references. As the children looked at the pictures, they realized that they had to rearrange the furniture in the area if they wanted to create a mission control center. Together, they began to move furniture around and along the wall. They assigned roles to one another, letting each other know which piece of furniture they were going to move and where they were going to move it to. I tried really hard not to step in and take over their activity. Instead, I simply watched and made sure they were moving the furniture safely. I observed them closely. They kept saying, "We have to move this to the wall so there's room, right guys?" "Yeah!," they all responded. It's amazing to see how children work together when we give them the chance to do so. Not taking over was the best thing I could have done for them. It allowed them the opportunity to work together and to strengthen the sense of community that we are trying to instill in our class.

These excerpts highlight the shift of emotions I slowly experienced during the project. Initially, my goal was to assist the children in their learning, but I couldn't help but feel disappointed by the shift in their interests. I was truly excited about astronauts and didn't know how to begin supporting their curiosity about mission control centers. Regardless of my emotions, discouraging their project was the last thing I wanted to do.

As the project progressed, I saw that the children were engaging in valuable activities without my direction, and I found myself becoming excited about their work. Reflecting on my changing role, I realized that children are at the forefront of teacher research, not me. Teacher research is designed to help teachers gain new ways of seeing children and become more responsive to them (Perry, Henderson, & Meier 2012). Revisiting my data revealed to me that I used the word *I* repeatedly: I wanted, I felt, I didn't agree. That was the moment I stepped back and truly began to listen and observe.

Observing and listening

Data excerpt #3—Observation notes (02-05-14)

Alice and Anne are looking at pictures of an actual command center that I printed out. Standing in front of the pictures, they point and move in closer, trying to see something. I approach them without interrupting and overhear their conversation.

Anne: Yeah, look. There's a whole bunch, Alice.

Alice: There's a phone and lots and lots of buttons. [*Pointing to the buttons*]

Anne: We need buttons, lots of buttons. And look, there's lots of big screens. Big ones like at the movies; and look, they can see the astronauts in space.

Alice: I have a computer at home and it has lots of buttons too!

Data excerpt #4—Teacher journal entry (02-05-14)

Today I observed Anne and Alice closely observing the command center pictures I posted in our dramatic play area. They are beginning to realize that if they want to create a command center, they have to look at the pictures to see the elements in an actual command center. The command center has been abandoned the last few days, and I'm glad to see that they haven't lost interest. I don't want to tell them what to do, but perhaps I should ask the students to make a list of what command centers need and see what they come up with. Anne already expressed the need for lots of buttons. Perhaps they want to make a few things!

By closely listening to Anne and Alice's conversation, I was later able to reflect on how I could assist them and value what they wanted to do without telling them what they needed. I was also able to extend my own learning, grasping on a deeper level that the act of listening gives value to others' views (Rinaldi 2006).

I decided to ask the children at circle time what items they needed in order to create their command center. As we observed and compared the pictures from the Internet, they came up with an extensive list of items. Their project was officially under way. And my role was becoming clearer. I sought to help the class select topics at the right level of focus and become the facilitator and resource gatherer (Meier & Henderson 2007). I became a dispenser of occasions, helping my students—my learning partners—plan what came next (Edwards 2012).

**Taking advantage of teachable moments****Data excerpt #5—Observation (02-25-14)**

I'm inside the classroom observing two friends in the mission control center. Leo approached me with a book about space we had on our bookshelf.

Leo: Look, this book is good for learning. [*He shows me a picture of a double star. I immediately stop what I'm doing and give him my undivided attention.*]

Me: Why is it good for learning?

Leo: Because it talks about space.

Me: Oh, okay! Let's go sit down and look at it.

Leo: Yeah, let's read it! [*We walk over to the couch, and Leo begins to turn the pages of the book. We continue to turn the pages and Leo continues to ask questions.*]

Leo: What is this?

Me: Constellations. It says right here, "constellations."



Leo: What is this guy doing? [pointing to the Orion constellation on the page]

Me: That's Orion, the hunter. [Leo turns the page]

Me: Leo! Look! It's Leo! There's a constellation called Leo. Just like your name. [Leo begins to smile]

Leo: Yeah!

Me: It says "Leo the Lion."

Leo: Oh, I'm called that!

As I reflected on my interaction with Leo, I realized that my reaction to his excitement about the book he found reinforced and supported his desire to know more. I saw clearly that the teacher's attitudes can encourage or discourage a child's attitude toward learning (Elkind 2007). By giving full attention to Leo's discovery and devoting time to looking at the book together, I showed Leo that I cared about his acquisition of knowledge. This interaction also made me more aware of my students' commitment to their project.

They were learning to use books as references and discovering that they could engage in inquiry. I realized that I was supporting—not directing—Leo's learning. I read the words and transmitted information back to Leo under his guidance. We were sharing in the construction of knowledge (Cuffaro 1995).

Data excerpt #6—Journal entry (03-08-14)

Today, Alice and Carly noticed that there was an American flag in one of the command center pictures. Alice said, "Look, there's a flag in this picture." I asked them if they would like to make a flag, and they responded yes. I asked them what we could use to look at the flag closely, and Carly answered, "I know, the backpack!" She remembered that Vicky's backpack had the American flag on it. We got the backpack and put it on the chair. I asked them what we needed for the flag, and they said, "Stars, red paper, blue paper, white paper, and stripes," while they looked at the flag. We didn't have stripes or stars, so they decided to make their own.



They got excited when I told them they would have to draw their own 50 stars and 13 stripes. They counted and I provided rulers. They did such a great job. Ellie and Anne joined in once they saw what the others were doing. Together, they drew 50 stars, cut them out, and lined them up in rows, using the flag on the backpack as a guide. They counted the number of red and white stripes they needed and created them, as well. I explained that rulers were used for measuring and to draw straight lines. Carly used the ruler to make her stripes.

Joining in the children's excitement and curiosity about the American flag led to another teachable moment to use to develop a variety of skills and knowledge. Through the flag

creation, I challenged my students without telling them what to do. Instead, I asked them questions to get them thinking about what they needed, which inspired further creativity and curiosity (Gallenstein 2005). With simple but intentional prompts, I incorporated counting, measuring, and patterning.

Discussion

Giving up control of the project focus was difficult; it challenged me to reexamine who I was as an educator. I discovered that the tensions I was experiencing indicated I had followed my own agenda in the past. My students challenged me to become a better observer and listener, which in turn revealed teachable moments and allowed me to extend their learning.

This study helped me reconnect with and more fully understand reflective teaching. After this experience—and with my data as a reminder—I will never forget that letting go of control, even when feeling insecure about it, means being able to give children ownership of their own learning.

References

- Ballenger, C. 1999. *Teaching Other People's Children: Literacy and Learning in a Bilingual Classroom*. Practitioner Inquiry series. New York: Teachers College Press.
- Cuffaro, H.K. 1995. *Experimenting with the World: John Dewey and the Early Childhood Classroom*. Early Childhood Education series. New York: Teachers College Press.
- Dewey, J., & E. Dewey. [1915] 1962. *Schools of Tomorrow*. New York: E.P. Dutton.
- Dutton, A.S. 2012. "Discovering My Role in an Emergent Curriculum Preschool." *Voices of Practitioners* 7 (1): 3-17. www.naeyc.org/files/naeyc/file/vop/Dutton_0512_Final1.pdf.
- Edwards, C. 2012. "Teacher and Learner, Partner and Guide: The Role of the Teacher." Chap. 9 in *The Hundred Languages of Children: The Reggio Emilia Experience in Transformation*, 3rd ed., eds. C. Edwards, L. Gandini, & G. Forman,
- Elkind, D. 2007. *The Power of Play: Learning What Comes Naturally*. Berkeley, CA: Da Capo.
- Gallenstein, N.L. 2005. "Engaging Young Children in Science and Mathematics." *Journal of Elementary Science Education* 17 (2): 27-41.
- Meier, D.R., & B. Henderson. 2007. *Learning from Young Children in the Classroom: The Art and Science of Teacher Research*. New York: Teachers College Press.
- Perry, G., B. Henderson, & D.R. Meier, eds. 2012. *Our Inquiry, Our Practice: Undertaking, Supporting, and Learning from Early Childhood Teacher Research(ers)*. Washington, DC: National Association for the Education of Young Children (NAEYC).
- Rinaldi, C. 2006. *In Dialogue with Reggio Emilia: Listening, Researching, and Learning*. Contesting Early Childhood series. New York: Routledge.
- Stremmel, A.J. 2002. "The Value of Teacher Research: Nurturing Professional and Personal Growth through Inquiry." *Voices of Practitioners* 2 (3): 1-9. www.naeyc.org/files/naeyc/file/vop/voices-Stremmel1.pdf.

Photographs: courtesy of the author and NASA



The Magic of Inquiry and Hermit Crabs

Empowering Holistic Development in Hong Kong

Suzannie Kit Ying Leung

Thoughts on the article

Andy Stremmel, Voices Executive Editor

Recognizing the importance of children's self-directed learning through exploration of their natural environment, Suzannie Kit Ying Leung embarks upon a teacher research study focused on children's curiosity about hermit crabs. Her work is grounded both politically and theoretically in holistic, integrated, and inquiry-based learning. Using the qualitative method of participant observation, Suzannie pays close attention to children's conversations, raising questions to challenge their thinking and foster deep discussions. This study demonstrates in a very powerful sense what can be learned through teacher research about children, their thinking, their feelings and understandings, and their strategies for meaning making. Further, it reveals the transformative influence of teacher research in helping teachers reassess their own thinking and ideas about the competence of children and the role of parental involvement in inquiry-based curriculum.



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Hong Kong is a large, cosmopolitan city. It has many wonderful cultural resources but little outdoor space in which children can explore nature. As an early childhood teacher in Hong Kong, I was concerned about helping the twelve 3- to 4-year-olds in my bilingual (Cantonese and English) class connect with nature. I was also concerned about giving them time to explore and direct their own learning.

The Hong Kong educational system is carefully planned and engaging, but the early learning curriculum requires three hours a day of teacher-directed instruction, leaving children in half-day programs without time to direct their own learning. Fortunately, I taught in a full-day (six-hour) program, and I knew that naturalistic exploration is critical for children's development (Gardner 1983). As a result, I had the time and the knowledge I needed to enrich the children's learning with several inquiry-based, nature-focused projects.

Among the different projects we undertook, one that the children found especially inspiring involved two hermit crabs, perhaps because children seldom have the opportunity to get in touch with nature. This inquiry began with a visit to the Hong Kong Wetland Park, where the children spent a day observing different creatures, such as crocodiles, tortoises, birds, and insects. The hermit crabs impressed them the most.

Seeing their reactions, I believed hermit crabs would make an interesting topic for further inquiry. I talked with the children after the wetlands visit, and we decided to care for two hermit crabs in the classroom, studying their characteristics and habits. Every child had an opportunity to take the hermit crabs home after school for two or three consecutive nights to develop relationships with them. After each visit, the children reported on what they did with the hermit crabs at home. Throughout the project, I engaged in teacher research to explore and document children's questions and the way they demonstrated their understanding of the creatures through the use of the media I provided.

Policy and research foundations

Nearly 20 years ago, Hong Kong's Education Commission (which advises the government) emphasized that the overall aim of education is "to enable every person to attain all-round development in the domains of ethics, intellect, physique, social skills, and aesthetics according to his or her own attributes" (Education Commission 2000, 30). While that aim has primarily been pursued through a government-developed curriculum with little flexibility, changes are now under way.

Hong Kong's Curriculum Development Council recently published a curriculum framework that calls for an integrated curriculum (2017). This is a welcome change, as holistic learning can be achieved only if the curriculum is integrated and open (Haddad 2002) and respects children's autonomy by providing time for inquiry-based learning.

Inquiry-based learning is a dynamic process—an approach to "exploring the natural or material world, and that leads to asking questions, making discoveries, and rigorously

testing those discoveries in the search for new understanding” (National Science Foundation 2000, 2). My research study is grounded in the theoretical framework of inquiry-based learning through a project. Projects allow students to study a topic of interest in greater detail (Katz & Chard 2000). The project approach is rooted in John Dewey’s ([1938] 1966) philosophy of learning by doing. When children work on projects, they record what is of interest to them without any prompting from the teachers (Lowenfeld & Brittain 1987; Griebeling 2011). Engaging in projects is a useful approach because children need multiple means of exploration in order to enhance their investigations and increase retention of their new understandings (Davis & Keller 2009).



Aligning with Hong Kong’s new emphasis on integrated curriculum, projects connect different subject areas, various competencies, and academic and social skills, facilitating children’s holistic development. During our hermit crab project, children engaged in naturalistic and scientific inquiry and also created visual representations of their explorations (Malaguzzi 1998). Present throughout the project was the element of play—a primary way young children learn, socialize with others, understand their own feelings and others’ perspectives, and become members of the classroom community (Elgas 2003; Riley et al. 2008).

Research questions and methods

My entire class engaged in the hermit crab investigation for a month, shortly after our Wetland Park visit. To help children gain an understanding of hermit crabs, I first introduced the children to the storybook, *A House for Hermit Crab*, by Eric Carle. Then I placed a children’s encyclopedia in the science corner that the children could refer to while learning how to take care of the crabs in real life. Every day, at a learner corner for science exploration, children observed the two hermit crabs. At night, with assistance from their families, children took turns caring for the hermit crabs at home, carefully completing their own visual diaries. When they brought the crabs back to school, children shared their experiences with classmates, illustrating the activities they did with the crabs.

