

# NEA ARTS

NUMBER 3 2010



**The Art  
(and Science)  
of Creativity**

*jorge colombo*

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## ABOUT THIS ISSUE

How art is made is cloaked in mystery, not just to the audience but also, in many cases, even to the artist. How does creativity work? How do you know when the artwork is finished? What is “productive failure” and how is it important to the creative process? How do you become creative?

Creativity, however, isn’t only restricted to making art. In everyday life, we also use creativity in our workplace and our leisure time. Whether playing a video game or sport, solving a complex logistical problem, or trying out a recipe, creativity—that is, aesthetic and scientific problemsolving—is at work. In this issue we’ve asked several practicing artists about their creative process in various art disciplines, from music to theater, from visual arts to folk arts. We’re also talking with other creative practitioners—a scientist, a game designer—about how creativity relates to learning and thinking creatively in other disciplines.

Join us at [arts.gov](http://arts.gov) as well to find web-only stories, such as the Art Works podcast with noted translator (and 2007 NEA Translation Fellow) Natasha Wimmer. Also, visit our Art Works blog to comment on this issue or to share information on arts in your community.

## ABOUT THE COVER

Cover by illustrator, photographer, and video maker Jorge Colombo, finger-painted on an iPhone, using the app Brushes. “Creativity happens in the mind,” suggested



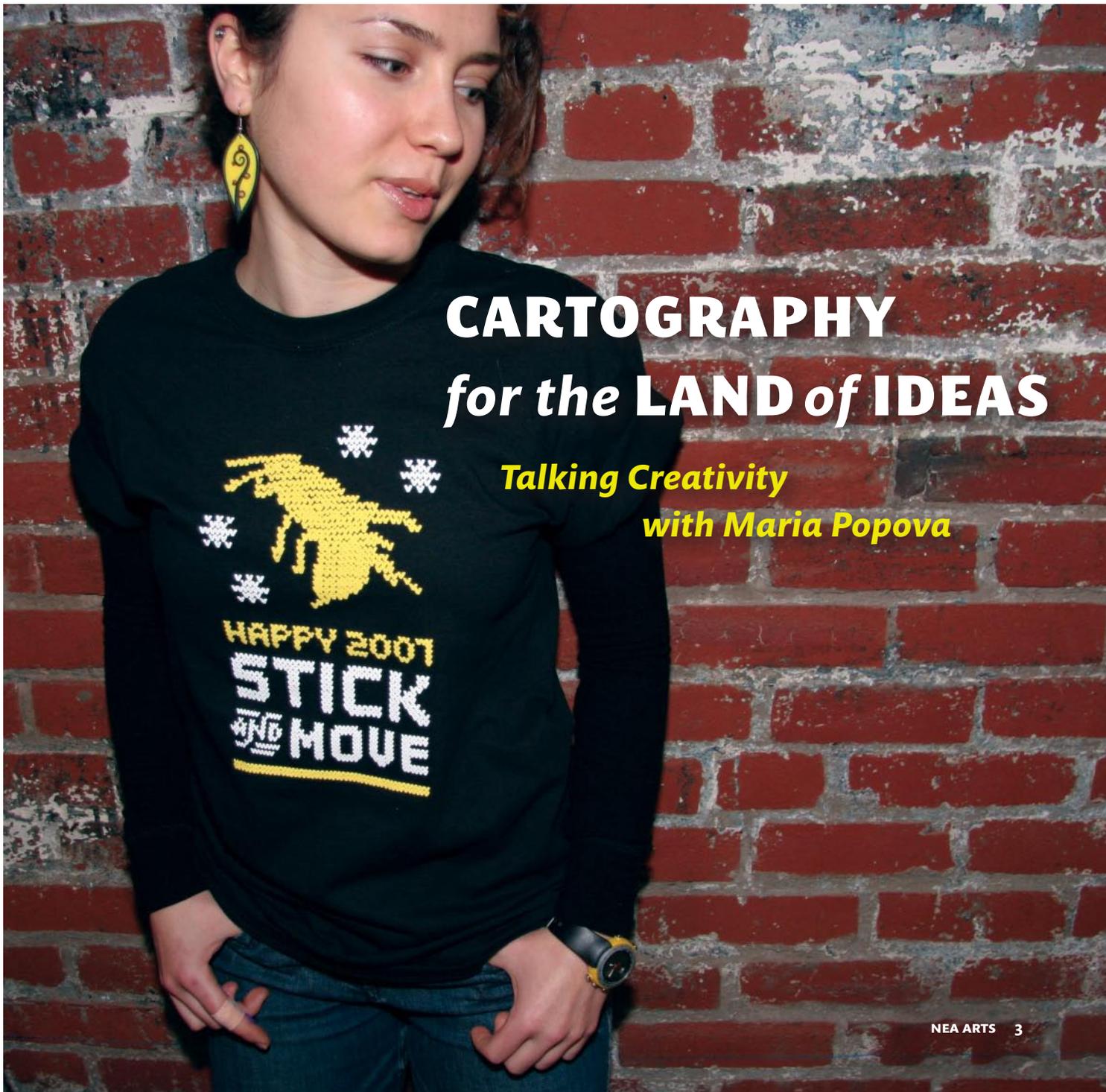
Colombo about the cover, “but there are so many little tools to keep things going. I treat them as a floral arrangement: each ‘flower’ glows and dances and explodes in a different way.” A book on Colombo’s iPhone finger paintings, entitled *New York*, is due out next year.



**A**CCORDING TO HER TWITTER PROFILE, Maria Popova is “an interestingness curator & semi-secret geek obsessed with design, storytelling & TED.” The editor of Brain Pickings ([www.brainpickings.org](http://www.brainpickings.org))—a website that covers design, music, anthropology, ecology, politics, religion, and anything and everything in between—Popova has also contributed to *WiredUK*, *GOOD*, and *designobserver.com*. What follows, in her own words, is Popova’s take on creativity, curiosity, and culture.

