

# reflections on science: the development of the Hawkins Room for messing about with materials and ideas

by Mary Lynch, Lauren Foster Shaffer, and Ellen Hall

Beginnings  
Workshop

## A reflection on science teaching and learning

by author Mary Lynch

One of my fondest memories of the Master's program through the University of Colorado, Denver and Boulder Journey School was the day that Frances and David Hawkins came to one of my seminars to speak. I had read their work and heard stories about them from our Professor, Ellen Hall, but I was not prepared for the profound impact that meeting them would have on my life as a teacher, and the way I have felt about teaching ever since. The visit with Frances and David was not a typical graduate school lecture. In fact, the two spent more time listening than they did speaking. They wanted to hear our stories: what we remembered about our own education and why we wanted to become teachers. By giving us the opportunity to reflect on our experiences, we were able to learn a great deal.

I began to wonder why as a child I was uninterested in science in school, even though I was naturally drawn to the outdoors, loved nature, and was naturally inquisitive. It didn't take me long to realize that I probably gleaned more of my knowledge about science through hikes with my father than through any of my elementary school classroom settings. As a result of this understanding, I have become a teacher who sees the value of time and space to experience science materials not only with children, but also with other teachers. I think that this is especially important to me because in school I felt that science was something that was overwhelming and difficult. The connections I feel to the Hawkins' philosophy on science education inspire me to push myself beyond my comfort level when exploring science with children at Boulder Journey School.

## Introduction to Boulder Journey School

Boulder Journey School is a school for young children in Boulder, Colorado, that serves over 225 children, ages six weeks to six years and their families. We are also a school for teachers, housing a graduate level teacher education program in collaboration with the University of Colorado, Denver and the Colorado Department of Education. With a faculty of roughly 50, our school is an eclectic mix of Intern teachers who are currently in the teacher education program, Mentor teachers who have completed the program, and teachers who are not currently in the program but are at different points on their own educational paths. The glue that holds us all together is our collective commitment to ongoing professional development.

Since 1995, we have been studying the work of the Municipal Infant-Toddler Centers and Preschools in Reggio Emilia, Italy. This has had a great impact on the daily life of our school, keeping us motivated and inspired adult learners. It is also through our study of the schools in Reggio Emilia that we came across the work of two educators, David and Frances Hawkins. David's philosophical writings influenced Loris Malaguzzi, founder of the philosophy and pedagogy of the schools in Reggio Emilia (Malaguzzi 1998). Similarly, David Hawkins was a great admirer of Malaguzzi's work, and the two cultivated a professional relationship late in their lives. Lella Gandini writes, "Both believed in the importance of seeing children's processes of learning through action and also of renewing oneself with an open mind. Upon such a common base each was able to learn from the other" (Gandini, 2008).

## Introduction to David and Frances Hawkins

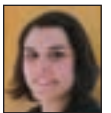
As we began to study the schools for young children in Reggio Emilia, we also began to learn about David and

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Journey School. She holds a BA in Anthropology from St. Lawrence University and an MA in Educational Psychology from the University of Colorado, Denver. In addition to teaching, Mary's role at Boulder Journey School includes supporting and documenting teachers' work in the Hawkins Room for Messing About with Materials and Ideas and collaborating on various projects that are being developed through Hawkins Centers of Learning.

Lauren Foster Shaffer is an infant/toddler teacher



and teacher educator at Boulder Journey School and a member of Hawkins Centers of Learning. Lauren is currently collaborating with other members of Hawkins Centers of Learning ([www.hawkinscentersoflearning.org](http://www.hawkinscentersoflearning.org)) to create an exhibit dedicated to the contemporary revival of socio-constructivist education as advocated and advanced by David and Frances Hawkins.

Ellen Hall is the founder and executive director of Boulder



Journey School in Boulder, Colorado, and director of the Teacher Education Program developed at the school in partnership with the University of Colorado, Denver and the Colorado Department of Education. Ellen is a founder and partner in Videatives, Inc., an online professional development company. She is a founding board member of the North American Reggio Emilia Alliance and of Hawkins Centers of Learning, inspired by the work and lives of David and Frances Hawkins.