Throughout the project, my research questions were

1. What sorts of questions do children ask when exploring hermit crabs?
2. How do children use the materials I provide to represent their understandings of hermit crabs?
3. How does my facilitation help guide and sustain the children’s interest, exploration, and understanding?

I chose the role of participant observer for this study. Participant observation is a technique of collecting central ethnographic data when an observer is attached to the situation (Punch 2005). My main methods of collecting data were observing, taking notes, taking photographs, and having conversations with the children. Observations are critical—they allow teachers to make specific plans and adjustments to accommodate children’s varying rates of development (Jablon, Dombro, & Dichtelmiller 2007). They are also helpful for collecting data in authentic situations. As a participant observer, I took anecdotal notes, which are detailed, narrative accounts that factually describe a particular event (Jablon, Dombro, & Dichtelmiller 2007). I recorded events and conversations as they happened, jotting field notes during class and adding details later. During the children’s inquiry activities, I probed their learning and understanding by raising questions to challenge their thinking and foster higher-order discussions (Ogu & Schmidt 2009).

Natural creatures and inquiring minds

I opened the project by inviting children to observe the hermit crabs during their free activity time. Children were able to observe and study the crabs daily to develop their understanding of the hermit crabs and their relationships with them. To engage the children in drawing as a research tool and a powerful means of representing their thinking (Veale 2005; Roberts-Holmes 2011), I placed colored pencils and paper nearby, so the children could freely draw what they observed. Then I collected their drawings and recorded their thoughts about the crabs through naturalistic observation and anecdotal records.

Sum observed the crabs during the first four days and began an interesting relationship with them. She assumed that the crabs were her classmates, saying, “We’ve got two new classmates here. But why they are sleeping always?” When I asked her about her drawing, she explained that the circle at the top represented the hermit crab, and their tank and the sand were drawn at the bottom. Her drawing demonstrated that she was at the schematic stage (Steele 1998), as most kindergartners are (Lowenfeld & Brittain 1987), because she tried to represent objects by using symbols in two dimensions.

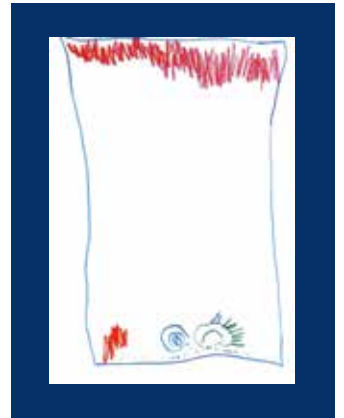
On the second day, Sum gained more information about hermit crabs through observation and started to understand the crabs’ physical structure. She noted, “I can see his legs, Miss Leung. The hermit crab has lots of legs. He is leaving his room and climbing on the sand!” She drew the legs in the picture and the circle became a swirl—much closer to the image of a shell.

Sum’s excitement about the hermit crabs must have been evident at home; her father took her to the beach to collect some shells for the crabs as their “new clothes.” Sum displayed empathy toward the crabs on the third day, when she drew the shells she had collected for them. She said, “I put the shells into their house. So happy that they are having new clothes!” She humanized the crabs, believing they would change clothes like people did. The swirling shells in her picture became much more detailed.



On the fourth day, Sum drew two hermit crabs and wished to be their friend. She happily shared, "I am a friend of the hermit crabs. Do you know that they are good friends, too? He is very friendly and always walks around, and she looks so shy." Pointing to her drawing, Sum added, "He is the one on the right side, and she is the one on the left." She identified their gender by referring to their social characteristics, suggesting her strong stereotyped perceptions of males and females.

I interacted with the children as a colearner, facilitator, and observer throughout the project. In class discussions, I probed their thinking with questions like, "Where do the crabs live?," "What do they eat?," "What will they do in their living room?" Early in the project, the children made several assumptions about the hermit crabs: (1) they need to have better living conditions, like we do, including having a pillow and a bedroom; (2) they are our classmates, therefore they have to learn something new at our school; (3) they will not eat only apples, because human beings don't eat only one kind of food; and (4) they will get bored staying in the tank without playing games.



Interior design

To address the crabs' living conditions, the children selected materials from the art corner and began a home renovation project, using an empty milk box as a bedroom for the hermit crabs. Due to variations in their motor development, children took on different duties in completing the artwork and collaborated throughout the renovation:

Lung: The hermit crabs have got a new room now, but it looks not very nice.

Yee: People will not live in an ugly house like this!

Miss Leung: What can we do for the hermit crabs?

Ting: We can make it more beautiful, then!

Yee: I like shiny pink a lot! I want to put them in the room.

Yang: It's nice! Let's put some green on it. I like green!

To further improve the crabs' quality of life, the children made them a pillow. Through the discussion, their schema about color and texture were newly expanded. By asking open-ended questions and documenting children's thoughts, I was able to revisit and later elaborate on their questions and ideas. I also modeled my reflection by reviewing contributions from the class discussion to determine who was more active and who was more hesitant in responding (Ogu & Schmidt 2009).

The following excerpt shows how pursuing their ideas supported the children's growing understanding the hermit crabs' actual needs:

Miss Leung: Why do we have to make a pillow for the hermit crabs?

Lee: I think it is because they have a room now, so they need a bed and a pillow, as well.

Yan: I don't think they need a bed, since they have sand there.

Kiu: Yes, they are so poor now because they have no pillow. They cannot sleep well. See, they hid into the sand again.

Miss Leung: How can we make a pillow?

Yan: We can use something to pack the pillow.

Lee: A paper?

Kiu: [*holding up two sheets*] This one is yellow paper, and this one is a transparent plastic sheet.

Miss Leung: Which one is better?

Yan: The yellow paper is better because it is not transparent.

Kiu: Yes, the transparent one can see through the things.

Ming: Transparent? No, no, no.

Miss Leung: [*She helps them focus their decision making by having them consider the best climate for the crabs*] Do you think the inside of the crabs' house is drier or wetter than the outside?

Yan: I don't know

Miss Leung: Try touching the sand outside the box and then the sand inside the box. Which one is wetter?

Kiu: The inside.

Ching: The inside is wetter.

Sum: Yes.

Miss Leung: How about we put some water on the yellow paper and the transparent plastic sheet to see which one is easier to tear?

Ming: I can't tear the transparent one.

Kiu: Oh, the yellow one is torn!

Miss Leung: Do you think we can use the yellow paper to make a pillow for the crabs?

Kiu: No, the plastic one is better.

Yan: Yes, the yellow one is easier to tear when it was wet.

Miss Leung: What shall we put inside the pillow?

Yan: Put some beans inside, like bean bags.

Lee: I like to put some sweets inside.

Sum: We can't put sweets inside. We don't have sweets in our pillows!

Kiu: Sand!

After the discussion, the children understood that the sand inside the box was wet to suit the crabs' environment—hermit crabs are better off living in a humid place. After experimenting with the materials, children found that the plastic sheet could tolerate water better than the paper one. Ultimately, the children created a pillow out of red plastic packed with dry sand.

Students as teachers

To help the crabs learn something new at school, the children created a language and math activity. They designed a learning board so the hermit crabs could learn numbers, like one, two, three, four, and letters, like A, B, C. Children began to develop the concept of one-to-one correspondence (Davis & Keller 2009) with authentic hands-on counting:

Lam: [*Joey starts pointing at the numbers.*] This is one, and this is two.

Miss Leung: Very good Joey! Is that enough?

Yee: They have to learn more, Miss Leung. Let's count to four.

Miss Leung: Okay, sure!

Pui: [*Mary points and reads.*] This is A, and this is B, and this is C.

A balanced meal

The children's third assumption, that the hermit crabs wouldn't eat just apples, surfaced after they fed the crabs only apples for an entire week. They felt that "human beings cannot eat just one kind of fruit." The children decided to provide different fruits to the hermit crabs. Not knowing the crabs' taste preferences, they suggested four kinds of fruit: strawberry, banana, mango, and orange. The children tasted these fruits and sorted them into sweet and sour groups. Since they needed to know whether or not the hermit crabs had really eaten the different fruits, the children observed the hermit crabs every day. They checked whether the crabs had eaten the fruit and recorded their observations. I facilitated this by suggesting they divide into four groups. Each group was responsible for observing and recording for one day, and one kind of fruit was given each day. Children found that the crabs liked eating apples more than strawberries, mangoes, oranges, or bananas. They reported that the crabs gathered around the strawberry and hesitated for a while. The children concluded that strawberries were not the crabs' favorite fruit, explaining that the crabs did "a taste and a nice try," like the children often did at the supermarket with their families.

That's entertainment

To address their assumption that the crabs would be bored, the children sang and danced in front of the crabs. They learned to fold paper into a hat to represent the crabs' shells and write the letter H (for hermit crab) on it. The children also wrote a new rhyme to entertain the hermit crabs with:

Hermit crab, hermit crab, Climb up the rock.

Hermit crab, hermit crab, Say hi hi.

Hermit crab, hermit crab, You're so shy.

Hermit crab, hermit crab, Don't say bye-bye.

Encouraging expression through different media

While collecting some samples in the art corner, I discovered that the children's artwork was influenced by the presence of the crabs. The samples showed how children's authentic learning experiences facilitated various forms of expression through visual art, photography, music, and movement.

Yang drew a picture that reflected his personal wish to make friends, projecting that desire onto the hermit crabs. He said, "This is the hermit crabs' house, and they have lots of friends inside. I like red color very much, so I want to decorate their house to be in red color."

Lee explored color in her pieces. Satisfied with her artwork, she laughed as she finished, saying, "The red color is the hermit crabs' room, and there are shells in purple and yellow."

Looking through a camera lens, Ming got excited seeing a hermit crab eating an apple. He observed in detail the body structure of the crab. The biology learning that happened during this project was apparent when he said, "See, Miss Leung! He is eating the apple. I can see his legs and pliers. He used his pliers to take the apple!"

Sum explained that she had to take photos of the crabs to capture the pink crab's behavior, because that crab was always hiding in the sand. She remarked, "I think the pink crab will like her new room and the learning board. Will she read it all the time?"

The children's artistic expression was not limited to visual art. They engaged in music and movement as well, mainly in their efforts to entertain the crabs (as described earlier).

Reflections and conclusion

This teacher research study indicated that some factors are essential to effective inquiry-based curriculum design and implementation. First, parental involvement is crucial, since parents are also facilitators—or even participants—in the project. Parents should not take over children's roles. Instead, they can help extend children's learning from the school setting to their home. Second, learning diversity is a concern when conducting projects with children. As a teacher, I do not assume that every child has a similar level of prior knowledge. Indeed, in Hong Kong, where socioeconomic status among children is very diverse, I feel that authentic learning experiences and materials should be prepared by teachers to ensure equal learning opportunities for children and a common knowledge foundation for inquiry. In addition, in Hong Kong, a kindergarten class typically has up to 15 students. I conducted an in-depth study with my class of 12 children—a healthy class size that may help teachers cater to individual learning needs and encourage children to contribute to the project equally.

Children revised their original concepts about hermit crabs through exploration and experimentation. By the end of this project, they were all able to summarize the lifestyle of the hermit crabs—diet, living, study, and entertainment. The children stated

that hermit crabs (1) live in their own shell; (2) like climbing on sand instead of learning at school; (3) enjoy eating only apples; and (4) have their own way of entertaining themselves.

The children's initial assumptions, when compared with their conclusions, show their thoughtfulness about living things. Parents were surprised and impressed by the children's creative and caring thoughts about the crabs, and I was encouraged to keep working with young children, finding that their abilities and behaviors exceeded my expectations. Their dialogues reveal that they were developing the intellectual ability to understand another's perspective and feelings (Riley et al. 2008), even as they continued to display childhood egocentrism (Piaget 1959). The children selected learning experiences at their own levels of understanding and expanded their knowledge of the world and of their role in the world (Opper 1996).

As a reflective teacher-researcher, it was a fascinating research project, and I enjoyed listening to the voices and thoughts of young children in an authentic way. This project also empowered me to reassess my ideas about the competence of children and the role of parental involvement. I would like to share this project with the children's parents and the community through newsletters and social media in the hopes that others also develop a new understanding about children's minds and abilities.