Maria Popova,  
editor of the website  
Brain Pickings.

PHOTO BY ERIC HAAG



# CARTOGRAPHY for the LAND of IDEAS

*Talking Creativity  
with Maria Popova*

### **Creativity = Curiosity + Courage**

Creativity is simply our ability to combine all the existing pieces in our head—memories, ideas, knowledge, inspiration—into incredible new things. It is completely contingent upon the depth, breadth, and diversity of these cognitive micro-resources—the more pieces we have, and the more disciplines they span, the stronger, richer, more impactful our creative output will be.

## **A creative life is one of perpetual and indiscriminate curiosity about the world and its many facets.**

In a way, it means to be intellectually restless. To consistently allow yourself to be uncomfortable, to be incompetent and, in the process, to learn. Mostly, a creative life is one of perpetual and indiscriminate curiosity about the world and its many facets. It's a kind of pattern-recognition that is only possible if one has a broad, cross-disciplinary view of culture, constantly probing how different pieces fit together. Just like man, no idea is an island. Creativity is cartography for the land of ideas—mapping new, better routes for how things fit together in the broader context of culture and society.

Contrary to how much of the creative industry operates—from the notorious artist ego to the award-lined shelves of prominent designers—true creativity and innovation require the dissolution of the ego, which in turn necessitates the admission of the possibility of failure. Finding new, better, smarter ways of doing or thinking about things means letting go of the old, of the familiar, of our comfort zones. This sounds like a worn cliché, but is in fact quite hard to do for many creative people because it means we need to learn to be uncomfortable and, possibly, terribly wrong. Which is something the creative ego has a hard time allowing. In a way, failure—or at the very least allowing for the possibility of failure—is what takes arrogance out of the creative process, which allows it to become just that—a process—rather than a rigid, preconceived blueprint that takes us just where we expected to go and nowhere else.

### **When it comes to education, curiosity shouldn't be a guilty pleasure.**

There's something to be said for education and the arts, specifically “liberal arts education,” which has mutated to a grotesque degree from its original conception. Today's liberal arts institutions are anything but liberal and hardly acknowledge, let alone honor, the arts and the role of creativity. Instead, higher education has become the ultimate pigeonholing machine for the doctor/lawyer/banker/consultant path that over 80 percent of college students marry as early as freshman year. Cross-disciplinary curiosity is all but shoved to the elective fringes of curricula, cast almost as a guilty pleasure that distracts from rather than enriches the narrow coursework of one's major.

Nowhere is the importance of curiosity more pressing than in those formative years of the intellectual and creative self, yet our educational institutions work to consistently extinguish indiscriminate curiosity. We have, now more than ever, a responsibility to be the champions of our own curiosity and the guardians of young people's right and desire to explore that inherent human gift before it is squandered somewhere in the limbo between standardized testing and academic myopia.

One of the big projects on my plate right now is a major youth initiative that deals with precisely that—the preservation of young people's cross-disciplinary curiosity as a lubricant of their creative entrepreneurship and an engine for finding their most authentic talent, that unique creative impetus that helps them unleash on the world their fullest creative potential and highest intellectual aspiration.

### **You send one simple e-mail to a few friends and next thing you know you're running a web source that gets more than 100,000 hits/month and you have nearly 30,000 Twitter followers.**

Brain Pickings began with the insight that people I knew in different creative industries—design, advertising, photography—confined their domain of curiosity to the silos of their disciplines, from the magazines they read to the e-mails they passed around for inspiration. I thought it rather backwards to claim to be in the business of creativity yet fill your intellectual tank of resources only with what's already been done within your industry. So I started sending out a simple weekly e-mail to some of my friends working in advertising



*Subconscious*, an artwork by Pansa Sunavee, one of the artists featured in a Brain Pickings post.

and design. Each Friday, I'd curate just five links to five fascinating pieces of content across anything but advertising and design—from an obscure vintage Japanese short film to the latest findings in neuroscience. Eventually, I noticed they were forwarding these e-mails across their own social graphs, to friends with wildly different occupations, often outside the loosely defined “creative industry.” So I realized there was a sort of intellectual market for this kind of indiscriminate curiosity.

**Sometimes you just need a little help making sense of the world.**

In the traditional art world, a curator selects pieces of artwork that together construct a narrative, convey a vision or tell a story about some aspect of how the world

operates. Today, we are increasingly overwhelmed by the access to and availability of information, which produces a sort of analysis paralysis in terms of crafting that story of how the world works. Without trusted filters, who help us sift the signal from the noise, we're left either utterly overwhelmed by the sheer abundance of information or paralytically confined to an echo chamber of our existing knowledge and beliefs, seeking out only information that confirms them. Today's information curators are these trusted filters that help us make sense of the world.

An “interestingness curator” is simply a curiosity guide—someone who digs out interesting cross-disciplinary content in a way that allows people to become interested in things they didn't know they were interested in until they discovered them. What makes an interestingness curator different from an information curator, or at least a more specialized variety

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Making New Worlds

with Director Mary Zimmerman

# Child's Play

BY ADAM W. GREEN

In July of this year, *Newsweek's* article "The Creativity Crisis," about the declining 'creativity scores' of our nation's children, mentioned a study showing that a large portion of MacArthur Fellowship grantees had developed paracosms—"fantasies of entire alternative worlds"—while playing as children.



Director and playwright Mary Zimmerman.

