

The Wonder Cabinet

at the Children's Discovery Museum of San Jose

by Jenni Martin

Responding to an increased conviction about the importance of the early years of life, Children's Discovery Museum of San Jose (CDM) proudly opened **The Wonder Cabinet** in April, 2005, designed for children ages 4 and under and the adults who accompany them. We devoted our largest gallery (3,100 sq ft) to this exhibition in response to a number of emerging trends: new insights about the importance of stimulating early learning environments for children's academic success, a predicted boom in the age 0-4 population in our community, and a bold vision coalescing in Silicon Valley for the education of young children. All of these primed our community for innovative approaches.

With an annual visitation of 300,000; our focus on family and learning; and a successful record of designing multi-disciplinary, inquiry-based experiences not possible in the contexts of school and home, we began in 2002 the process of developing an exhibition for young children. It focused on two ideas: children's natural curiosity about their world and the role that adults can play in helping to recognize and nurture that curiosity.

The challenges in designing for ages 0-4 were threefold: 1) creating exhibits that make the world accessible to very young children in ways they learn best – through touch, smell, sight, sound and full-body experiences; 2) designing “layered” experiences to address the vast range of competencies between infancy and preschool-age; and 3) introducing the museum experience to very young children in a way that engages them and involves their parents in their early museum explorations.

We asked ourselves: how might we create an environment where young children see what the larger museum has to offer, but within a safe and developmentally appropriate atmosphere? Perhaps a “museum within a museum” concept was the answer.

The Exhibition

One theme was very clear from the extensive input we received at the project's front end: *We don't want another preschool-looking environment. Young children should have an environment that is as creative, unique and engaging as CDM's exhibits for older children.* The staff took this to heart, and embracing the “museum within a museum” concept found inspiration in the world's first museums: 16th century cabinets of curiosity. These cabinets are best known to contain “a collection of a type that's pretty much disappeared today, where natural wonders were displayed alongside works of art and various man-made feats of ingenuity” (Weschler, 1995).

Like these curiosity cabinets, **The Wonder Cabinet** offers varied experiences designed to awe, inspire, and educate. Rich in materials and textures essential in early childhood development, it also has an elegant appearance—boldly signaling just how different it is from what is typically designed for a preschool and younger audience.

Visitors literally walk through the “cabinet door” finding an environment filled with wonders. The Forest is a place to explore stories, where a giant tree is a theatre, the woodland animals are puppets, and the forest is filled with books. The ABC Boxes help visitors to explore the alphabet in creative ways, where each letter is housed in a flip-up shadow box

Jenni Martin Martin is the Director of Education at Children's Discovery Museum of San Jose. She may be contacted at jmartin@cdm.org.

The Wonder Cabinet received the American Association of Museum's 2007 Excellence in Exhibitions award.



The Wonder Cabinet by Children's Discovery Museum of San Jose invites children and their parents to open the door to a **wonder-full** world where little explorers make big discoveries. Courtesy of Children's Discovery Museum of San Jose.

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and portrays an action word (*B* is blinking and *D* is drumming!). Textures on each letter, accompanied by Braille, encourage the multi-sensory exploration known to help literacy skills.

The Sand Laboratory is for exploring sand with unusual tools: authentic science equipment including scales, beakers and tubes. The Block Area features foam blocks of varying sizes and shapes, some as big as the children who use them. The climb-on Fire Dragon introduces the Pretend Area, with its variety of international scarves for dramatic play and a Giant Kaleidoscope, where children see what it's like to be inside a triangle of mirrors.

Around every corner of the Hexagon is a surprise. Whether exploring artifacts or experimenting with scents, children see, touch, listen and smell. Upstairs-Downstairs has a Tunnel at the bottom, a Shadow Room at the top,

and the Room of Sounds and the Ball Machines in between.

The Art Studio encourages experimentation with natural materials and explorations with the Paint Wall, Sensory Art Table and Discovery Boxes. Cultural "peep-hole" dioramas highlight the diverse cultures of Silicon Valley. In the Vietnamese Cultural Diorama, for example, children see themselves dressed as a child living in Vietnam's highlands. The Crawl Space, for pre-walkers only, features sensory activities, mirrors, puppets, and even an aquarium that crawling infants can discover.