References

- Curriculum Development Council. 2017. "Kindergarten Education Curriculum Guide Provisional Final Draft." Hong Kong: HKSAR Education Bureau.
- Davis, G.A., & J.D. Keller. 2009. *Exploring Science and Mathematics in a Child's World*. Upper Saddle River, NJ: Pearson.
- Dewey, J. [1938] 1966. *Logic: The Theory of Inquiry*. New York: Holt, Rinehart, & Winston.
- Education Commission. 2000. *Learning for Life, Learning through Life: Reform Proposals for the Education System in Hong Kong*. Hong Kong: Education Commission.
- Elgas, P. 2003. "A Peer Culture Perspective on Social Group Play." In *Early Childhood Classroom Processes*, eds. R. Kantor & D.E. Fernie, 39–62. Cresskill, NJ: Hampton.
- Gardner, H. 1983. *Frames of Mind: The Theory of Multiple Intelligences*. New York: Basic Books.
- Griebling, S. 2011. "Discoveries from a Reggio Inspired Classroom: Meeting Developmental Needs through the Visual Arts." *Art Education* 64 (2): 6–11.
- Haddad, L. 2002. *An Integrated Approach to Early Childhood Education and Care*. Early Childhood and Family Policy Series no. 3. Paris: UNESCO. <http://unesdoc.unesco.org/images/0012/001279/127983e.pdf>.
- Jablon, J.R., A.L. Dombro, & M.L. Dichtelmiller. 2007. *The Power of Observation: Birth to Age 8*. 2nd ed. Boston: Wadsworth; Washington, DC: NAEYC.
- Katz, L.G., & S.C. Chard. 2000. *Engaging Children's Minds: The Project Approach*. 2nd ed. Stamford, CT: Ablex.
- Lowenfeld, V., & W.L. Brittain. 1987. *Creative and Mental Growth*. 8th ed. New York: Prentice Hall.
- Malaguzzi, L. 1998. "History, Ideas, and Basic Philosophy." In *The Hundred Languages of Children: The Reggio Emilia Approach—Advanced Reflections*, 2nd. ed., eds. C. Edwards, L. Gandini, & G. Forman, 49–89. Westport, CT: Ablex.

- NSF (National Science Foundation). 2000. *Inquiry: Thoughts, Views, and Strategies for the K-5 Classroom*. Foundations: A Monograph for Professionals in Science, Mathematics, and Technology Education, Vol. 2. Washington, DC: NSF. www.nsf.gov/pubs/2000/nsf99148/pdf/nsf99148.pdf.
- Ogu, U., & S.R. Schmidt. 2009. "Investigating Rocks and Sand: Addressing Multiple Learning Styles through an Inquiry-Based Approach." *Young Children* 64 (2): 12-18.
- Oppen, S. 1996. *Hong Kong's Young Children: Their Early Development and Learning*. Hong Kong: Hong Kong University Press.
- Piaget, J. 1959. *The Language and Thought of the Child*. London: Routledge and Kegan Paul.
- Punch, K.F. 2005. *Introduction to Social Research: Quantitative and Qualitative Approaches*. Thousand Oaks, CA: Sage.
- Riley, D., R.R. San Juan, J. Klinkner, & A. Ramming. 2008. *Social & Emotional Development: Connecting Science and Practice in Early Childhood Settings*. St. Paul, MN: Redleaf; Washington, DC: NAEYC.
- Roberts-Holmes, G. 2011. *Doing Your Early Years Research Project: A Step-by-Step Guide*. 2nd ed. London: Sage.
- Steele, B. 1998. *Draw Me a Story: An Illustrated Exploration of Drawing-As-Language*. Winnipeg, Manitoba: Peguis.
- Veale, A. 2005. "Creative Methodologies in Participatory Research with Children." In *Researching Children's Experience: Approaches and Methods*, eds. S. Greene & D. Hogan, 253-72. London: Sage.

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Supporting Struggling Readers

Using Vocabulary Cartoons During Transition Times

Heidi Heath DeStefano

Thoughts on the Article

Debra Murphy, Voices Executive Editor

Small moments. So much has been written about teaching that it is easy to forget what every teacher knows: teaching is made up of small moments.

Heidi's article about using cartoons as an engaging intervention to boost the vocabularies of struggling readers does what teacher research articles do—it gives us glimpses of small moments in her practice as a reading intervention teacher.

As a teacher educator, I was drawn to teacher research because of its power to make the voices of teachers and children heard. The real power, however, emerges from *why* that matters so much. As Cynthia Ballenger, author of *Puzzling Moments, Teachable Moments: Practicing Teacher Research in Urban Classrooms*, has explained, teacher research brings democracy and equity to the classroom by giving significance to everyone's ideas. Heidi's article reflects this same goal with a group of children that might otherwise be invisible. She not only looked; she saw them. She not only listened; she heard them. This is the real message of teacher research. It resonates with other teachers—one teacher at a time, one small moment at a time.



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As a reading intervention teacher in an elementary school, it is my responsibility to identify the knowledge and skills that struggling readers have not yet mastered and to offer targeted instruction to address their needs. Children typically make significant—even life-changing—reading progress when research-based interventions are used (Slavin et al. 2009).

After 10 years working with young struggling readers, I realized that poorly developed vocabulary knowledge seemed to be a factor limiting their ability to access more advanced texts. The reading interventions I used were highly structured and did not provide systematic vocabulary instruction, and scheduling restraints prevented additional lesson time to incorporate daily vocabulary work. Still, I was determined to find a way to supplement students' vocabulary knowledge.

An idea began to form when I observed that the first graders I worked with were highly engaged in the conversations we had during transitions between their classrooms and my intervention room. I tried to make these conversations instructional to make every moment an opportunity to learn. For example, I gave the children clues to help them decode a mystery word taped to my door. Or I might play a rhyming game or engage in a phonemic awareness activity, such as verbally segmenting a word and asking them to identify the word. While these interactions seemed to be casual social exchanges, I had very deliberate academic goals in mind. I decided to find a way to capitalize on our transition time to enhance students' vocabulary knowledge.

In my search for new strategies, I discovered the book *Vocabulary Cartoons* (Burchers, Burchers, & Burchers 1998) and was captivated by the authors' idea of using rhyming text with silly images to support vocabulary development. The cartoons combine the benefits of humor, a rhyming mnemonic, and an image to help learners associate a vocabulary word with its meaning. I decided to explore using vocabulary cartoons during transition times to increase students' vocabulary knowledge and hoped to answer the following questions:

- How would first graders respond to the hallway vocabulary cartoon intervention?
- Would using vocabulary cartoons during transition times help them gain vocabulary knowledge?
- Would teachers notice children using the vocabulary words in their classrooms and support the intervention?

Literature review

Vocabulary knowledge is important for reading comprehension (National Reading Panel 2000; Lervåg & Aukrust 2010), and extensive print exposure contributes significantly to vocabulary knowledge (Cunningham & Stanovich 1991). Consequently, struggling readers who have difficulty negotiating text do not benefit as much from the reciprocal relationship between vocabulary knowledge and reading experience as their peers who are proficient readers. Struggling readers typically read less and choose fewer vocabulary-rich texts due to the task difficulty (Cain & Oakhill

2011). Nevertheless, it is not unreasonable to expect young children to learn more sophisticated words (Beck & McKeown 2007).

Mnemonics are strategies used to help learners remember (Lombardi & Butera 1998). Vocabulary cartoons are similar to a method of vocabulary instruction called the keyword mnemonic strategy, which uses a paired association of imagery and an acoustical link to help learners remember new words (Wolgemuth, Cobb, & Alwell 2008). Research indicates that the keyword mnemonic approach can be effective in developing vocabulary knowledge for students with and without learning disabilities (Condus, Marshall, & Miller 1986; Mastropieri, Scruggs, & Fulk 1990; Lombardi & Butera 1998).

Humor has also been linked with helping students learn, as it may increase their interest and engagement in the material presented (Weimer 2011). Using humor in the classroom—such as cartoons and funny photos that illustrate different concepts—can help elementary and middle school students with reading, writing, and critical thinking (Ivy 2013). Younger students benefit also, as noted in a previous *Voices of Practitioners* article discussing the cognitive and psychological benefits of laughter in a preschool classroom (Smidl 2014).

By combining mnemonics and humor in the hallway, I hoped to create a brief, effective vocabulary intervention for my first graders during transition times.

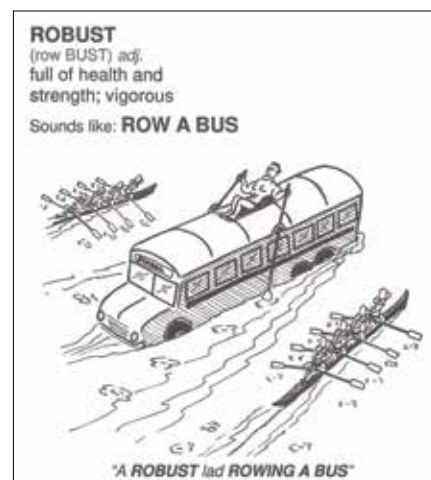
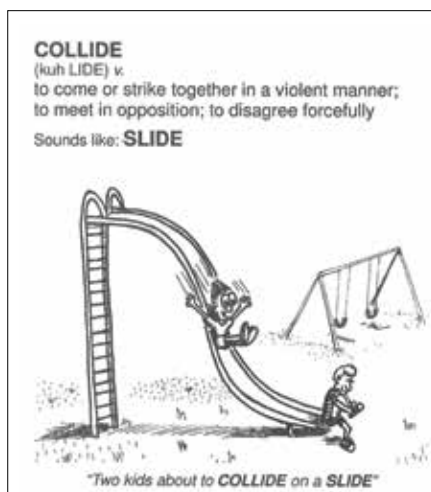
Setting and participants

The elementary school in this research study was located in a small midwestern community. While the student body (roughly 430 children) had long been predominantly white and middle class, an increasing number of children from working-class Hispanic heritage families had recently begun enrolling. This increasing diversity merited attention because our school was not fully prepared to provide high-quality, research-validated education for dual language learners. Native English-speaking children whose parents did not go to college would likely need additional vocabulary instruction, as well.

My teaching schedule included two first-grade reading intervention groups, which had been formed through recommendations by classroom teachers and assessment data. The eight lowest-scoring first-grade struggling readers who were not identified for special education services were enrolled in my intervention groups and then invited to participate in my action research study. I obtained parental and child consent for all eight participants (three girls and five boys).

Methodology

Prior to my hallway intervention with the children, I placed a vocabulary cartoon on my intervention room door. The vocabulary cartoons were created and published by Max, Bryan, and Sam Burchers (1998). I obtained permission to use the cartoons for this study (and any resulting publications). While many of them are geared toward an



older audience, I selected 10 with images and words that I felt were appropriate for first graders, based on my experience working with this age group. These cartoons featured the words *robust*, *collide*, *belittle*, *fret*, *compatible*, *miniscule*, *delectable*, *perturb*, *inhabit*, and *summit*.

While selecting the cartoons, I considered the following questions:

- Which words were appropriate for first graders, and of those, which were the children unlikely to have been exposed to?
- Which keyword rhymes in the cartoons would be relatable to the students?
- Which cartoons would capture their attention?

After choosing vocabulary cartoons that I thought would stimulate curiosity and conversation, I created and administered a pretest to determine whether the vocabulary words selected for the intervention were familiar to the students. Scores for the eight students ranged from zero to 20 percent, with an average of 8 percent. These results assured me that students had little exposure to the vocabulary words to be used in the intervention.

To deliver the hallway intervention, I discussed a featured vocabulary word with the children as I escorted them from their first-grade classrooms to the intervention room. At the door of the intervention room, we paused briefly to view the cartoon and discuss it as a group. The hallway vocabulary conversation took no longer than two minutes per group each day. I changed the vocabulary cartoon every third school day until all 10 vocabulary words had been introduced.

Throughout the 30-day hallway intervention, I documented the students' comments and behaviors (indicating a positive or negative response) to the vocabulary intervention. (For a sample, see "Field Notes: April 9, 2015," below.) Following the final vocabulary cartoon, I readministered the vocabulary assessment as a posttest. I also interviewed the children and their teachers to gather their feedback on the cartoons and the intervention. (The interview protocols are provided at the end of the article.) During the data analysis phase of the study, I looked for patterns or common themes revealed by cross comparison of the data.

Field Notes: April 9, 2015

I asked students to identify their favorite and least favorite cartoons. Their comments gave me insight about their level of understanding.

Which cartoon is your favorite?

S1: *Summit*, because they have a flag of the United States and you get to climb a mountain!

S3: *Inhabit*, because the rabbit is staring at the TV! It's funny!

S4: *Inhabit*, because I like the bunny in the chair like I like to relax.

Which cartoon is your least favorite?

S4: *Miniscule*, because I don't like the eyeball up close.

S5: *Robust*. I don't like the man on top of the bus because he looks like naked, bare.

S6: *Belittle*, because people are being mean to you.

Student Pre/Post Vocabulary Assessment

The reading intervention teacher will conduct a one-on-one interview with each action research participant. The interview will take place in the intervention classroom, where it is unlikely the interview will be interrupted and the participant feels comfortable. Each vocabulary word and each definition will be written on an index card in order to scaffold this assessment with a concrete choice. The reading intervention teacher will read each index card with a finger, display them on the table, and ask the participant to choose a definition or the "I really don't know" card. One point will be given for a correct definition selection. If the student selects a correct definition, he or she will be asked to hold the vocabulary word card and use the word in a sentence. One point will be given for a vocabulary word used appropriately in a sentence.