## Beginnings Workshop

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Frances Hawkins. We were surprised to discover that they lived in Boulder just like us! They have inspired us as educators and have motivated us to recognize the vital importance of incorporating more science-based experiences throughout our school. They have also inspired our approach to professional development.

David and Frances Hawkins were both passionate educators, committed to the idea that in order to best serve children, teachers need to be dedicated learners as well. David's background was in philosophy; however his interests included economics, physics, mathematics, biology, and social and political science. Frances started her career as a teacher, never letting go of her commitment to documenting and studying children's learning processes. One of their biggest areas of influence was on science education, believing that science needs to be taught in a hands-on, exploration-based way; and to this end they worked with teachers and children throughout the world.

### **An innovative teacher center: The Mountain View Center for Environmental Education**

Of the Hawkinses' many accomplishments, one that stands out is the creation of a unique professional development center for teachers. The Hawkinses noted that many teachers feel uncomfortable with scientific concepts. In order to better prepare to teach science to children, they need time and space to strengthen their own scientific understandings through hands-on experiences. They created The Mountain View Center for Environmental Education, located in Boulder, in the 1970s and '80s. The center held workshops for teachers; and in schools, weekly open houses; and published several periodicals and books about exploring science with young children.

### **Re-conceptualizing the teacher center at Boulder Journey School: The Hawkins Room for messing about with Materials and Ideas**

As we studied the historical work of the Mountain View Center, we began to see many possibilities for creating a teacher center at Boulder Journey School as a place for teachers to engage in scientific thinking and learning. Thus, in 2007, "The Hawkins Room for Messing About with Materials and Ideas" was born. We envisioned a room that would challenge teachers to broaden their understandings of scientific concepts

and wondered how this might impact the learning taking place in our classrooms.

When pondering what teacher provocations to initially offer, we came across a small booklet used by the Hawkinses entitled, "Wheels: Activities for Lower Primary" developed by the African Primary Science Program. The booklet contains provocations and materials for introducing wheels and rolling to children (Wheels, 1973).

We have always observed a natural interest in rolling by children at our school. We speculate that this may be because of the inclines built into our hallways. Rolling and incline were concepts that many of our teachers observed everyday but were not comfortable supporting as scientific concepts. We saw the children's interest in rolling and incline as an opportunity to push our own thinking around these concepts. We realized it would be easy to look up science activities involving rolling and incline in books or on the Internet; but exploring materials related to these concepts ourselves would not only be a source for new activities, it would also offer teachers the opportunity to get excited about the materials that were also being explored by children.

Boulder Journey School teachers worked in small groups throughout the 2007/2008 school year, studying rolling and incline from a number of perspectives.

BELOW: Frances Hawkins exploring with teachers at The Mountain View Center for Environmental Education  
PHOTO PROVIDED BY HAWKINS CENTERS OF LEARNING



By giving us the opportunity to reflect on our experiences, we were able to learn a great deal.



ABOVE: David Hawkins exploring with a teacher at The Mountain View Center for Environmental Education  
PHOTO PROVIDED BY HAWKINS CENTERS OF LEARNING

More intentional experiences with rolling and incline were gradually incorporated back into classrooms. The totality of experiences contributed to the teachers' understanding of the many possibilities for learning inherent within the scientific concepts of rolling and incline. As the teachers became more familiar with rolling and incline, we witnessed excitement building among groups of children, infants through pre-kindergartners, throughout our school.

### Rolling and incline with infants

One teacher who was inspired by working in the Hawkins Room was a teacher in the infant room. The teacher noticed that when the children began to crawl, they became endlessly interested in exploring balls. She speculated that this was because when the balls rolled away they could now crawl after them. The teacher wondered how she could re-arrange the physical environment and add materials to best support the children's new quest.

This drew her into the Hawkins Room. She spent time with other teachers testing various materials and gathering ideas about what to offer the children. Materials explored included balls, spools, tubes, cylindrical blocks, and empty cans and bottles. The

teacher decided to add two small ramps and different collections of materials for rolling.