For children, these areas target different developmental tasks during various ages. A two year old at the ABC Boxes may simply trace the letters with her fingers and feel the texture underneath, while another of a different age might flip up the shadow box and figure out the action the letter is engaged in: e.g. *B* is



ABC Shadow boxes feature textures, Braille, and brass letters on the outside, and reveal fun action dioramas when the boxes are flipped up. Courtesy of Children's Discovery Museum of San Jose.

blinking. Adults can engage actively with their children or simply observe them as they explore. Signs with a single action word are placed above activity areas to promote letter recognition among pre-literate children and to define for parents the purpose of the activity area. Additional signage provides functional, inspirational and in-depth information. Visitor feedback and professional evaluation have clearly documented that *The Wonder Cabinet* has achieved its purpose of engaging the family in experiences that inspire the young child's innate curiosity. Ninety-three per cent of parents found the exhibition to be interesting both for children and for themselves, and 62% of parents said the exhibition will help them in their parenting (Beckstrom, 2005). Parents also regularly comment on how much they enjoy seeing their child's evolution of skill as well as learning something new about their child.

Assessing Community Needs and Identifying the Approach

Engaging the community became a primary focus for the initial stages of development with the dual purpose of assessing community needs and building community-wide excitement for the project. We enlisted the help of the Local Childcare Planning Council, a group of early childhood educators and administrators whose primary purpose is to coordinate community-wide services and activities for the youngest children in the community. They hosted a monthly meeting at CDM and gave feedback on approaches for changing the existing exhibition space for young children, emphasizing the importance of addressing the key developmental



A young family is fascinated by the Ball Machine, where children place colorful balls in pneumatic tubes and watch them roll down. Two center launch tubes provide easy access, especially for children in wheel chairs. Courtesy of Children's Discovery Museum of San Jose.

needs for the target age group. Follow-up meetings of this group, held at critical junctures in the development process, gave additional information to exhibit developers. Focus groups with Museum members highlighted the need to maintain some of the important elements of the smaller early childhood space that was being replaced: e.g. a door that allows entry/exit only with a parent's permission, low walls so that a child could be seen from anywhere in the space, and activities that change regularly for repeat visitors. An Advisory Committee comprised of early childhood educators, San Jose State University Child Development faculty, and a FIRST 5 commissioner gave important comments throughout the early stages. In fact, it was their feedback that inspired the development of the "museum within a museum" concept for the exhibition. FIRST 5 Santa Clara County, a statewide organization administered by counties to support children in their first five years of life, ultimately became the primary funding source for the project and provides ongoing resource and financial support.

Prototyping exhibition components with our intended audience ensured accessibility and relevance and encouraged involvement of a wide constituency. Member families, childcare groups, a preschool for children with special needs, and early childhood educators visited the prototyping lab

The Wonder Cabinet encourages kids to ask questions... it gives you an opportunity to get in there with your child and make some discoveries and play with them, and see how they interact with the world, and how you could best interact with them.

— Parent Visitor

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This is a great place for children with special needs...She has Down's Syndrome, so we were working on kneeling. The ball table gave her a lot of motivation to kneel!
— Parent Visitor

and participated in follow-up feedback sessions facilitated by postdoctoral students in developmental psychology from UC Santa Cruz. The prototyping results ultimately led to a number of small but important changes to exhibit components. The Ball Machine was reconfigured for ease of access, and a door was added to the crawl-in Kaleidoscope so that caregivers can lift or wheel in children who are not able to crawl or walk. An originally un-themed climbing structure became a Fire Dragon and additional spices were added in the Smells area to better reflect San Jose's diverse cultural community. Hand-held scent bottles were added to the Scent Area so that they could be handed to children in wheel chairs who couldn't reach the built-in scent boxes. Braille and fabric textures enhanced the front of the alphabet boxes for the visually impaired. And we re-designed the Crawl Space's ramps to include levels for "aspiring" walkers as success points.