1. What does the word *robust* mean?

- a. To break or destroy something
- b. Full of health and strength
- c. A beautiful statue of someone important
- d. I really don't know

____ 1 point for correct definition ____ 1 point for correct use in a sentence

Sentence: _____

Observations: _____

2. What does the word *collide* mean?

- a. To be a helpful friend
- b. To run away from danger
- c. To come or strike together in a violent manner
- d. I really don't know

____ 1 point for correct definition ____ 1 point for correct use in a sentence

Sentence: _____

Observations: _____

3. What does the word *belittle* mean?

- a. To speak of as unimportant; to put someone down
- b. Very beautiful or pretty
- c. To grow as a plant grows
- d. I really don't know

____ 1 point for correct definition ____ 1 point for correct use in a sentence

Sentence: _____

Observations: _____

4. What does the word *fret* mean?

- a. Something you eat or snack on
- b. To be troubled or worried
- c. To look or stare with dislike
- d. I really don't know

____ 1 point for correct definition ____ 1 point for correct use in a sentence

Sentence: _____

Observations: _____

5. What does the word *compatible* mean?

- a. Able to be together in agreement
- b. To irritate or bother someone
- c. Something very small or quiet
- d. I really don't know

____ 1 point for correct definition ____ 1 point for correct use in a sentence

Sentence: _____

Observations: _____

6. What does the word *miniscule* mean?

- a. Easily bent or folded
- b. Difficult to control or tame
- c. Very small
- d. I really don't know

____ 1 point for correct definition ____ 1 point for correct use in a sentence

Sentence: _____

Observations: _____

7. What does the word *delectable* mean?

- a. Pleasant, delightful, delicious
- b. To cause to sleep or rest
- c. To find clues to a problem
- d. I really don't know

____ 1 point for correct definition ____ 1 point for correct use in a sentence

Sentence: _____

Observations: _____

8. What does the word *perturb* mean?

- a. Twisted or turned; wrong
- b. To make uneasy; to upset
- c. Filled with holes
- d. I really don't know

____ 1 point for correct definition ____ 1 point for correct use in a sentence

Sentence: _____

Observations: _____

9. What does the word *inhabit* mean?

- a. To take apart
- b. To stay alive
- c. To live in
- d. I really don't know

____ 1 point for correct definition ____ 1 point for correct use in a sentence

Sentence: _____

Observations: _____

10. What does the word *summit* mean?

- a. The highest point or level
- b. Difficult or impossible to control
- c. When you add two numbers together
- d. I really don't know

____ 1 point for correct definition ____ 1 point for correct use in a sentence

Sentence: _____

Observations: _____

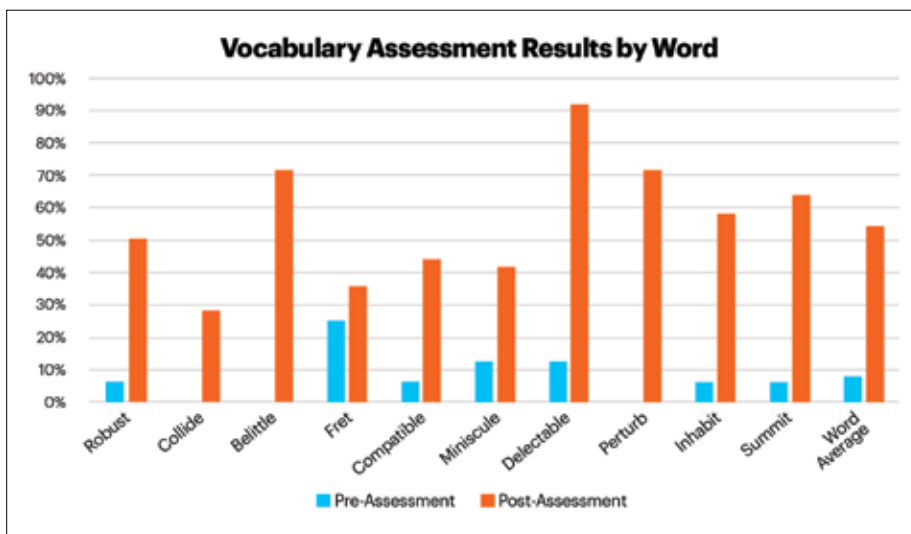
Findings

Finding 1: All eight of the students indicated that the vocabulary cartoons were engaging, and they expressed interest in continuing the intervention.

Based on my field notes and student interviews, there were 42 positive and 17 negative comments and student reactions. The children unanimously reported enjoying the vocabulary cartoon intervention and expressed interest in continued participation. The humor inherent in the approach seemed to be an essential feature.

Humor was intended to be a strong element of the intentional hallway conversations. It often worked well but not perfectly. The day after introducing *robust*, for example, the children and I walked down the hall and discussed who we thought was so *robust* that they could “row a bus.” Most students thought our weight-lifting principal was the most robust person in the school. As we neared my intervention room, we flexed our muscles and asked each other if we could “row the bus.” Children couldn’t help but giggle when my jaw dropped in awe of their tiny biceps, and I pointed to the man in the cartoon and asked, “Is that you?!” While the cartoon seemed effective overall, I noted that some children were slightly embarrassed by the cartoon character’s naked chest and tiny swimsuit. Given the media exposure most students experience in their daily lives, I didn’t expect them to be uncomfortable with the cartoon man’s torso. I would definitely provide the cartoon man with a T-shirt and shorts for future interventions.

Sometimes it was not possible to begin the hallway intervention with humor. The day I introduced the cartoon for *perturb*, a Spanish-speaking student was crying when I arrived to escort his group to my room. He was upset because no one understood what he was saying during recess. After listening to his story, I said, “You’re upset, I can tell! Another word for being upset is perturbed. Come look at the cartoon on my door. This boy disturbed the hornets by throwing a rock at their nest. The hornets got perturbed! What do you think happened?” The students looked at the cartoon and squealed, “They’re gonna sting him!” By this point, everyone was laughing (including the previously distraught student) as we entered the intervention room.





Sometimes, humor was completely absent. Two children did not enjoy the cartoon for *belittle*. They had been receiving bullying prevention training in their classroom and were upset about the situation in the cartoon. Their empathy for the little boy who was being belittled was passionate. I realized at-risk readers could possibly relate more readily to this particular cartoon character due to personal experience. The cartoon was supposed to be funny and make learners smile. It was disconcerting for the students, and for me as their teacher, when they perceived it as negative. The children's emotional reaction to the cartoon provided a teaching opportunity to reinforce our school's position on bullying.

While humor can be hit-or-miss, the children seemed to consistently enjoy the rhymes and the feeling of the words on their tongues. For instance, they would say "rabbit-inhabit" with obvious enthusiasm. Students enjoyed imagining themselves as characters in a silly cartoon. For example, the cartoon for the word *delectable* uses the key phrase "lick the bowl." It portrays a family, including their dog, at the dinner table, all licking the last bit of pudding from their bowls. The students relished how it felt to say the word *delectable* and were particularly entertained by the idea of their own families in a similar situation.

Overall, students enjoyed cartoons that featured harmless animals, excitement, and silly situations. The children seemed to look forward to the cartoons. I met one of the students in the hall and told him, "I have a new cartoon today." He replied, "I know, I saw it when I came to school!" I noticed that the older reading intervention students, who were not participants in the study, were also interested in the cartoons.

Finding 2: The vocabulary assessment revealed improved vocabulary knowledge.

The students' scores improved from an average of 8 percent on the pretest to 58 percent on the posttest. While I had hoped for better results on the posttest, I found these results promising for a brief and light-hearted intervention. Based on my observations, the vocabulary words students scored well on were not surprising. *Robust*, *belittle*, *delectable*, and *perturb* were all words that they had connected to emotionally.

The words the children did not score well on were surprising, at first. But on reflection, I realized I had not taken common first-grade articulation difficulties into consideration. For example, *fret* was often misconstrued as threat by first graders who could not articulate the /th/ sound yet. As one student put it, "My brother frettened me!" *Miniscule* was difficult for many of the first graders to say; they seemed more focused on trying to pronounce it than on understanding its meaning.

I cannot explain why students didn't score well on the word *collide*. At recess, I have often observed students "collide on the slide," and have gone over the playground rule specifying "only one student on the slide at a time" many times. I felt certain the cartoon would be relatable to them, so the low scores for *collide* puzzled me.



Finding 3: Interviews with teachers indicated that the children did not use the vocabulary words independently during classroom interactions. However, teachers supported continuing the cartoon intervention.

I anticipated that students might not spontaneously use the vocabulary words in their classrooms. For first graders to use newly introduced, uncommon words in teacher-directed classrooms would be atypical, particularly since the teachers did not use or hold students accountable for the words. Since none of their classmates had participated in vocabulary intervention, the children's only exposure to the new words was during our hallway conversations.

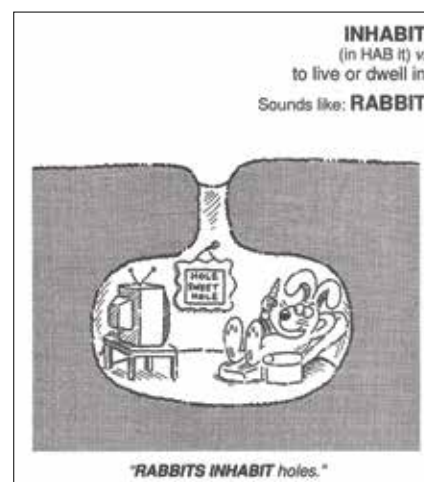
Even though students did not independently use the new words in the classroom, teachers viewed the cartoons as positive and supported future implementation of the vocabulary intervention. One teacher suggested that I create cartoons to support student learning of vocabulary words common to standardized tests. Several comments indicated that teachers would have felt more ownership of the vocabulary intervention if they participated in selecting the words, and they would likely reinforce the use of those words in the classroom.

My colleagues' feedback had a lot of merit. For future interventions, I would collaborate with teachers on selecting cartoons for words that they viewed as most helpful to the children and that they would be more likely to reinforce. For this intervention, I had selected vocabulary cartoons from Burchers' book rather than develop them myself, because I'm not an artist. In addition, I believed using words that students were not required to learn would help preserve the casual social exchanges the students enjoyed.

Implications

While the improvement in the children's vocabulary scores suggests that mnemonic vocabulary cartoons can be used to help students learn new words during transition times, the cartoons provided only an introduction to those words. Using new words confidently and appropriately requires deep processing of words, such as understanding and using words in varied contexts and interacting with their meanings (Stahl & Fairbanks 1986). Similarly, studies of vocabulary acquisition have found that children "responded to instruction that required them to make decisions about the appropriateness of contexts for newly learned words, develop uses for new words, and explain why uses made or did not make sense" (Beck & McKeown 2007, 264). So, while students enjoyed the conversations about the cartoons and gained some introductory vocabulary knowledge of the new terms, they didn't acquire deep understanding of the words' full range of uses.

As the study progressed, I wondered if the children's gains in vocabulary knowledge were obtained primarily from features of the vocabulary cartoons or if they were largely a result of our conversations. I realized that the conversations the students and



I were having provided a natural opportunity for language modeling and challenged students to think critically about the words' meanings. The vocabulary cartoons were an intriguing focal point for stimulating student curiosity, social interaction, humor, and play with language. They offered a platform for effective teaching strategies, such as modeling advanced language, providing feedback, and encouraging natural communication that uses a variety of words to connect ideas (Pianta, La Paro, & Hamre 2007). The intervention I had intended for increasing vocabulary knowledge also set the stage for meaningful interaction with me and among the children.

In hindsight, if I had posted cartoons in many areas of the school, there would have been more opportunities for the exchange of ideas as students took notice of them while they waited in the lunch or bathroom lines. I could have asked teachers and other school employees to use the vocabulary cartoons to engage students in conversations and to acknowledge students' efforts to use the vocabulary words. Merely asking teachers to record children's use of the words did not incorporate the power of collaboration. Also, I could have structured the pretest to help the children see that they had an opportunity to learn, rather than forcing them to admit "I really don't know" several times in a row to establish that they had little knowledge of the vocabulary words presented. In the future, any assessments I create will be carefully designed to help students feel positive about learning.

This action research study made me realize that we must use humor responsibly. Humor can be an unwieldy tool. "Individual children do not always find the same situations as funny. An attempt to jest can be highly embarrassing, anxiety provoking, or hurtful when the laughter is directed at them, not with them" (Smidl 2014, 13). Not all of us are adept at using humor, particularly when considering the various individual and cultural differences among children, which can lead to differences in what is perceived as humorous. However, research may be able to help teachers find ways to use humor appropriately with children.

After a decade of teaching primary students, I believed I understood this age group pretty well. The discoveries revealed by this study humbled me into acknowledging I have only scraped the surface in my knowledge of children, how they learn, and how to teach them. Realizing that my knowledge is miniscule motivates me to pay closer attention to how children find magic in playing with language. Further research is needed to examine the potential of using vocabulary cartoons as an intervention method to help children gain vocabulary knowledge and build language through conversations.

Student Interview Protocol

The reading intervention teacher will conduct a one-on-one interview with each action research participant. The interview will take place in the intervention classroom, where it is unlikely the interview will be interrupted and the participant feels comfortable. The 10 cartoons used in the interventions will be spread out on the table. The reading intervention teacher will record verbal and nonverbal observations during the interview. The interview will be reconstructed from the field notes immediately following the interview.

1. Thank you for looking at these cartoons with me. Which cartoon is your favorite? What makes it your favorite?
2. Which cartoon is your least favorite? What makes it your least favorite?
3. Tell me about what we did with these cartoons.
4. What do you think about what we did with these cartoons? Tell me about why you think that.
5. Were these vocabulary words easy to understand? Why do you think that?
6. Would you like to do this with some more cartoons? Why do you say that?
7. Thank you for talking to me about these cartoons. Is there anything else you'd like to say about them?

Teacher Interview Protocol

1. Have the action research study participants mentioned the vocabulary cartoon intervention in your classroom? If so, what was the nature of the reference(s)?
2. Please comment on the vocabulary word selection. Which ones do you feel would be useful for your students to know?