For director and playwright Mary Zimmerman, recipient of the prestigious award in 1998, this does not come as a surprise. "I'm absolutely of the opinion that being very bored as a child makes you make something better for yourself. Just being left on your own to make up a world is absolutely a key ingredient in creativity."

Zimmerman is still creating new worlds. Her prolific career has included inventive stagings of Shakespeare, operas, and most notably, her own original pieces, which use sources such as Homeric and Chinese myths, Leonardo da Vinci's journals, and European fairy tales. Lisa Tejero, an actress and long-time collaborator of Zimmerman's, remarked on her director's penchant for less standard fare: "A lot of her source material are stories that start in oral tradition—they have a greater truth in the sense that these are universal truths of being human."

Zimmerman's new works do not come from simple living room tales. Sprawling epics like *The Odyssey* have lent themselves to her oeuvre, as have more opaque pieces like the self-reflective *Remembrance of Things Past*. Yes, Proust. "I'm very drawn to how to stage the impossible," said Zimmerman. "A lot of the things I adapt were not meant for the theater—they were meant for either the solo storyteller or solo reader." This is where Zimmerman's out-of-the-box

PHOTO COURTESY OF BERKELEY REPERTORY THEATRE



playfulness, what Tejero calls her “childlike whimsy,” springs from, and it’s something that few American theater directors achieve to the same success and popularity. Proust’s multivolume work became *Eleven Rooms of Proust*, a site-specific show in which audience members walked from room to room in an old warehouse to experience 11 scenes distilled from the French masterpiece. Inspired by the unique architecture, Zimmerman began utilizing not only the space—the staircases, the loading dock, the windows—but also the interplay of light and shadows her lighting designer, John Culbert, threw on the walls.

Zimmerman’s creativity is at its peak when she’s staging the impossible. In *The Odyssey*, when confronted with how to depict the Siren song that tempts Odysseus and his men, Zimmerman acknowledged that they couldn’t sing: “We can’t possibly sing well enough that people will want to give up their homes and families for it. And then I said, ‘what would be the

*Mirror of the Invisible World*, adapted and directed by Mary Zimmerman for the Goodman Theatre in Chicago, starring Faran Tahir (foreground) as King Bahram.

thing that every man wants to hear?’” The end result was six red-clad women as different male fantasies (a girl scout, nurse, teacher, businesswoman, nun, and bride), cooing seductive phrases: “No, don’t worry, I’ll pick it up” and “Everything...you say...is so... important.”

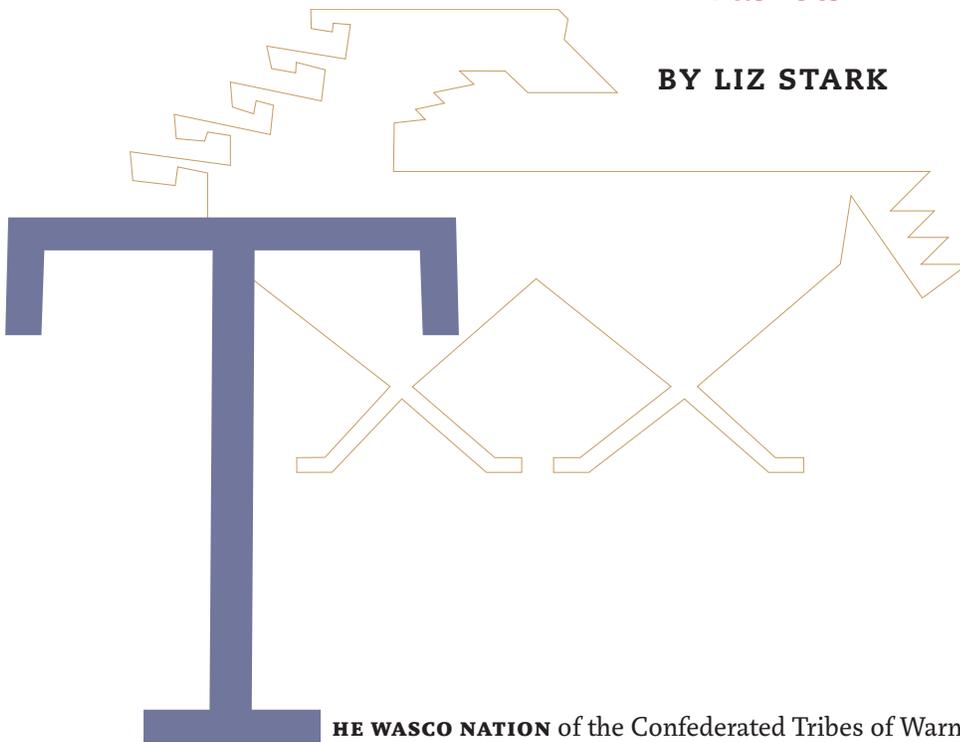
For her original projects, Zimmerman does not enter the rehearsal room with script in hand...because there is no script. Which doesn’t mean that the structure isn’t already there: “I’m making up an adaptation of a story that already exists, and often the big moves I have to make are structural. Like with *The Arabian Nights*, there are 384 stories. I’m trying to whittle it down to something that can happen in a couple of hours.”

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# Traditionally Innovative

Pat Courtney Gold  
Reflects Contemporary Wasco Life  
in Baskets

BY LIZ STARK



**THE WASCO NATION** of the Confederated Tribes of Warm Springs, Oregon, has a legend about how their baskets got their distinctive designs. As basketweaver Pat Courtney Gold tells it, “A girl wanted to learn how to weave, so she sat under a cedar tree. She was making a basket but didn’t know what kind of design to put on it. The tree told her, ‘Look around and you will see images.’ She looked around and the first thing she saw was mountains. So her mountain design became triangles—geometric triangles—all in a row. She showed that to the cedar tree and he said, ‘That’s what I want you to do.’ As we listen to this legend, it helps us open up our eyes and go out in nature and see things that you think would be good for a basket. That’s one way that we get our inspiration.”