Special efforts were made to design an exhibition that could offer multiple access points for visitors of different ages, cultures, interests and abilities. Signage is comprised of simple verbs, depicted in three languages (English, Spanish, and Vietnamese). The simple signs encourage pre-readers in letter recognition while nudging parents to take action with their children: Build, Compare, Experiment, Listen, Look, Measure, Move, Observe, Pretend, Roll, Smell, Sort, Touch, and Travel. Two other signage approaches are directed to the adults, especially those who have come for repeat visits. Quotes on the walls from notable people inspire caregivers to reflect on wonder and curiosity, and they are complemented by beautiful large photographs of children engaged in exploration. By the benches are tri-lingual,

laminated **Wonder Cabinet Wisdom** sheets, explaining in depth the skills that children are developing through the different exhibition experiences. Cultural dioramas, which change annually, currently highlight the Highland area of Vietnam. A group of local Head Start teachers, all natives of Vietnam, came together to conceive of the dioramas, gather the outfits and traditional icons included, and make the final arrangements before opening day. Photos of these teachers in their traditional dress add personal relevance to the dioramas.

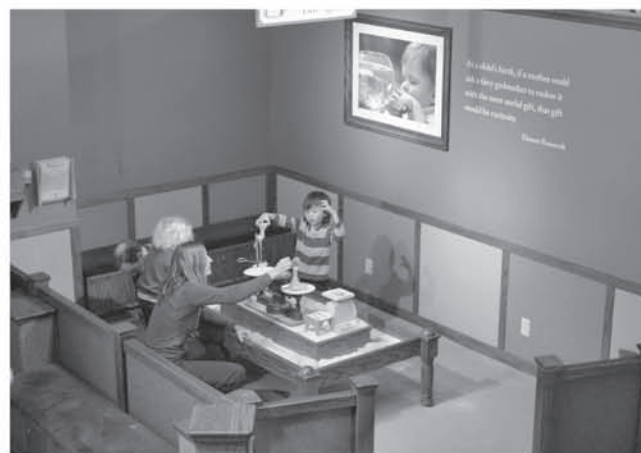
Designing with Purpose

Drawing on their own commitment to honor and respect children's innate sense of beauty and calling upon the rich tradition of the Reggio Emilia preschools in Italy, the team of exhibit designers and early childhood developers carefully chose materials, colors, and activities for the exhibition space. The Municipality of Reggio Emilia in 1963 adopted a philosophy that aims to "promote children's education through the development of all their languages: expressive, communicative, symbolic, cognitive, ethical, metaphorical, logical, imaginative, and relational." One of the distinctive features of the Reggio approach is the importance given to the environment as educator. (Municipality of Reggio Emilia, 1999). As the Reggio educators know so well, children truly do respond to beauty and to the opportunity to handle the 'real' thing. In **The Wonder Cabinet**, dark-stained oak and jewel-toned hues throughout the space offer an antidote to the over-stimulating bright primary colors and shiny plastic veneers so often seen in spaces designed for children. The space takes advantage of available natural light and uses beautiful rice paper scrolls as light coverings to provide a warm, calming environment.

Carpeting graces walls and floor supplying both sound abatement and additional textures for children to explore. *Editor's Note: see the article by a Reggio Emilia researcher in this issue.*

Designers also had a mantra: the exhibition must be developmentally appropriate—addressing the social/emotional, gross motor, fine motor, and cognitive needs for this age group—but must also be different from preschool. So, while the exhibition features a block area, these blocks are large scale foam blocks not typically available for the preschool crowd. And while there is a dinosaur in the space, it is actually a small apatosaurus skeleton, housed beside a full-size replica of a dinosaur leg bone against which children can measure their own height. Shadow play and dance are combined in an innovative space where children skip and dance to the music of the Carousel as colorful horses' reflections gallop across the walls encouraging children to follow.