Robust _____

Collide _____

Belittle _____

Fret _____

Compatible _____

Delectable _____

Perturb _____

Inhabit _____

Summit _____

Miniscule _____

3. Please express any thoughts you have pertaining to the vocabulary cartoon intervention.

References

- Beck, I.L., & M.G. McKeown. 2007. "Increasing Young Low-Income Children's Oral Vocabulary Repertoires through Rich and Focused Instruction." *The Elementary School Journal* 107 (3): 251-71.
- Burchers, S., B. Burchers, & S. Burchers. 1998. *Vocabulary Cartoons: Word Power Made Easy*. Punta Gorda, FL: New Monic Books.
- Cain, K., & J. Oakhill. 2011. "Matthew Effects in Young Readers: Reading Comprehension and Reading Experience Aid Vocabulary Development." *Journal of Learning Disabilities* 44 (5): 431-43.
- Conodus, M.M., K.J. Marshall, & S.R. Miller. 1986. "Effects of the Keyword Mnemonic Strategy on Vocabulary Acquisition and Maintenance by Learning Disabled Children." *Journal of Learning Disabilities* 19 (10): 609-13.
- Cunningham, A.E., & K.E. Stanovich. 1991. "Tracking the Unique Effects of Print Exposure in Children: Associations with Vocabulary, General Knowledge, and Spelling." *Journal of Educational Psychology* 83 (2): 264-74.
- Ivy, L.L. 2013. "Using Humor in the Classroom." *Journal of Adventist Education* 75 (3): 39-43. <http://circle.adventist.org/files/jae/en/jae201375033905.pdf>.
- Lervåg, A., & V.G. Aukrust. 2010. "Vocabulary Knowledge Is a Critical Determinant of the Difference in Reading Comprehension Growth between First and Second Language Learners." *Journal of Child Psychology and Psychiatry* 51 (5): 612-20.
- Lombardi, T., & G. Butera. 1998. "Mnemonics: Strengthening Thinking Skills of Students with Special Needs." *The Clearing House* 71 (5): 284-86.
- Mastropieri, M.A., T.E. Scruggs, & B.J. Fulk. 1990. "Teaching Abstract Vocabulary with the Keyword Method: Effects on Recall and Comprehension." *Journal of Learning Disabilities* 23 (2): 92-107.
- National Reading Panel. 2000. *Teaching Children to Read: An Evidence-Based Assessment of the Scientific Research Literature on Reading and Its Implications for Reading Instruction*. Report of the National Reading Panel. www.nichd.nih.gov/publications/pubs/nrp/Documents/report.pdf.
- Pianta, R.C., K.M. La Paro, & B.K. Hamre. 2007. *Classroom Assessment Scoring System: Manual Pre-K*. Baltimore, MD: Brookes.
- Slavin, R.E., C. Lake, B. Chambers, A. Cheung, & S. Davis. 2009. "Effective Reading Programs for the Elementary Grades: A Best-Evidence Synthesis." *Review of Educational Research* 79 (4): 1391-466.
- Smidl, S.L. 2014. "My Daddy Wears Plucky, Ducky Underwear: Discovering the Meanings of Laughter in a Preschool Classroom." *Voices of Practitioners* 9 (1): 1-16.
- Stahl, S.A., & M.M. Fairbanks. 1986. "The Effects of Vocabulary Instruction: A Model-Based Meta-Analysis." *Review of Educational Research* 56 (1): 72-110.
- Weimer, M. 2011. "Humor in the Classroom: 40 Years of Research." *The Teaching Professor* 25 (10): 3.
- Wolgemuth, J.R., R.B. Cobb, & M. Alwell. 2008. "The Effects of Mnemonic Interventions on Academic Outcomes for Youth with Disabilities: A Systematic Review." *Learning Disabilities: Research and Practice* 23 (1): 1-10.

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Dibujos, Fotografías, y Pinturas

Aprendiendo Sobre el Mundo Natural en un Pre-escolar Urbano

Isauro M. Escamilla

Reseña sobre el artículo

Daniel R. Meier, Editor Ejecutivo de Voces

En este artículo, Isauro M. Escamilla describe maneras efectivas de presentarle a los niños en edad pre-escolar quienes viven en áreas urbanas el mundo de la naturaleza y jardinería a través de métodos de desarrollo apropiados y culturalmente receptivos. Él destaca en particular el uso de dibujos, bosquejos y pinturas como medios importantes para el aprendizaje sobre la naturaleza a través de la investigación. Él explica la forma en que este proceso ayuda a los niños bilingües a hablar sobre hechos naturales entre ellos y con adultos. Escamilla explica la manera en que el uso de las artes logra que los niños fomentan una interacción más calmada con la naturaleza, mejorando sus destrezas de observación, y profundizando su capacidad de representación simbólica en la exploración y aprendizaje del mundo natural.



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Mi escuela, Las Americas Early Education School, se encuentra en el corazón del distrito de la Mission en San Francisco, California y es parte del Distrito Escolar Unificado de San Francisco. La escuela refleja la diversidad cultural y lingüística de la ciudad y provee un plan de estudios que se basa en el medio ambiente inmediato usando el jardín de la escuela como un medio para establecer una relación con la naturaleza, el aprendizaje al aire libre, y el éxito académico. Hasta hace algunos años, el jardín estaba descuidado y sin uso alguno. Era un lugar donde los niños se aventuraban por casualidad y donde los adultos rara vez ponían un pie. Luego, en un periodo de solo algunos meses y con la ayuda de una pequeña donación monetaria, los niños, los maestros con quienes trabajo, y yo transformamos ese espacio que no se usaba, en un jardín vibrante.

Para mí, la palabra “ciencia” implica naturaleza y colores verdes, algo vivo y que crece - lo opuesto de lo que el medio ambiente exterior le ofrecía en ese entonces a los niños. Así que pensé que sería una buena idea crear, con los alumnos de nivel preescolar, un espacio para plantar, observar, y relacionar lo que sembramos con algunos de los alimentos que comemos. A la vez, quería que los niños se familiarizaran con la naturaleza y aprovecharan lo que Howard Gardner (1999) define como la inteligencia naturalista, que pocos niños en nuestra sociedad moderna exploran. Para dar principio a mi investigación formulé cinco preguntas:

1. ¿Cómo puedo mejorar el área de ciencias de mi salón de clases?
2. ¿Cómo puedo incorporar la naturaleza como un acontecer diario en mi clase?
3. ¿Cómo puedo motivar y apoyar a los niños para crear un área verde en el patio de la escuela?
4. ¿Cómo puedo usar el jardín como un recurso para fomentar el aprendizaje de las ciencias naturales?
5. ¿Cómo puedo incorporar mis conocimiento de investigación educativa y reflexión para mejorar el plan de estudios de las ciencias naturales?

La importancia de la Ecología e Investigación para los Niños en Zonas Urbanas

Las ideas y estrategias en este artículo hacen visibles los beneficios al crear, explorar, y estudiar áreas verdes con niños que viven en la ciudad. La mayoría de los niños, que oscilan entre los 3 y 5 años de edad, son bilingües y hablan español, mandarín, y cantonés, como segundo idioma. Son los mismos idiomas que hablan los maestros que trabajan ahí. Aunque la mayoría de nuestras conversaciones son en inglés, con frecuencia usamos el lenguaje materno de los niños. Así tenemos una mejor idea de cómo los niños están procesando las experiencias sobre la naturaleza. Al progresar nuestro estudio sobre la naturaleza, algunas veces tomamos dictados de los niños en

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ambos idiomas, y algunos niños han empezado a escribir algunas palabras en inglés. Cuando los niños exploran la naturaleza en sus propias comunidades, desarrollan un sentido de respeto y responsabilidad hacia esos lugares. Ellos pueden aprender sobre los ciclos de vida, fenómenos naturales, sistemas vivientes, y la manera en que partes diferentes forman una unidad -por ejemplo, la manera en que un tronco, las ramas, y las hojas forman un árbol. Cuando los niños juegan al aire libre en áreas verdes ellos conectan con la naturaleza y desarrollan conciencia sobre el impacto de la temperatura, el pasto, el agua, las plantas, los insectos, o las aves en nuestra vida diaria. Cualquier ambiente a que los niños están expuestos en sus primeros años de vida influye la manera en que perciben el mundo que los rodea. Si queremos que los niños crezcan y se conviertan en guardianes de nuestros recursos naturales, antes que nada deben tener acceso a ambientes donde puedan vivir los deleites de áreas verdes y donde puedan jugar, descubrir, y aprender.

Ya que las oportunidades para explorar las ciencias son bastante limitadas “muy frecuentemente confinadas a experiencias pasivas e indirectas de la televisión o los videojuegos” (Chalufour & Worth 2003, 2), es indispensable ofrecer a los niños experiencias auténticas sobre las ciencias naturales. El uso de herramientas visuales durante dichas experiencias ayuda representar tanto el aprendizaje como las observaciones científicas. Es un método de enseñanza importante para los niños bilingües, quienes están aprendiendo a hablar y entender conceptos científicos en dos idiomas.

Esa es la razón por la cual en nuestras actividades de ciencias naturales hago hincapié en la importancia de los dibujos, bosquejos y pinturas que les permiten a los niños realizar representaciones visuales para complementar sus destrezas lingüísticas. De acuerdo con Forman and Fyfe (1998), el dibujar basándose en observaciones directas tal como se practica en las escuelas preescolares de Reggio Emilia le permite a los niños generar y consolidar el conocimiento y corregir conceptos erróneos. Para Malaguzzi (1998), el expresar ideas en representaciones visuales ayuda a los niños a entender que sus dibujos pueden comunicar lo que en ocasiones no pueden expresar únicamente a través del lenguaje hablado. En este sentido, para los niños, las representaciones gráficas son una herramienta de comunicación que es más sencilla y clara que las palabras. Aunque el acto de la representación es algo complejo ya que requiere que los niños tomen importantes decisiones a nivel cognitivo y científico basándose en sus observaciones y experiencias.

Tal como Meier and Henderson (2007) explican, la documentación de las actividades relacionadas con un proyecto a través de diferentes medios es una forma de investigación educativa ya que incluye la participación de los niños en el proceso de la indagación y ayuda a los maestros a organizar y analizar datos para esclarecer preguntas sobre la enseñanza y el aprendizaje. En mi caso, mi intención era que los niños entendieran el ciclo de vida de las plantas y los insectos, además de ofrecerles oportunidades para observar, que se tomaran su tiempo experimentado con materiales básicos de arte, y que realizaran representaciones de lo que observaran en la naturaleza.

Colección de Datos

Mi equipo de enseñanza y yo empleamos los siguientes materiales para coleccionar datos:

- Fotografías
- Grabaciones Auditivas
- Diarios de Maestros
- Muestras de los trabajos de los niños

Las fotografías de los niños aprendiendo sobre la naturaleza fue una de las herramientas más valiosas para este proyecto de investigación. Mi equipo de enseñanza y yo usamos la cámara con mucha frecuencia para captar momentos que a simple vista parecían carecer de importancia, solo para darnos cuenta más tarde que varias de esas fotos contribuyeron a crear una narrativa visual del proyecto. Nos ayudaron a ver lo capaz que son los niños de trabajar en equipo, ya sea regando el jardín, realizando representaciones simbólicas en el salón de clases, o disfrutando uno de nuestros paseos escolares. Usando fotografías cuidadosamente seleccionadas creamos carteles con imágenes para promover conversaciones y ayudar a los niños a enfocarse en algún aspecto de nuestra investigación científica (Chalufour and Worth, 2003). Estas imágenes invitaron a los niños y maestros a participar en diálogos sobre eventos vividos y nos sirvió para planificar posibles actividades adicionales.

Nuestras grabaciones también resultaron ser herramientas valiosas. De vez en cuando capté diálogos de los niños con una grabadora y posteriormente se las ponía a los niños para que se escucharan a ellos mismos. El revisar éstas conversaciones grabadas nos sirvieron para repasar las teorías que estaban formulando los niños y seguir adelante con ideas nuevas. Aunque requiriera de mucho tiempo, escuché las grabaciones varias veces, intentando captar la armonía y la cadencia del diálogo, así como el contenido de los conceptos que los niños estaban adquiriendo. Una vez transcritas, traté de descifrar porqué dijeron lo que habían dicho y de qué manera este conocimiento estaba influenciado por las actividades que estábamos haciendo en la clase. El escuchar sus conversaciones me ayudó a reflexionar sobre mi rol como maestro y mi responsabilidad para establecer actividades a través de las cuales los niños pudieran aumentar su conocimiento y poner a prueba sus teorías.

Mi diario de maestro contiene mis notas, descripciones y observaciones, así como mis reflexiones preliminares e interpretaciones. Mis notas y observaciones del día me daban ideas sobre cómo planear actividades que ayudarían a los niños comprender mejor conceptos científicos específicos. También guardé fotocopias de los dibujos de los niños para ilustrar algunas de mis observaciones escritas. Finalmente, el coleccionar algunos de los comentarios y preguntas de los niños me sirvió para evaluar informalmente el conocimiento científico de los niños.

Las muestras de las representaciones que crearon los niños revelaron su forma de pensar. Invertí varias horas clasificando, fotocopando los dibujos de los niños y

organizándolos por fechas y categorías para crear archivos individuales. Con un sistema organizado establecido, lo que siguió fue comparar los primeros dibujos con los que hicieron posteriormente para ver si y de qué manera su entendimiento se convertía en conocimiento nuevo, especialmente con aquellos niños que usaron dibujos como su modo preferido de expresión.