The incline added a new perspective on rolling, as the children had previously been rolling balls on the flat floor of the classroom. The materials offered new possibilities for what could be rolled. Both teachers and children found themselves more engaged in rolling than ever before. When teachers saw a new material that was round, they considered whether it would support the children's interest in rolling. The teacher reflected later that without the time spent playing with other teachers, she didn't think she would have become quite so engaged in this line of inquiry alongside the children.

### Rolling and incline with toddlers

Another group of teachers inspired by the Hawkins Room worked with a group of young toddlers. The energy in our school for rolling had already provoked them to include ramps, tubes, balls, cars, and open-ended rolling materials for the study of scientific concepts, such as gravity, motion, incline, and cause and effect. However, the teachers noticed the children's interest waning.

They met with a small group in the Hawkins Room, seeking new questions to explore. Someone proposed making the ramps sticky, thus provoking a new challenge: figuring out how to slow down or stop materials in motion with sticky surfaces, including contact paper and types of tape. The teachers had previously spent time thinking about variations in materials for rolling, but now had tons of new ideas for the variation of surfaces for rolling.

The teachers were excited to offer this new provocation to the children. They predicted that the surprise of the familiar materials screeching to a halt halfway down the ramp would delight the

RIGHT:  
Infants  
exploring  
rolling at  
Boulder  
Journey  
School

PHOTO PROVIDED BY  
BOULDER JOURNEY  
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Not only were teachers' reflections incorporated into the daily life of classrooms, thus affecting the children's work, but the children's comments also changed the teachers' perspectives on their work.

children and cause them to ask new questions. They reflected that without their experience in the Hawkins Room, they would not have thought to introduce the sticky element and credit it for a renewed interest among the children.

### Rolling and incline with pre-kindergartners

A third group of teachers drawn into the Hawkins Room were pre-kindergarten teachers. These teachers, inspired by their experiences creating cars in the Hawkins Room, began to wonder about possibilities for introducing materials for rolling, using a long ramp on the school playground. Teachers gathered tires, spools, cylinders, pillars and logs, and observed that the children were most interested in the materials that rolled fast and far. The children defined this as 'rollability' and spent time categorizing materials by these characteristics.

The teachers realized that the group of pre-kindergarten 'rollability experts' could potentially offer new perspectives on the ongoing work taking place in the Hawkins Room. A small group of pre-kindergartners were invited to the Hawkins Room to test the 'rollability' of the vehicles created by the teachers. Interestingly, the children pointed out something that many teachers had overlooked: many of the homemade cars looked very pretty and creative, but did not actually roll well. This pushed teachers to think harder about 'rollability' as they worked. Inspired by the children's insights, the pre-kindergarten teachers encouraged the children to use their observations to create their own vehicles, based on 'rollability.' In this way, the work of teachers in the Hawkins Room was reciprocal. Not only were teachers' reflections incorporated into the daily life of classrooms, thus affecting the children's work, but

the children's comments also changed the teachers' perspectives on their work.

### References

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### Resource

For more information on Frances and David Hawkins, *Activities for lower primary: Wheels, The Hawkins Room for Messing About with Materials and Ideas*, and additional Hawkins-related resources, please visit: [www.hawkinscenters.org/resources](http://www.hawkinscenters.org/resources).

### Concluding reflections

by author Mary Lynch

My journey with the Hawkinses began with personal revelations in a graduate classroom, and continues with the time I share with colleagues in the Hawkins Room at Boulder Journey School. It is because of the time that I spent working with wheels that I have a better understanding about ways to introduce scientific concepts to young children, to ask good questions, and to provide materials and provocations to support their learning about these concepts.

The words of Frances Hawkins speak to me about the value of exploring materials with other teachers, and I offer this quote as inspiration to others:

... good teaching depends on a teacher's own love, understanding, and continued pursuit of subject matter, whatever that may be. When teachers' lives have been deprived of any whole-hearted enjoyment of the things of the world that can engage young children, then a first priority in helping them, as we sought to do, must be to let them discover that enjoyment as adults. (Hawkins, 1997)



RIGHT:  
Pre-Kindergartners  
exploring rolling and  
incline at  
Boulder Journey  
School

PHOTO PROVIDED BY BOULDER  
JOURNEY SCHOOL