The exhibition is rich in details, communicating with children through easily recognizable objects, while also introducing surprises—some of which are found right away, and others that are only discovered as children return month after month, growing older with ***The Wonder Cabinet***. They may recognize the airplane suspended from the ceiling that looks like what they see in the sky, or gain introduction to new animals in the puppets they use in the Treehouse. The Sand Laboratory offers authentic scientific measuring tools that can be both a simple exploration of sand for a one year old and the beginning of understanding of weights and measures for a three year old. Mothers with new babies might discover the cleverly rigged octopus whose legs move one at a time on their



At the Sand Laboratory, children use scales and other scientific equipment to explore. The large photo and quotation on the wall provide inspiration for parents. Quotation reads: "At a child's birth, if a mother could ask a fairy godmother to endow it with the most useful gift, that gift would be curiosity." Eleanor Roosevelt. Courtesy of Children's Discovery Museum of San Jose.

first visit, and only later notice the graceful overhead mobiles designed to capture the eyes of babies lying on the floor.

The Art Studio is an elegant room where children can use the materials of art and of nature to create their own masterpieces. Works by children and by professionals are displayed side by side. Though children are invited to get messy, an important developmental task, the space itself is always beautifully kept. A custom-designed paint wall made of Corian allows painting with abandon but also ensures easy clean-up with a built-in spray hose connection and trough that drains through copper piping to the drain in the back room. Low and high sinks allow children to take responsibility for themselves. Art activities change monthly and the space is always staffed. Glass windows show the children in the rest of the Museum the quality artwork in which the toddler set can engage. Early childhood developers who plan the activities carefully document children's work, Reggio-style, and display it throughout the space, giving parents ideas about how their children might engage in art.

Making Collections Accessible

Again, through personal commitment and respect for the experts of Reggio Emilia, exhibit designers and early childhood developers strove to make *authentic* objects accessible for very young children, not simply *pretend* versions of those things. In the spirit of the cabinets of

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Everything, the design, is right for kids...It's like a little children's paradise.
— Adult Visitor

curiosity of old, *The Wonder Cabinet* displays 'natural wonders... alongside works of art and various man-made feats of ingenuity.'

The development team pushed themselves to tackle the difficult questions: If children's museums are truly to be the first learning ground for the next generation of museum-goers, how can we create entry-level experiences in the arts, sciences and humanities? How might we engage young children in finding, observing, and exploring collections in ways that very young children learn best—through touch, smell, sight, sound and full-body experiences?

Throughout the exhibition, objects are paired with rich interactive experiences. A partnership with the local history museum, History San Jose, enabled a display of over 100 dolls from around the world. While these are housed in glass cases for children (and certainly adults) to enjoy, children are also invited to dress up *themselves* in fabrics gathered from around the world and to pretend that they are setting a table and eating food from different countries. Marionettes and Shadow Puppets are displayed in glass cases near the puppet Treehouse in the Forest, but can also be activated by a lever so that the horse prances and the man on strings starts to dance. The Sound area, for instance, includes a small old-fashioned metal fire engine, a wooden duck decoy, and a brass elephant. As children touch these objects, the duck quacks, the elephant brays, and the siren sounds in the distance. In the Tunnel exhibit, children experience the wonders of nighttime as they crawl or walk through the tunnel. Stars appear above them, and children themselves can dim the lights to see fluorescent rocks, safe in their



Children and parents engage in dramatic play where food and artifacts from cultures around the world become the inspiration for role playing. A collection of dolls also introduces costumes from around the world. Courtesy of Children's Discovery Museum of San Jose.

plexiglass compartment, displaying an array of colors.

The Hexagon is a six-sided case featuring wonders found in the natural world. Common sea shells in the Sorting area are loose and children can move them from one compartment to the next, arranging the display as they wish. Plants are not just ordinary plants, but are actually bug-eating plants. Finger puppets attached below the terrarium encourage children to act out the hunting prowess of these unusual plants. A small model alligator, rabbit fur and antlers are mounted so that children can rub them directly to explore the differences in texture. Small dome lenses allow a closer look at the insect collection, mounted at eighteen inches high for easy access for toddlers. Colorful pieces of plex begin to take shape as little ones manipulate them atop a light box while a nearby zoetrope features the flight of the butterfly. Each of these features takes as its premise the desire to 'add a sense' to the visual sense most often used in viewing collections.