Plan de Investigación y Descubrimientos

1. El proceso de reproducir las conversaciones grabadas de los niños nos ayudó a determinar sus teorías en proceso y avanzar hacia nuevas ideas.
2. Representar sus ideas a través del arte hace que la relación de los niños con la naturaleza sea menos apresurada, mejora sus habilidades de observación y profundiza sus habilidades simbólicas y de representación en la exploración y el aprendizaje de la misma.
3. Lo que comenzó como un estudio del conocimiento básico de las ciencias naturales evolucionó hacia un estudio más ambicioso de explorar la naturaleza al aire libre.
4. Lentamente, este estudio reveló la capacidad de los niños para cuidar y respetar a todos los seres vivos, incluso si no entienden plenamente su papel en las complejidades de nuestro ecosistema.
5. Captar todos estos momentos a través de las fotografías-combinado con los comentarios y dibujos de los niños y mis reflexiones e interpretaciones-contribuyó a alcanzar una visión más amplia de los niños como aprendices activos.
6. La documentación de estas experiencias me ayudó a obtener un nuevo significado en la rutina de mi trabajo cotidiano como maestro, haciendo cada día diferente al anterior cuando se ve a través de los ojos de los niños.
7. Juntos le dimos nueva vida a nuestro pequeño jardín y nos sentimos muy orgullosos de ello.

El jardín donde sembramos las primeras semillas de brócoli fue el lugar lógico para comenzar nuestras observaciones. Equipados con marcadores y papel en portapapeles, los niños fueron al jardín para dibujar las pequeñas plantas de brócoli, sólo para descubrir que alguien o algo había mordisqueado las hojas. Estaban determinados a proteger sus plantitas y encontrar al culpable. Así empezaron a descubrir intrincadas conexiones entre plantas e insectos y se interesaron por la estructura y los ciclos de vida de los seres vivos del jardín.



Reviviendo nuestro jardín.

Orugas

Cuando los niños encontraron varios capullos en un rosal en el patio de la escuela, ya estaban familiarizados con orugas. Las orugas estaban comiendo las plantitas de brócoli que ellos habían sembrado antes.

Observaciones, Conversaciones y Dibujos

Una tarde, llevé a un pequeño grupo de niños al jardín atrás de la escuela para encontrar algo que despertara su curiosidad y provocara su pensamiento. Encontramos algunos palos, un montón de hierba, tierra, plantas desechadas y macetas vacías de plástico que alguna vez tuvieron plantitas. Había llovido dos días antes, por eso el montón de tierra y hierba estaban húmedos y mojados. Pinchando aquí y allá, descubrimos (en palabras de Julian) “una familia de serpientes”.

Joshua: No son serpientes.

Julian: Se mueven como serpientes. Son serpientes bebés.

Maestro: No son gusanos sino lombrices de tierra.

Julian: ¡Aquí hay otro, otro! ¡Tantos!

Joshua: ¿Por qué nunca hemos venido aquí?

Omar: Mira, aquí hay otra cosa, pero esto no es un gusano.

Joshua: ¿Es una serpiente?

Omar: No. Tiene muchas piernas. Pero se ha ido. Necesito un palo más grande. Da miedo.

Maestro: Sea lo que sea, por favor, no lo mates.

Joshua: Está aquí. ¡Se fue para allá!

Omar: Creo que es un insecto.



Observado las orugas en la mesa luminosa.

Recogimos algunas lombrices de tierra y las colocamos en una granja de hormigas para mantenerlas bajo observación. A la hora de la merienda, dos de los niños comenzaron a preguntarse acerca de la dieta de las lombrices de tierra.

Joshua: Pobres animalitos, pobrecitos, no tienen nada que comer.

Josué: ¿Qué comen? Manzanas ¿Insectos? ¿Papel? Flores ¿Gente?

Joshua: Estas no son serpientes.

Unos días después, colocamos tres de las lombrices de tierra en un pedazo de papel en el centro de la mesa para una sesión de dibujo de 30 minutos, durante la cual los niños intercambiaron comentarios, ideas y preguntas. Algunos de las cuales fueron:

- ¿Dónde está la cabeza?
- ¿Dónde está la cola?
- ¿Por qué está sangrando?
- ¿Cuál es el niño? • ¿Cuál es la mamá? • ¿Por qué ésta es más grande?
- No les gusta la luz.
- Es de color durazno.
- Es negro por dentro.

No respondí a las preguntas de los niños porque no sabía todas las respuestas. Podría haber ido a la biblioteca a investigar la anatomía de las lombrices de tierra, pero quería que los niños dirigieran la investigación. Este es un gran cambio en la definición del papel del maestro, a quien la mayoría de las veces se le considera el poseedor del conocimiento, el que instruye y enseña, y el que proporciona la información necesaria.

Otro día, cuando los niños estaban buscando lombrices de tierra, vieron un rosal en flor. Mirando las rosas, notaron que algunas de las hojas estaban enroscadas. Intrigada, Cindy cogió una hoja y la abrió. Dentro de la hoja encontró una oruga envuelta en lo que parecía una tela de araña. Encontraron unas cuantas hojas más con pequeñas orugas dentro construyendo sus capullos. Los niños no encontraron lombrices de tierra, pero parecían muy contentos con su nuevo descubrimiento.

Tomamos algunas hojas junto con las orugas para una observación más en la mesa luminosa del salón. La mesa de luz hizo que las hojas se vieran casi transparentes. Luego colocamos las hojas en nuestra caja de hábitat de plástico, y los niños se reunieron para observar y hablar sobre las orugas recién llegadas. Utilizaron lentes de aumento para observar cualquier nuevo desarrollo dentro la caja del hábitat, donde las orugas se envolvían en mantas sedosas. La mesa de luz y la caja del hábitat sirvieron como el centro de reunión inicial que animó a los niños a hablar de las orugas, formular teorías y hacer preguntas. Capturé su diálogo con notas escritas y un grabador de cintas de audio, y muchas veces reproduje las conversaciones de los niños para ellos. Esto nos ayudó a repetir sus teorías en desarrollo y avanzar hacia nuevas ideas.

Felix: ¿Qué es?

Cindy: Orugas. Las encontramos en el jardín para los niños grandes.

Felix: No se mueven. Están muertas.

Cindy: No, no están muertas. Están durmiendo.

Felix: ¿Van a ser mariposas?

Cindy: Creo que sí. No lo sé.

Maestro: Yo creo que sí. Tendremos que esperar y ver.



Haciendo representaciones de las orugas.

Análisis del Diálogo

Felix hace una pregunta que Cindy responde (“Orugas”) y ella ofrece información adicional que explica la ubicación donde las encontraron.

Félix observa que las orugas están inmóviles. Su observación lo llevó a formular una teoría: si no se mueven, es porque están muertas. Cindy contradice su teoría y ofrece una segunda posibilidad. Si no se mueven y no están muertas, la explicación más lógica según su experiencia, es que las orugas están durmiendo. Felix parece aceptar la explicación de Cindy. Si las orugas están vivas pero durmiendo, y no muertas como había asumido al principio, Felix se pregunta si se transformarán en mariposas. Cindy, que hasta entonces ha demostrado confianza en sus respuestas, ofrece un vacilante “Creo que sí”, y se vuelve hacia mí para encontrar una respuesta a su pregunta: “¿Las orugas se convertirán en mariposas?” Yo no les doy un categórico sí o no, sino que les ofrezco una invitación para observar y explorar más. Para mantener el interés de los niños, colocamos la caja de hábitat de orugas y capullos en un estante bajo. Los niños a menudo iban allí para ver si había alguna mariposa.

Fuimos a la biblioteca pública, donde encontramos hermosos libros ilustrados sobre la naturaleza, insectos de jardín y orugas. Algunos eran libros no ficticios con imágenes agrandadas de orugas que permitían a los niños ver pequeños detalles que de otro modo no verían en las diminutas orugas en nuestro salón. Invitamos a los niños a hacer representaciones de las orugas.

Esta actividad de dibujo ayudó a los niños a prestar atención a la transformación de los insectos. Cada dibujo era una interpretación única de sus observaciones, y ningún niño hizo un dibujo similar.

Mi intención era que los niños se sientan confiados en continuar sus propias representaciones gráficas, así como respetar y honrar las perspectivas de los demás. Este es un elemento social-emocional importante en nuestro trabajo sobre naturaleza, que nos ayuda a formar una comunidad de naturalistas, jardineros y científicos.

Unos días después, un niño gritó para que todos vieran las tres mariposas dentro de la caja del hábitat. Había tres pequeñas mariposas de color café oscuro, que a los niños les parecían hermosas. Varios niños se reunieron alrededor, sorprendidos por las tres pequeñas criaturas que no habíamos visto salir de sus capullos. Algunos niños dibujaron las polillas mientras otros las observaron atentamente durante una pequeña actividad grupal, observando las partes anatómicas de las mariposas y las polillas; enfocándose en características tales como alas, tórax, patas, y antenas. Los niños pusieron en práctica sus conocimientos de anatomía animal y de matemáticas, que incluyeron contar, números, y simetría. Anica dibujó cuatro patas a cada lado del cuerpo y las contó todas una por una. Lizbeth utilizó una lente de aumento para observar mejor los detalles en las alas, y ella dibujó unas alas elaboradas con un patrón casi simétrico.

Los niños pronto aprendieron el nuevo vocabulario científico, como oruga, capullo, antenas y hábitat. Oí a Felix explicarle a otro niño el ciclo de vida de la mariposa usando el vocabulario recién adquirido de uno de los libros. Los niños también incluyeron palabras familiares, como *cambio* y *transformación*, que relacionaron con

Transformers, esos juguetes flexibles que pueden ser transformados de un coche a un superhéroe o una nave espacial. *Metamorfosis* era una palabra demasiado desafiante para ellos, pero eso no me disuadió de usarla, recordando el consejo del maestro de naturaleza Chris Giorni, fundador del Programa Tree FrogTrek de San Francisco (www.treefrogtreks.com), quien usa palabras grandes como *hipótesis* en sus presentaciones de naturaleza con niños en edad pre-escolar. Él cree que familiarizar a los niños pequeños con palabras científicas hace que se sientan menos inseguros más tarde cuando reciben conocimientos científicos más académicos. Curiosamente, muchas de estas nuevas palabras tenían la misma pronunciación en español que en inglés, lo que hacía más fácil persuadir a los niños a usar y entender las palabras en su lengua materna.

Árboles

Perseguir abejas y mariposas en nuestro jardín se convirtió en una actividad rutinaria para los niños, y a menudo miraban a los insectos volar, observándolos hasta que desaparecían de vista entre las plantas o ramas de los árboles. Una mañana los niños notaron que la rama de un árbol tenía hojas rojas en su mayoría; mientras que el resto de las ramas tenían hojas verdes. Pensé que esta simple observación podría conducir a un nuevo descubrimiento científico. Al día siguiente tomé una fotografía del árbol, y dos días más tarde le mostré la foto a los niños. Rodeado por unos cuantos niños, pasé la fotografía de mano en mano mientras hacía varias preguntas para escuchar sus ideas y descubrir lo que sabían acerca de los árboles.

Anica: Los árboles son para que las aves vivan ahí.

Diego: Los árboles son grandes, muy grandes.

Felix: Los árboles pueden caerse cuando llueve.

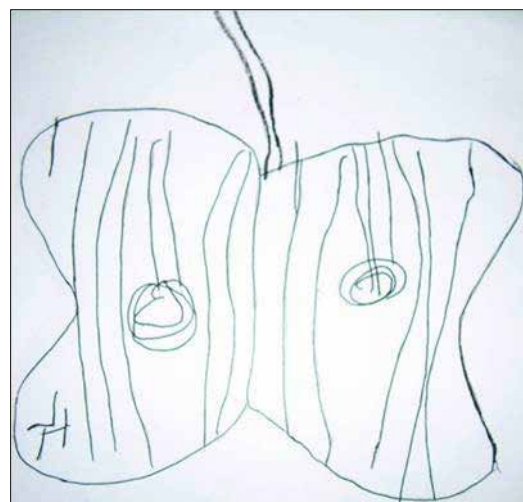
Cindy: Pero no se caen. Cuando el viento los hace moverse, se sujetan del suelo.

Anica: Los pájaros hacen casas en los árboles.

Diego: Los pájaros hacen nidos.

Felix: Pero cuando la lluvia es muy fuerte y el viento es muy fuerte también, los árboles se pueden caer.

En una actividad posterior, le pregunté a los niños si podían dibujar el árbol de la fotografía. Algunos niños habían visto el árbol verdadero, pero algunos no lo habían visto, o tal vez lo habían visto, pero no lo habían observado intencionalmente. Mirar y observar son dos procesos diferentes, y ambos son importantes. Mirar es un primer paso útil para que los niños se enfoquen en un objeto en la naturaleza. La observación implica concentrarse en ese objeto con la intención de discernir características, rasgos y patrones particulares, y los niños a menudo necesitan suficiente tiempo y apoyo de adultos y compañeros para realizar este proceso. Para ayudar a los niños a familiarizarse con el árbol, los invité a ir conmigo y ver el árbol real en el patio. Después de una breve observación de menos de 10 minutos, volvimos al aula y les



Dibujo simétrico de una mariposa.

pedí a los niños que dibujaran sus impresiones del árbol. Mi intención era contrastar los dibujos de los niños hechos de memoria con las observaciones directas que harían un par de días después. Todos los dibujos de los niños eran diferentes y cada uno mostraba individualmente su concepto y representación simbólica del mismo objeto, dependiendo de la edad del niño, su destreza en usar materiales y su sentido de estética, proporción, dimensión, y percepción.