Nature and the world around her continue to influence Gold, a member of the tribe whose full-turn twine technique and geometric designs not only draw from centuries-old Wasco baskets but also reflect her current life and that of her tribe. But Gold didn’t grow up with the tradition—she had to learn it from scratch.



Wasco weaver Pat Courtney Gold presents her baskets at the 2007 NEA National Heritage Fellowships concert.

Gold didn't take up basketweaving until later in life after she was established in a career as a mathematician. Her sister called with the news that there was an elder who was concerned that the Wasco basketmaking tradition would be lost and had found other elders who knew some of the weaving traditions and were willing to teach what they knew. "Two elders knew part of Wasco weaving, some knew how to start, some knew how to do designs, quite a few didn't know how to end the basket, none of them knew what the traditional materials were." Gold spent the next eight months meeting with the elders to put the pieces together and learn full-turn twine weaving, the technique used to make Wasco baskets' distinctive designs. She eventually left her career as a mathematician to devote her life to the tradition of Wasco weaving and ensure its passage on to the next generation and all those interested in weaving.

In addition to learning the mechanics of weaving, Gold recognized that an important part of carrying on this tradition was identifying the original plant fibers used. Working with tribal elders, she and her sister gradually identified some of the plants, which were often threatened by construction or marked

The only access Gold, as a child, had to her tribe's basketweaving traditions was through the Maryhill Museum of Art on the Columbia River, a three-hour drive from her home. Gold's mother would lead her and her sister to the museum's basement and the collection of Wasco baskets. "I remember her taking us there and pointing at them and I could hear her voice change. She really had pride in her voice when she said, 'Our people made these baskets.' When I looked at them I knew my grandmother and mother didn't make baskets and I really thought that we would never see anyone making them again.... It never dawned on me that I would grow up one day and be weaving baskets."

as invasive by federal and state agencies. As a result, Gold helped to found the Northwest Native American Basketweavers Association, which educates state agencies about the importance of protecting these natural plants and their habitats. Gold also integrates instruction in identifying these plants into her classes, passing along to the next generation the importance of being "stewards and caregivers to the earth so we'll continue to have these plant fibers and the clean water and clean air."

For Gold, immersing herself in the history of Wasco weaving also has been an important part of her craft. "In order to appreciate Wasco baskets you really have

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# Holding a Mirror

BY PAULETTE BEETE

## ASK GAME DESIGNER COLLEEN MACKLIN

to say what creativity is, and she'll reply with what it isn't: "I think a lot of people think that creativity is an innate thing that certain people possess, and other people don't... that it comes embedded in genes. I actually think that's not the case, I think it's an inherently social construction.... What's really interesting when you listen to people talk about their creative process is that creative and process come in the same pair. When we talk about creativity, we're really talking about a way to arrive at unexpected places and unexpected ideas."

"Arriving at an unexpected place" is also an apt description of Macklin's career path. She is currently an associate professor in the department of communication design and technology at Parsons The New School for Design, where she also heads PETlab, a design lab that develops games around social issues. Although Macklin had been interested in game design since she was a youth, she trained as a photographer and media artist. A sojourn at a New York City ad agency and time spent designing environments for what Macklin calls "intellectual raves" helped her develop not only top-notch computer coding skills but a self-described obsessive interest in creating interactive user experiences. "My work as a fine artist was always for me an opportunity to collaborate with friends—whether it was having them pose for the camera or act my films. I really found it was just an excuse to do interesting and creative things with people who are interesting and creative. In game design, that holds true as well; it's a collaborative process."

Macklin's unique pedigree gives her particular insight into the intersection of games and the arts. Visual arts and design might seem to be the only overlap between the two fields. Macklin pointed out, however, that the similarity is actually much more comprehensive: games and works of art share the same inherent power to reframe one's way of thinking. "When we play a game we learn about our own patterns and our own styles through the game, and oftentimes we try on new kinds of ways of seeing the world or ways of acting in

the world that I think surprise us and give us an opportunity to reflect on how we interact in life. I think games are these wonderful mirrors to the world and the world's systems, and just really give us an opportunity to try things differently... I think the best art [also] does that; it helps you see something in a new way."

The arts—and by extension, the creative process—and games also have something else in common according to Macklin: the need for constraints. She posited that both play and the creative process are at their most generative in the presence of rules and limitations, which force one to problem-solve and often-



# to the World | THE ART OF PLAYING GAMES

times come up with unusual solutions. “It’s not much fun to play golf by just holding the ball, walking over to the hole, and dropping it into the hole. It’s more fun when we give ourselves a challenge and we have rules and we hit the ball with a little stick from far away. Creativity is similar... I think that even if people don’t have external constraints, they develop their own constraints in order to be creative. That’s part of what the process is about—identifying constraints on the process or of thinking that really lead to creative outcomes.”

Games also teach another important aspect of creativity: failure—and the learning that comes from per-

sistence at a certain activity despite failure. As Macklin explained, “You actually are learning by failing. It’s fun to play around in a video game, for instance, and learn the rules through failure. You turn the game on, and you mess up. And you mess up over and over again until you understand the rules of that system and until you get better. You improve over time.”

Macklin cautions that not recognizing these linkages between game play and creativity is especially detrimental in the classroom. In fact, at a recent National Endowment for the Arts Education Leaders

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Not surprisingly, Colleen Macklin opened her presentation at the 2010 NEA Education Leaders Institute workshop by having the assembled educators and arts leaders play a game.

PHOTO BY NAT SOTI



# Creativity

*The Kronos Quartet*

BY MICHAEL GALLANT

David Harrington,  
founder of the  
Kronos Quartet.