Committing for the Long Haul

Children's Discovery Museum expanded the exhibition space targeted to children ages 0 to 4 because the 800 square foot Early Childhood Center was over-subscribed—visitors were turned away and asked to come back later so that the room would not go beyond its capacity limit. However, it is, more importantly, our commitment to children and parents and their

I enjoy reading the quotes. It really makes you think about parenting, and life...
— Parent Visitor

capacity to learn that ultimately drives us to plant this seed, *The Wonder Cabinet* seed, and nurture it so deeply. The Museum has invested in two full time positions, Early Childhood Manager and Early Childhood Educator, to maintain and breathe life into *The Wonder Cabinet*. They plan the programs, train the staff and volunteers, change the artwork and document children's art processes, mend the books and buy new ones, notice when carpet is worn and paint is needed. They engage with parents and children and teach the part-time staff to do the same.

The Early Childhood educators were integral to the exhibition development process, helping exhibit designers by making concrete developmental milestones and Reggio philosophies. They were constantly aware of logistical and maintenance issues and made sure they were addressed. A sterilizer was purchased and housed just behind *The Wonder Cabinet* to clean drooled-on toys. Baskets were installed throughout the exhibition space so that parents could deposit soiled toys for later cleaning. The door from the back storage room has been fitted with a video camera so that Museum staff can check for little hands and fingers before accidentally opening the door into someone. Carefully considered amenities include snacking and nursing areas, ample seating, a self-closing door through which everyone must enter or exit, clear sight lines, toddler-height exhibits and ergonomic furniture.

In addition, the Early Childhood Educators have developed programs with new audiences to ensure that all of our community's children are able to take advantage of this unique learning opportunity. A parent tour component

introduced last year introduces parents unfamiliar with the Museum environment to some of the skills and opportunities they might have with their children in the exhibition space. In fact, 62% of parents interviewed responded that they learned something new about their children while they watched them in *The Wonder Cabinet*.



Shadow play and dance are combined in an innovative space where children skip and dance to the music of the Carousel as colorful horses' reflections gallop across the walls encouraging children to follow. Courtesy of Children's Discovery Museum of San Jose.

When I visit The Wonder Cabinet, I catch a glimpse of the future—children of diverse backgrounds so engaged with one another, with their parents right behind celebrating their successes. I often imagine what the world would be like if only every child had a Wonder Cabinet!

— Jolene Smith, Executive Director, FIRST 5 Santa Clara County

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It's very tactile,
with lots of
colors. It's a nice
change from
everything being
bright and plastic
so often in our
lives. It's like
being at your
Great Aunt's
house, isn't it?
With so many
interesting and
strange things to
look at.
— Parent Visitor

The Wonder Cabinet was an aggressive undertaking for CDM, challenging us to leverage core competencies in inquiry-based exhibits, committing to an important new audience, bolstering our staff expertise, and involving our community extensively. As a natural bridge between the formal early childhood community and the public, we seized the opportunity to innovate, limited only by our own imaginations. The exhibition is rich with natural materials and learning opportunities, signaling the explicit importance of the first five years of life. We are deeply rewarded by the parent/child interactions which far exceed the expectations of our staff, stakeholders and intended audience. The impact of **The Wonder**

Cabinet is best stated by a parent who wrote... *Parents are working. We don't have too much time (with our children). But here, in this space here, they will show us some skills we never knew.*

Thanks to Koen Liem and Tina Cosby, *Exhibit Designers*, Audrey Munoz and Inga Vintimilla, *Early Childhood Educators*, Glen Tulloch, *Exhibit Fabricator*, Marilee Jennings, *Associate Director*, and other **Wonder Cabinet** Team Members, Tim Ryan, Juan Herrera, Connie Martinez, Amity Sandage, Nicole Fravel for their contributions to **The Wonder Cabinet** and this article. ☀

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