Los Dibujos de Diego del Árbol

Una mañana Diego y Daniel estaban llenos de energía, saltando y tirándose uno sobre el otro así que los invité a una actividad más calmada.

Maestro: ¿Qué les parece la mesa de dibujar?

Diego: ¡No, no sé cómo dibujar! *[Daniel está detrás de él y también mueve la cabeza diciendo que no ante la idea de dibujar.]*

Maestro: ¡Vamos! Será divertido. *[Diego y Daniel se miran y aceptan intentarlo.]*

Diego: ¿Qué vamos a dibujar?

Maestro: Puedes dibujar lo que quieras, pero antes de empezar tengo algo que mostrarte.

Diego: ¿Qué es? *[Les muestro la fotografía del árbol.]*

Maestro: ¿Podrías hacer un dibujo de éste o de cualquier otro árbol?

Diego: Muy bien, eso es fácil. *[Diego responde con confianza.]*

Puse papel, marcadores, y la fotografía sobre la mesa y les dije que volvería en unos minutos. Desde el otro lado del salón veía a Diego y Daniel hablar entre sí mientras miraban la foto. Unos 10 minutos más tarde regresé y les pedí que me mostraran lo que habían hecho. El dibujo de Diego era un rectángulo vertical con pequeños círculos que representaban las hojas de arriba hacia abajo.

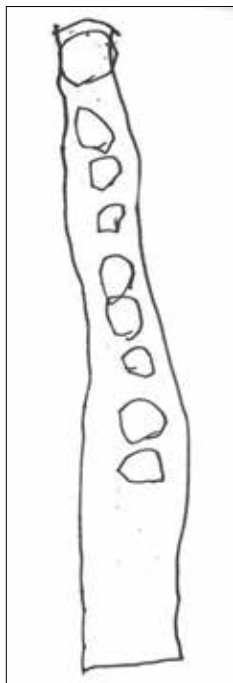
Maestro: ¿Tiene el árbol hojas hasta el suelo?

Diego: No. Pero no sé cómo hacer lo de arriba.

Maestro: Mira la foto e inténtalo de nuevo. Volveré en cinco minutos. Creo que puedes hacerlo.

Yo quería ofrecerle a Diego una actividad que lo retara a mejorar sus destrezas de observación y representación. Últimamente también había notado que se le dificultaba trazar las letras de su nombre. Probablemente percibía las letras como garabatos desconectados sin significado y no tenía ningún deseo en practicar escribir su nombre. Como las letras son representaciones simbólicas del lenguaje, quería que Diego comprendiera el valor de comunicar un mensaje, una idea, o un concepto a través de símbolos. Le ofrecí actividades en las que él podía intentar representar gráficamente algo más concreto—en éste caso, el árbol afuera de nuestro salón de clases.

Cuando regresé, Diego había dibujado una nueva forma cilíndrica cubierta de arriba



Primer dibujo que hizo Diego del árbol.

a abajo con hojas que parecían óvalos y círculos pequeños. Parecía muy similar al primer dibujo, pero en su segundo intento el árbol se inclinaba hacia la derecha.

Diego: Ya he terminado. No puedo hacerlo.

Maestro: Inténtalo de nuevo. Mira, en la foto las hojas están en la parte superior del árbol, no en todo el tronco.

Diego: De acuerdo. Lo haré de nuevo. Haré otro dibujo.

Maestro: Sé lo que podemos hacer. Podríamos salir a ver el árbol ¿Quieres venir?

Diego: ¡Sí, es una buena idea! ¡Vamos Daniel! [*Daniel es su mejor amigo.*]

Diego, Daniel y yo salimos y miramos el árbol. Ellos trajeron sus marcadores y papel, y yo puse una pequeña mesa a unos metros del árbol donde Diego y Daniel se sentaron para dibujar. Yo señalé las muchas ramas de los árboles, y ellos notaron que se curvaban hacia arriba y hacia afuera. Sus ojos parecían iluminarse y sus sonrisas me hicieron pensar que podían hacer un dibujo más realista del árbol basado en sus observaciones personales. De nuevo les dije que volvería en unos pocos minutos

En su tercer intento, cuando Diego estaba afuera mirando directamente al árbol, dibujó el árbol con un tronco y el follaje. Sin embargo, se dio cuenta de que las hojas no estaban pegadas a las ramas. De hecho, había dibujado sólo dos ramas y muchas hojas suspendidas en el aire.

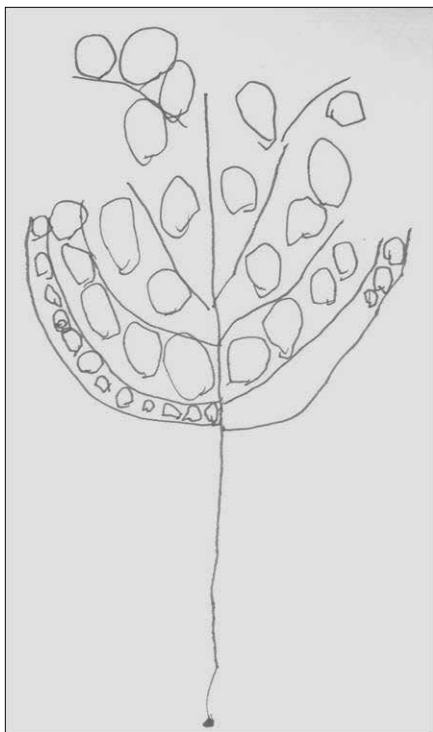
En su cuarto y último intento, Diego añadió varias ramas más y las colocó a la derecha y a la izquierda del tronco en posición ascendente hacia el sol. Cubrió todas las ramas con hojas. La forma en que Diego colocó las ramas daba la ilusión de que las múltiples capas disminuían de tamaño a medida que subían por el árbol. Las ramas se extendían simétricamente a ambos lados del tronco. En la parte superior de la copa del árbol, Diego añadió unas ramas más pequeñas, colocando una al lado derecho del tronco y otra a la izquierda.

La intrincada secuencia de dibujos de árboles de Diego reveló que los niños pequeños son capaces de observar, enfocarse y hacer detalladas representaciones gráficas para profundizar su comprensión de varios aspectos de la naturaleza. También son capaces de concentrarse seriamente y trazar nuevos borradores a medida que sus observaciones se tornan más precisas y sofisticadas. En esta sesión de dibujo con un amigo, Diego notó detalles de la estructura del árbol. Aprendió que el tronco siempre está apegado al suelo y que se extiende hacia arriba, en una multitud de ramas. Diego también se dio cuenta de que las hojas conforman el pesado follaje en la parte superior y que estas hojas se sostienen de las ramas.

En el salón Diego representó las ramas inferiores más gruesas y más fuertes que las ramas en la parte superior. Al agregar nuevas ramas al árbol, Diego las hacía cada vez más cortas y delgadas. Eso parece indicar que Diego descubrió que cuanto más



Diego dibujando el árbol en el patio de la escuela.



Cuarto dibujo que hizo Diego del árbol.

altas son las ramas, más pequeñas se vuelven. Además, Diego parecía saber que el árbol tiene ramas principales y ramas secundarias. Al ponerle atención a específicas partes del árbol, Diego entendió cómo se interconectan y se necesitan mutuamente cada una de las partes para formar un todo, casi de la misma manera en que líneas específicas forman letras separadas que, una vez juntas, pueden formar y representar su nombre.

Los dibujos de Diego y de los otros niños los ayudaron a centrarse en pequeños detalles que enriquecieron y facilitaron la discusión posterior sobre los árboles. Cuando los niños pequeños enfocan sus observaciones y hacen preguntas específicas sobre plantas y animales, a menudo están listos para exploraciones más extensas (Chard 1998). Chalufour y Worth (2003) consideran las representaciones de objetos como una manera de ayudar a los niños a descubrir los patrones y características de la naturaleza; como lo demostró Diego, y yo añadiría que el dibujo ofrece un puente evolutivo del bosquejo a la escritura.

Pensamientos Finales

Este estudio de las orugas, las mariposas y los árboles empezó con el misterio de alguien o algo que se comía nuestras plantas de brócoli y terminó cuatro meses después con el conocimiento de las correlaciones biológicas entre mariposas, plantas y jardines. Un currículo efectivo de ciencias biológicas para los niños pequeños no necesariamente surge de un conjunto de materiales comprados en un catálogo, o de lecciones planificadas por expertos. En cambio, creo firmemente que la curiosidad natural de los niños y sus mentes inquisitivas se pueden utilizar como catalizadores para aprender sobre el mundo natural de manera profunda y comprometida.

Sin embargo, incluso en un currículo emergente o en una escuela, estas experiencias no sólo suceden así como así. Se necesita la dedicación, organización, colaboración y comprensión de los adultos en nuestras funciones como guías y facilitadores para garantizar que el juego de los niños y sus ideas sobre la ciencias y la naturaleza se enfoquen, estudien con profundidad, y a veces incluso se pongan a prueba. A través de nuestros estudios sobre la naturaleza descubrí que la mayoría de los niños tienen la disposición de aprender acerca del contenido de la ciencias cuando se les proporciona tiempo sin prisas para observar, re-actuar y ampliar su entendimiento a través de la escritura, dibujos, pintura, construcción y juego dramático. Como maestros, aprendimos que los materiales de arte deben ser fácilmente accesibles tanto dentro como fuera del salón de clases.

Estos niños aprendieron de primera mano sobre el ciclo de vida de las plantas y pacientemente regaron las plantitas hasta que se convirtieron en plantas frutales, listas para la cosecha. Ellos fueron testigos de la transformación de las orugas y cambiaron su opinión respecto a las abejas, a quienes antes temían pero que ahora consideraban ayudantes del jardín. Al mismo tiempo, comenzaron a ver la posibilidad de que diferentes criaturas coexistieran en el mismo jardín escolar, desempeñando

cada una un papel importante en nuestro pequeño ecosistema local.

Descubrí que trabajar con pequeños grupos de niños me dio el tiempo y el espacio para observar y documentar las exploraciones de los niños y su comprensión de conceptos de matemáticas, naturaleza y ciencia. Presenté estas actividades abiertas como otra opción para los niños y, a menudo, las actividades surgieron de la curiosidad e intereses innatos de los niños. Trabajar con un grupo pequeño proporcionó amplias oportunidades para interacciones sociales más cercanas entre los niños y me permitió ver la evolución de nuestro conocimiento científico como comunidad. Conocí mejor a los niños individualmente y desarrollé una mejor comprensión de mi papel en apoyar su conocimiento y construcción del lenguaje científico. Por ejemplo, un día, mientras estaba en el jardín con cinco de los niños, les hice algunas preguntas acerca de jardinería, como por ejemplo: “¿Por qué es un jardín una buena idea?” y “¿Qué animales e insectos esperan encontrar en el jardín?”

Félix: Para que las plantas puedan respirar afuera. De modo que cuando las abejas anden buscando flores y plantas se vayan para afuera, y no nos piquen.

Diego: Para que crezcan las plantas.

Felix: Es bueno tener flores para poder olerlas.

Sharina: Es bueno tener flores para que las mariposas puedan comer.

Cindy: Las mariposas comen néctar de las flores. Las abejas, también comen miel. A las mariposas les gusta comer la parte exterior de las flores.

Félix: A las mariposas les gusta comer la parte exterior de la planta, la flor (apuntando a un pétalo). Un día vi una mariposa poniendo su cabeza dentro de la flor y una abeja también, hasta adentro.

Las respuestas de los niños revelaron lo que habían aprendido a lo largo de nuestro estudio. También vi con más claridad cómo el éxito del estudio de la naturaleza para maestros y niños se basa en alentar a los niños a hacer preguntas, observar con atención durante tiempo suficiente y pensar en lo que sus observaciones les dicen. Un entorno que promueve la investigación sobre ciencias o cualquier otro tema, utiliza el diálogo, las artes gráficas, fotografías, creaciones y carteles de documentación de los niños para comunicar a los maestros y a las familias la riqueza del proceso de aprendizaje. Este tipo de ambiente también promueve la investigación a través de la interacción social, el intercambio de ideas, la colaboración, la reflexión con los compañeros, y la expansión del trabajo y las teorías de los demás. Después de todo, el estudio de la naturaleza es más que adquirir conocimiento. Es un proceso de exploración, comunicación, creación y descubrimiento con otros. Esto es especialmente importante para los niños pequeños que viven en ambientes urbanos y para los niños bilingües y que hacen malabarismos en el aprendizaje de vocabulario y conceptos científicos en más de un idioma. Para estos niños, un currículo de naturaleza que integra el dibujo y la pintura y otras formas visuales de representación es una poderosa herramienta para la comprensión científica.