**AUDIENCES LUCKY ENOUGH TO CATCH** the Kronos Quartet in concert might expect to feel any number of emotions—excitement at the group’s virtuosity, intrigue at the eclectic musical sources they gracefully synthesize, and wonder at the sheer creativity needed to conjure such fabulous music, performance after performance and album after album. They might also experience surprise if they were to learn that the group’s creative lifeblood flows not from some unknowable, magical place, but rather from the nexus of rigorous exploration, extensive research, a strong commitment to excellence, and dedication to hard work—in short, qualities Kronos founder and violinist David Harrington has in spades.

When we spoke with Harrington, he was in Boston, Massachusetts, putting these principles to work to rehearse and perform what he believed to be the world’s first piece for electric string quartet and the newly developed *electric gamelan*. “I’ve been interested in the compositions of Christine Southworth and the Gamelan Galak Tika ensemble for several years,” he said, referring to Kronos’ collaborators on the project. “[Music videogame pioneer] Alex Rigopulos and members of the MIT Media Lab have been involved in assembling and imagining these instruments, so we’re right at the beginning. It was the perfect opportunity to try something new!”

Harrington founded the Kronos Quartet in 1973 after hearing an adventurous New York quartet performance of George Crumb’s *Black Angels* on the radio. The Vietnam War-themed piece, which featured such eclectic instrumentation as bowed water glasses, gongs, and wild electronic sound effects, resonated deeply with the violinist. “Hearing *Black Angels* answered an emotional need,” he said. “The Vietnam

channel an explorer’s spirit into the group’s work. “I try to know as many of the things that are missing from our world of music as I possibly can,” he said. “There have been nearly 700 pieces written for Kronos, but so many things still haven’t yet been done. I try to put the thrust of my time into realizing those things that aren’t yet part of our work but should be.”

Through its more than 45 albums and constant performances around the world, Kronos continues to push the boundaries of what music a classical string quartet is expected to play, primarily using collaborations with composers and musicians of varied backgrounds as its creative fuel.

Just as noteworthy as Kronos’ collaboration with Southworth and Gamelan Galak Tika is the group’s work with artists such as choreographer Merce Cunningham, industrial rock pioneer Nine Inch Nails, composer Philip Glass, and Chinese *pipa* virtuoso Wu Man. The group’s creative partnership with Indian singer Asha Bhosle manifested in a critically acclaimed and Grammy-nominated album entitled *You’ve Stolen My Heart: Songs from R.D. Burman’s Bollywood*; the group has also worked on such film scores as *Requiem for a Dream*, *Heat*, and *21 Grams*. And the list goes on.

For Harrington, Kronos’ collaborations are equally about musical and human connections. “Terry Riley has been central to Kronos’ music for the last 32 years,” he said of the minimalist composer who has created 24 pieces for the quartet so far. “He’s a very generous musician and his music reflects that generosity. There are very few people in any creative field who can push the world of their art into another place and he still does that. I’m so proud of our work together.” Also particularly noteworthy is Kronos’ 1994 collaboration with iconic beat poet Allen Ginsburg, who met Harrington after Kronos coaxed a Lincoln Center audience, of which Ginsburg was a member, to sing along with their final tune of the evening. “Kronos was set to do its debut at Carnegie Hall soon thereafter and I had been wondering how we were going to distinguish that moment from all others,” said Harrington. “After seeing Allen in the audience that night, we asked him to join us on stage to read his breakthrough poem [“Howl”], and he said yes.”

Given his great musical curiosity, and the overwhelming number of genres from which to choose, how does Harrington whittle down the options for

# in Collaboration

## Breaking Artistic Boundaries

War was still hanging heavily in the air and many young people felt totally helpless. I was lucky because I instantly knew what I had to do—to play *Black Angels*. Hence the immediate formation of Kronos.”

Over three decades later, Harrington continues to

PHOTO BY RACHEL BLECKMAN



The Kronos Quartet performing George Crumb's *Black Angels*.

potential Kronos collaborators? “A lot of my work is curatorial,” he explained. “I’m constantly listening to new things. One of my current explorations is music of the Scottish Diaspora, the way the music has been transmitted through to Nova Scotia and later to places in North Carolina and Jamaica. That’s just one example. I spend a lot of time just thinking about people who are involved with music and somehow magnetize me personally. I love the process,” he continued. “I’ve already been in touch with fifteen composers this morning. And that’s what I do every day.”

Each collaboration Harrington engages in presents unique challenges, sometimes requiring Kronos and its



The Kronos Quartet (Harrington, John Sherba, Jeffrey Zeigler, and Hank Dutt) performing during their evening-length multimedia production *Visual Music*.

PHOTO BY ZORAN ORLIC

creative partners to bridge significant communication gaps. “The Gamelan ensemble we are currently rehearsing with doesn’t work from traditional Western notation the way that we do,” he said. “We had to work with Southworth to make sure our playing synced up. They memorize everything and know to repeat a section this many times and then move on.” Other challenges the group has faced include performing musical surgery in rehearsal, days or hours before a performance. “Our rehearsals are often about revising a piece directly with the composer so his or her work is realized most fully,” he said. “It can be thrilling and scary.”

Given such creative risk-taking, it might be reasonable to expect the quartet’s many successes to accompany at least a modest amount of failures—yet Kronos seems to have earned a preternaturally spotless record, continuing to deliver inspired and cohesive performances with every new step outside the proverbial box. The answer? “Research,” said David. “I’m anxious to minimize those moments of falling on my face in public. I would do everything possible to not bring something to the stage that didn’t feel like it had the entire weight of our past in it. I’m looking for those things that feel very natural as a next step and, for me, that means being aware of what we’ve done, but being totally open to what we haven’t seen yet, and to the immense amount of work we’ve never had a chance to be part of yet.”