Referencias

- Chalufour, I., & K. Worth. 2003. *Discovering Nature With Young Children*. St. Paul, MN: Redleaf Press.
- Chard, S.C. 1998. *The Project Approach: Developing the Basic Framework*. New York: Scholastic.
- Forman, G., & B. Fyfe. 1998. "Negotiated Learning Through Design, Documentation, and Discourse." In *The Hundred Languages of Children: The Reggio Emilia Approach—Advanced Reflections*, 2nd ed., eds. C. Edwards, L. Gandini, & G. Forman, 239–50. Westport, CT: Ablex.
- Gardner, H. 1999. *Intelligence Reframed: Multiple Intelligences for the 21st Century*. New York: Basic Books.
- Malaguzzi, L. 1998. "History, Ideas, and Basic Philosophy: An Interview With Lella Gandini." In *The Hundred Languages of Children: The Reggio Emilia Approach—Advanced Reflections*, 2nd ed., eds. C. Edwards, L. Gandini, & G. Forman, 49–97. Westport, CT: Ablex.
- Meier, D.R., & B. Henderson. 2007. *Learning From Young Children in the Classroom: The Art and Science of Teacher Research*. New York: Teachers College Press.
- Worth, K., & S. Grollman. 2003. *Worms, Shadows, and Whirlpools: Science in the Early Childhood Classroom*. Portsmouth, NH: Heinemann.

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The Value of Teacher Research

Getting at the Soul-Life in Classrooms—The Work of Teachers and Teacher Educators

Frances Rust

Over a century ago, John Dewey (1904, 1977) wrote his essay “The Relation of Theory to Practice in Education,” in which he provided a remarkable blueprint for teacher education that continues to be relevant for teachers and teacher educators today. Dewey’s special focus throughout is on teachers’ growing knowledge of their students and their students’ thinking. He describes this as “insight into soul-action” (254)—a teacher’s ability to discern how students are making sense of and responding to the teacher’s initiatives, and the teacher’s capacity to discover “the attitudes and habits which his [or her] own modes of being, saying, and doing are fostering or discouraging in [students]” (262). Implicit here is the importance of developing what Cochran-Smith and Lytle (1993, 2009) describe as an “inquiry stance”—a propensity to question, to wonder, to find teaching constantly interesting, even fascinating, that can begin in teacher education but must continue throughout a teacher’s professional life. Teachers must become “students of teaching” (256).

The connection between teaching in this way and students’ learning is profound. One has only to look back at children who grew up in the Dewey School (Mayhew & Edwards 1936), Montessori’s schools, or the British Infant Schools made famous in the 1960s by Joseph Featherstone (1968), or to look at children today emerging from the preschool classrooms of Reggio Emilia, Italy (Edwards, Gandini, & Forman, 1998), or the knowledge-building environments described by Scardamalia and Bereiter (2006) to know that teachers who support thoughtfulness, inquiry, and creativity—high levels of learning—among their students are teachers who are bent on learning from children. They watch, they listen, they observe, they ask, they study, they reflect. They are on a constant trajectory toward getting better at teaching, and they are not alone in their endeavor. Inevitably, they work in a learning community that enables and supports them in their quest to deepen their knowledge of their classrooms and their understandings of teaching and learning.

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Two such communities come to mind. One is the Teachers Network Leadership Institute (<http://teachersnetwork.org/tnli/>), which has been disbanded but not without leaving a trove of teacher research and reference materials. The other is *Voices of Practitioners* (NAEYC.org/resources/pubs/vop), an online journal with articles by an increasingly powerful group of early childhood teachers and teacher educators who have come together to share and grow their professional knowledge. Their work is the chief resource for this article.

What we have learned over the past 30 years from networks like these is that teachers who work in this way do not work alone. They are embedded in classrooms and schools where there is active discussion about teaching and learning. See, for example, Isauro Escamilla Calan's (2016) "A Dialogue with the Shadows" or Annie Ortiz and colleagues' (2014) study, "Teacher Research on Boys' Literacy in One Elementary School." Like so many of the studies and articles in *Voices of Practitioners*, these are examples of teachers looking and listening deeply—touching the "soul-life" of their classrooms—and sharing their work and their insights with one another.

They begin with a noticing that evolves into a question that sparks interest and moves into an increasingly deep conversation among teachers and children, honoring the powerful intellectual work of sharing insights with one another. For Isauro, who was intent on assessing his teaching skills, the research conversation began with his questions: "I asked myself, 'How do I listen to children? What do I learn about what is on their minds, how they think, and what skills they have?'" (2016, 8). It moved from there to the children finding a snail in the school garden. He writes:

We thought this small creature could be the springboard for our new class project (we adults had been paying close attention to children's conversations, and they seemed genuinely interested in this slow mover). We carried the snail inside the classroom and put it on a white sheet of paper on a table next to the windows. (Escamilla Calan 2016, 8)

From the children's drawings, a series of conversations emerged that moved the children toward new understandings of light and shadow and moved the teachers into new relationships with each other and new understandings about teaching:

My assistant teacher and I became a team, and we had great respect for each other. We blended the boundaries of the traditional hierarchy of assistant teacher and teacher. . . . We listened to the tapes together and talked about what we heard. . . . We shared a close relationship. And for this to happen, we needed to talk about the children. The more we talked, the more we documented, and the more we came to realize that what we were doing was just a start. (Escamilla Calan 2016, 11)

Similarly, Annie Ortiz and her team (2014) moved from a noticing—here, a local conversation about boys' literacy—to a full research project that brought teachers and community together "to learn about boys' literacy and apply the results to our teaching" (1). With rich documentation of boys' work; observations of their reading habits, choices, and conversations; and honest discussions among teachers, this group of teachers, with support from their school and district, reshaped their teaching. Ortiz describes her own shift:

After finding out the interests of boys from our surveys, quick write prompts, and squiggles, I changed my mind. Writing groups would be same gender-based groups. I learned boys would respond to boys and their writing in a sophisticated manner if given the opportunity, but I hadn't provided that opportunity in the past. Instead of hearing girls responding to writing with "Oh, how gross," I heard boys respond to boys like writers responding to writers. It was the same gross topic, but they were giving each other writerly advice, and pieces were revised. "What if you moved that part to the middle?" or "Can you tell me how the alien got the space ship?" were pieces of their conversations. The productivity of writing groups had increased by that small but significant change. Boys were connecting to boys on a deeper level around topics they were all interested in developing. My teaching was impacted by this change. I had underestimated boys. (10)

Changes in practice that take root in deep ways (as these educators and so many others in *Voices of Practitioners* demonstrate) inevitably occur where there is a community of learners that often expands beyond the immediate classroom to involve not only students and teachers in a school but also administrators and parents (see Ardalan 2017). These are places where the community knows and values the school as "our school." It is far easier to find this professional conversation in early childhood environments than in schools working with older children, but even in early childhood settings it is rare.

To shift the balance to make schools and classrooms learning environments for all requires a radical shift in understandings of teaching, learning, and professional growth (Rust 2010). This shift begins with the acknowledgement that teacher education is the whole of a teacher's professional life—not just the short time of preservice—and that teaching is always about learning. As Dewey (1904, 1977) writes, "Unless a teacher is such a student, he may continue to improve in the mechanics of school management, but he can not grow as a teacher, an inspirer and director of soul-life" (256).

No part of Dewey's message is new to early childhood teacher educators, but even now, even with all the time we have had to try to live into the meaning of his powerful essay, there is still so much to be understood. This is where the remarkable work of the teachers and teacher educators who have contributed to *Voices of Practitioners* can help the field to move forward. What we see here are teacher educators building programs in ways that enable their students to develop the skills of teacher research. Debra Murphy (2014), for example, wondered:

How can I possibly teach my students everything they will need to know when they get into the classroom with children? How can I prepare them for the complexity of teaching? And how can I help to address the issues of high stress, low status, and low compensation that plague the early childhood education workforce?

These are questions that at some point confront each of us who are teacher educators. What Murphy (2014) did was to

introduce teacher research through visual documentation and a range of writing assignments that require students to reflect on their field hours, observations, readings, class discussions, and presentations. I became convinced within the

first semester that I incorporated teacher research into one of my courses, that these practices are transformative. My students began asking meaningful questions, collecting data that allowed them to explore and measure the effects of their teaching, and developing convincing conclusions about what worked and what they still needed to change. More than ever before in my community college teaching experience, the students' research presentations became engaging and informative arguments about how to reform their work in early childhood settings.

From questions to an initial experiment in a process much like that of Escamilla Calan, Ortiz and colleagues, and other *Voices of Practitioners* contributors, Murphy moved to shaping the entire teacher education program so that these teachers, many of whom were and are already in classrooms, were bringing theory and practice together. They were learning deeply in their course work about the content of the early childhood curriculum and their time in classrooms was now framed to enable them to question, observe, and reflect—the essential framework that Dewey lays out.

But what of beginning teachers? How might teacher educators guiding preservice teachers toward professional stature enable theory and practice to come together, particularly when so few have themselves experienced the deeply thoughtful environments that are so present in the studies in *Voices of Practitioners*? Dewey begins his essay with an insight that may guide us:

There is a technique of teaching, just as there is a technique of piano-playing. The technique, if it is to be educationally effective, is dependent upon principles. But it is possible for a student to acquire outward form of method without capacity to put it to genuinely educative use. As every teacher knows, children have an inner and an outer attention. The inner attention is the giving of the mind without reserve or qualification to the subject in hand. It is the first-hand and personal play of mental powers. As such, it is a fundamental condition of mental growth. To be able to keep track of this mental play, to recognize the signs of its presence or absence, to know how it is initiated and maintained, how to test it by results attained, and to test apparent results by it, is the supreme mark and criterion of a teacher. It means insight into soul-action, ability to discriminate the genuine from the sham, and capacity to further one and discourage the other. (1904, 1977, 254)

To do this in teacher education requires that we know our students in just the ways that Dewey describes knowing children. It requires the courage—yes, courage—to study together how our students are learning to become teachers. Are they coming away with only the “techniques”? Are they having opportunities to see fine, real examples of practice, to reflect on and analyze what they have seen, and to try their hand with support that presses not so much for correctness as it does for the ability to adapt to the moment (Grossman et al. 2009)? Do we know our students in ways that help them and us find key intersections between their experiences as students and their experiences as students of teaching (Korthagen & Kessels 1999)? Are we willing to share what we learn with one another to build conversations of practice in communities of learners? Getting at the soul-life of our programs so as to help our

students learn to love teaching is what will make them great teachers. As Dewey writes at the end of his essay, “The thing needful is improvement of education, not simply by turning out teachers who can do better the things that are now necessary to do, but rather by changing the conception of what constitutes education” (1904, 1977, 272).

References

- Ardalan, G. 2017. “Spreading Happiness: A Preschool Classroom in Washington, DC, Investigates Citizenship and Makes a Statement—‘Be Happy!’” *Young Children* 72 (2): 64–71 and *Voices of Practitioners* 12 (1), 7–14.
- Cochran-Smith, M., & S.L. Lytle. 1993. *Inside/Outside: Teacher Research and Knowledge*. Language and Literacy series. New York: Teachers College Press.
- Cochran-Smith, M., & S.L. Lytle. 2009. *Inquiry as Stance: Practitioner Research for the Next Generation*. Practitioner Inquiry series. New York: Teachers College Press.
- Dewey, J. 1904, 1977. “The relation of theory to practice in education. In J.A. Boydston (Ed.), *John Dewey: The middle works*. 1899-1924, Vol.3 (1903-1906) (pp. 249-272). Carbondale and Edwardsville, IL: Southern Illinois University Press.
- Escamilla Calan, I.M. 2016. “A Dialog with the Shadows.” *Voices of Practitioners* 11 (1).
- Edwards, C.P., L. Gandini, & G.E. Forman, eds. 1998. *The Hundred Languages of Children*. 2nd ed. Westport, CT: Ablex.
- Featherstone, J. 1968. “The Primary School Revolution in Britain. A Report by Joseph Featherstone.” *The New Republic* August 10, September 2, September 9-1967. A Pitman/New Republic reprint. New York: Pitman.
- Grossman, P., C. Compton, D. Igra, M. Ronfeldt, E. Shahan, & P. Williamson. 2009. “Teaching Practice: A Cross-Professional Perspective.” *Teachers College Record* 111 (9): 2055–2100.
- Korthagen, F., & J. Kessels. 1999. “Linking Theory and Practice: Changing the Pedagogy of Teacher Education.” *Educational Researcher* 28 (4): 4–17.
- Mayhew, K.C., & A.C. Edwards. 1936. *The Dewey School: The Laboratory School of the University of Chicago, 1896–1903*. New York: Appleton-Century.
- Murphy, D.G. 2014. “Making Voices Visible: Teacher Research in Associate Degree Teacher Education in Our Community Colleges.” *Voices of Practitioners* 11 (1).
- Ortiz, A., D. Ferrell, J. Anderson, L. Cain, N. Fluty, S. Sturzenbecker, & T. Matlock. 2014. “Teacher Research on Boys’ Literacy in One Elementary School.” *Voices of Practitioners* 9 (1).
- Rust, F. O’C. 2010. “Shaping New Models for Early Childhood Teacher Education.” *Voices of Practitioners* 5 (3).
- Scardamalia, M., & C. Bereiter. (2006). “Knowledge building: Theory, pedagogy, and technology.” In K. Sawyer (Ed.), *Cambridge Handbook of the Learning Sciences* (pp. 97-118). New York: Cambridge University Press.



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