“If I find a person or a situation that pulls me in and feels right, I trust that totally. If something doesn’t feel right, though, I’m going to get out of it before it hits the stage.”

Inherent in Harrington’s performance philosophy is the desire for constant growth. “I had a wonderful violin teacher, Veda Reynolds, who I had the great fortune to have studied with for 30 years,” said Harrington. “The last lesson I ever had with her before she died, the last thing she said to me was, ‘The great thing about music is that it can always be better.’ And this was after I had worked on one note with her for three hours!”

“I’ve tried to internalize that comment and pass it along to other musicians as much as possible,” he continued. “That’s the musical impetus that keeps us going, that search for something that is deeper than



The Kronos Quartet, with Wu Man on *pipa*, performing Tan Dun’s *Ghost Opera*.

what we’re used to, that fluently expresses more of the world that we know—and worlds we don’t know—through music, and through collaborations with people that inspire us.”

An equally important lesson in creativity that Harrington carries with him is the importance of living a vivid, engaged life. “I try to read several newspapers every day, keep my ears open, and stay alert,” he described. “You can learn a lot by walking down the street and just listening to people, watching children, watching very old people. There are so many lessons to learn and life is very, very short. You want to use your time to its best advantage.” 🐦

*Michael Gallant is a composer, musician, and writer living in San Francisco. He is the founder and CEO of Gallant Music ([gallantmusic.com](http://gallantmusic.com)).*

## Child's Play

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Over the weeks of rehearsal, Zimmerman will come in each day with new material she's written, tailoring it to her company of actors. Tejero and Anjali Bhimani both were quick to tell of an inspirational analogy Zimmerman has used to start rehearsals, likening the process to an archaeological dig, in which the company "all had to work to unearth [the play] together. We couldn't sit back but also couldn't dig too fast. And this is the sense of collaboration. The show is there—we just have to uncover it."

Movement sequences, another Zimmerman staple, are often a collaboration of Zimmerman and her cast. The framework for a physical sequence—such as Cinyras and Myrrha's incestuous, aquatic encounter in *Metamorphoses*—will be given. The actors will propose movements, and, using her keen eye for physicality, Zimmerman will tweak and edit until she's satisfied. As Bhimani, who originated the role of Myrrha, related, Zimmerman "fixed, fine-tuned, and basically choreographed us until she had what she felt was the right amalgam of what she wanted to see and feel watching the movement. She works with the actors to create the best marriage of what we bring to what she wants."

The collaboration is not confined to her actors. Mara Blumenfeld, who regularly designs costumes for Zimmerman, said that "with her new work, you have to come up with the idea of what the sandbox is that you're going to be playing in." And so Daniel Ostling, her most-used scenic designer, and Zimmerman will generally decide on the set first. The lighting design, often by T.J. Gerckens, will follow to transform that space; and then the costumes. Blumenfeld sits in on rehearsals as much as possible: "[W]hat Mary does on the page is such a small

Atley Loughridge as Dyrope and Justin Blanchard as Hylas in the Washington, DC Shakespeare Theatre Company's production of *Argonautika*, written and directed by Mary Zimmerman.

part of what her whole vision is, you have to see what she's doing and how the actors are using the space."

Her creativity is apparent when she recognizes the inherent limits of theater. "If you're going to do the fantastical," Zimmerman said, "the stage is a place that's grounded in physics. To haul on gigantic loads of scenery for ten minutes or ten seconds doesn't make sense to me; so you want to be as fleet as the experience of the listener." Zimmerman's answer, often, is to "miniaturize." While rehearsing *Candide* in August for a co-production between Chicago's Goodman Theatre and DC's Shakespeare Theatre Company, the problem of depicting Holland came up. Instead of bringing on a new set or backdrop, the change of scene was represented by someone blowing on a pinwheel. "I think the use of metaphor in image creates a kind of intimacy in the audience, a sense of profound collaboration. Without anyone saying it, everyone in the room says, 'Oh, I know what that is.' And that makes a shared human experience—I'm having the same unspoken associative thought that other people are having."

Like the actors and designers who can't sit back when Zimmerman asks them to begin their archaeological dig, the audience, too, is implored to enter the make-believe: "The fracturedness quality of that image helps people feel participatory. They're kind of



PHOTO BY CAROL ROSEGG



swept along with it—in the way children don’t stop while playing in the backyard and say, ‘Isn’t it cool how we’re all pretending?’ It’s unself-conscious and yet it’s very delightful and cooperative and exciting.”

Zimmerman’s work in opera can be viewed as the opposite of her original works. Instead of restructuring an existing tale with artistic license, a director is somewhat at the mercy of the dominant and deeply known force of the score. Zimmerman said of her opera direction that “I’m just supporting the story of the score and the music and trying to make it engaging and beautiful and real.” At the Metropolitan Opera, where Zimmerman has staged three works since 2007, a stage director has less control over the casting and design decisions. But despite the mixed response to her productions, there’s no denying the ingenuity and playfulness behind her staging. Introducing a ghost during an aria and a formal wedding photo during a moment of introspection in *Lucia di Lammermoor* drew negative critical comments, but even Anthony Tommasini, the *New York Times* critic, wrote that the moments were “a powerful image” and “beautifully directed.” Her choice to completely shift the opera *La Sonnambula* from a Swiss village to a modern rehearsal

**Marcello Giordani and Natalie Dessay in the opera *Lucia di Lammermoor*, directed by Mary Zimmerman for the Metropolitan Opera in New York City.**

room was excoriated by both critics and a vocal opening-night audience, but was defended as “much more inventive” by her lead, Natalie Dessay, who had initially pleaded with Zimmerman to eschew the work’s traditional Alpine setting.

Ultimately, whether Zimmerman is working from an existing script or improvising her own, her projects are still infused with that sense of child’s play, where an English backyard can become a completely different world, a stage can be a ship, and fabric can substitute for water. And it’s the collaboration between the director, actors, designers, and audience that makes for a transcendent evening at the theater; that, in Zimmerman’s words, “allows the audience to join hands with the performer, cross the footlights, and create a bond.” 🐾

*Adam W. Green is an actor and writer living in New York City.*

## Holding a Mirror to the World

*continued from page 11*

Institute workshop, she reproved the gathered educators for ranking “play” toward the bottom of necessary 21st-century skills. Macklin explained her thinking: “Games are unique objects or forms that let us bring together science, technology, engineering, math, and art into one form. Not just learning how to make games, but [the act of] thinking about creativity is going to be crucial to our future.... A lot of the big problems we have today are systemic. So I think using games as a creative and fun way to think through systemic issues is definitely going to be a strategy we have to cultivate in the 21st century. Games help us evolve as human beings; they help us gain new intelligences.”

A quick look at the games Macklin has designed in recent years—in collaboration with her students at PETlab, and with the game design collectives Local No. 12 and Leisure Society—proves the utility of game play in encouraging creative thinking around social issues.



PHOTO COURTESY OF COLLEEN MACKLIN

Budgetball is a non-contact, active sport for teams of 6–10 players designed to increase awareness of the national debt; tournaments have been played across the country at sites including college campuses, leadership conferences, and even the National Mall.



Play cards from Macklin's game *Re:Activism NYC*, which examines the city's history of civic activism.

IMAGE COURTESY OF COLLEEN MACKLIN

For example, Budgetball, a sports game, literally helps players gain a visceral understanding of the national debt while developing physical (and metaphorical) defenses to stop debt encroachment. *Re:Activism NYC*, a puzzle-solving race similar to geocaching, examines the history of civic activism in New York City, while *Weather or Not*, a brand-new card game developed for the Red Cross, Red Crescent Climate Change Center, explores climate-related disaster response. Noting the practical applications of the Red Cross card game, Macklin said, “It is meant to illustrate a basic understanding of probability as well as the kinds of decisions one needs to make in order to prepare for a disaster-like setting.”

Ultimately, Macklin maintains that games present an unlimited opportunity for 21st-century learning and innovation across disciplines. They offer a collaborative, practical way to arrive at extraordinary solutions by reframing how we tackle seemingly unsolvable and overwhelming situations. “I really think that creativity and play have this kind of wonderfully subversive potential. I think the word subversion has a negative connotation, but when you imagine some of the biggest breakthroughs, inventions, and ways of solving problems, they really are subversions of different systems. They’re ways to turn something upside down and look at it from a weird angle, or change the way that we think about what something is for or what a system is for.... I think play and creativity are very linked, and to recognize them and the potential they have and enable a space where failure and subversion and all of these things can happen, I think is going to be the key to our future.” 🐦

## Cartography

*continued from page 5*

of one, is that today's information economy tends to have an air of newsmanship and is often driven by what I call the "Digg mentality"—a small number of very active users allow sensationalist but not necessarily substantive information to float to the top, burying content that may be a bit older and more esoteric, but is nonetheless fascinating and noteworthy. An interestingness curator is an antidote to this, finding those fascinations and, over time, empowering creativity by creating the right intellectual conditions for the cross-pollination of these different ideas in one's mental petri dish of resources.

### Artists provoke, inspire, spark.

Historically, artists have always been the ones to frame what matters in the world and provide social commentary on the era's sociocultural phenomena. While our definition of "community" will evolve—from tribes to

neighborhoods to online networks—the role of the artist will always remain the same: to provoke, to inspire, to spark storytelling around the issues that define us as a civilization.

The difference, perhaps, is that today's artists have the opportunity to reach much wider audiences via constantly proliferating media channels. And with this opportunity comes a certain responsibility to make the message of art one that steers humanity for the better.... it's safe to say there are certain types of broader messages that are universally "good" and the world can never have too much of—empathy, compassion, kindness to each other and to our planet. It is my belief that art and its creators carry both the burden and the enormous opportunity of filling the world with these universals.

### Maria has one piece of advice...

Be curious. Be constantly, consistently, indiscriminately curious. 🐦

## Here are three websites Maria thinks you should know about:

### [swiss-miss.com](#)

The work of Swiss-born, Brooklyn-based designer Tina Roth Eisenberg, Swiss Miss is probably my favorite design-and-beyond blog out there. Brilliantly curated and delightfully cross-disciplinary, on any given day it can deliver everything from elegant biodegradable Japanese tableware to a rare interview with Paul Rand to a nifty new app that helps parents find playgrounds for their kids.

### [hilobrow.com](#)

Intelligent without being presumptuous, HiLobrow lives up to its tagline that "middlebrow is not the solution," offering a deluge of art and compelling cultural insight about it.

### [openculture.com](#)

Curated by Stanford's Dan Colman, OpenCulture is a treasure trove of signal sifted from the web's free noise—free online classes, vintage films, archival interviews, music, and so much more. Dan does a fantastic job contextualizing each piece of media and drawing on other content to reveal important cultural patterns that inform and inspire some of today's thinking.

**What distinguishes Gold's baskets from those woven by her ancestors is her distinctive use of contemporary iconography alongside traditional designs.**

## Traditionally Innovative

*continued from page 9*

to understand the culture, otherwise the designs won't mean anything to you. If you look at a basket with a condor—a lot of people look at it and think it's a butterfly. But if a Wasco person who knows their culture looks at it, they know immediately it's a condor."

As part of her own learning, Gold traveled extensively to see different types of Wasco baskets and learn more about the materials used. She discovered that every Wasco basket was unique—no two designs were exactly the same—but the designs also reflected changes in the tribe. For instance, boat and canoe designs altered over time and when horses were introduced to the tribe they began showing up in designs.

Materials and colors also reflected the changing times. Many early baskets were made from pine; in the late-1800s, basketmakers began using cotton string left over from harvesting hops. Historically, baskets had a gold-brown background with black or dark purple for the design work. With the introduction of different dyes, new colors were incorporated. Gold explains that since the weavers were living on the reservation it was difficult to find the traditional materials, so they had to adapt. "I can see changes throughout history and I realize cultures are not static, they are dynamic. So when new things are introduced, new fibers, man-made fibers, new things that are now in your environment, you can incorporate them, because that reflects who you are at this time in history."

What distinguishes Gold's baskets from those woven by her ancestors is her distinctive use of contemporary iconography alongside

traditional designs. An image of a condor will appear next to an image of an airplane. Ancestral figures are contrasted with what Gold refers to as her "yuppie images"—Native-American figures dressed in suits and dresses. "I think it's natural for me to weave what I call 'the yuppie couple,'" says Gold, "because we now have young people going to college and they're lawyers and they're in business and they dress differently and the men wear suits and the women wear dresses and I think, well, that's part of my culture and I'm portraying it on my basket."

Gold's baskets also provide an outlet for commentary on issues important to her, such as the health of the Columbia River. The river and the fish that lived

A Wasco sally bag made by Pat Courtney Gold featuring colored horses.



IMAGE COURTESY OF THE ARTIST



One of Gold's weavings, made of cattail, cedar, tule, and yucca.

in it were historically an important part of her tribe's welfare, as reflected in the basket's designs. Gold continues this tradition of portraying the river's fish on her baskets, but with a different angle. "Instead of talking about the radioactive pollution in the Columbia River, I will portray it in my sturgeon. The sturgeon live in the Columbia River so I have the sturgeon on my baskets, but I always have one deformed sturgeon. That sturgeon is unfortunately deformed because it's living in the Columbia River. Visually, someone can see what I'm stating so I don't have to write a page about all the pollution—it's right there for them to see."

Five years ago, Gold and a fellow artist, Suzanna Santos, developed a two-week summer program for Native teens, providing hands-on instruction in Native-American art and culture, an opportunity not



Another sally bag by Gold, this one featuring flying geese.

available to Gold in her youth. While the students are encouraged to create their own images, Gold still instills in them knowledge of the history of Wasco baskets. "When I teach I really stress the history, especially the history along the Columbia River. We are now going on three generations of people who have not lived along the Columbia River and they do not understand how important the river was, and salmon was, and the trade was, and how important the baskets were to our culture."

In 2007, Pat Courtney Gold was recognized with an NEA National Heritage Fellowship for her dedication to carrying on the traditions of Wasco weaving. Gold emphasizes that any recognitions she has received over her career are due in great part to the support and knowledge passed on to her by her elders. But it is Gold who has managed to take this art form and balance its traditional elements with a vision of the modern world, creating a collection of Wasco baskets that reflect the Wasco tribe as it is today. ♡

# No One Can See Like I See

A Conversation  
with Kerry James Marshall  
and Cheryl Lynn Bruce

*In June 2010, Chairman Rocco Landesman made an Art Works Tour visit to the Windy City—Chicago, Illinois. One of the events he attended was a symposium at the Museum of Contemporary Arts, where local artists and arts organization representatives discussed the importance of art, how the arts integrate into the community, and the importance of failure in creating art. Two of the participants were visual artist **Kerry James Marshall** and actor/writer/director **Cheryl Lynn Bruce**.*

*We asked **Madeleine Grynsztejn**, director of the Museum of Contemporary Arts in Chicago, to talk with the husband and wife artists Marshall and Bruce about creativity, productive failure, working together, and other interesting topics. Below is an excerpt from their talk about creating an environment for creativity to flourish. You can find the full edited interview on our website at [arts.gov](http://arts.gov).*

**GRYNSZTEJN:** One of the things that Rocco was really taken with, that both of you said in different ways, is this notion of how do you continue to “break through.” How do you continue to break through when you are at a point in your careers where you are already known? You have both achieved enormously and you are known for certain things and certain things are expected of you. Can you each talk about how you continue to operate creatively when there’s a pressure for you to remain the same, when your own success has posited certain parameters?

**MARSHALL:** It goes to what I was saying...about these expectations that creative acts just happen. They’re almost like little miracles or magic of some kind, that they are not the product of intellectual engagement and hard work and labor. Creativity is a formal exercise of the will, but it also has to be supported somehow. It has to be financed. And so if you can’t get the resources to do some things, then your imagination doesn’t even go in the direction that those things might lead you. And so there are limits imposed on your ability to be creative. At the same time, that creativity is itself a device for breaking through limitations. It’s a way of going beyond. It’s the idea of going beyond.

But the truth is that when you don’t have the resources to do certain things, then you don’t even begin sometimes. So the thing that rarely gets talked about is that it costs a lot to be forever seeking and pushing the boundaries. And if you’ve achieved a certain professional standing, and with that comes the kind of monetary rewards that allows you to be continue to be productive, there’s something to think about if you’re



going to put all of that on the line, because your well-being, even your livelihood could depend on it. And so it's one of the reasons why I think so few artists do the kind of thing that Picasso got so much credit for doing, which is constantly changing.... You're compelled sometimes to continue to do the thing that everybody expects you to do.

I'm incredibly conservative when it comes to economics because what I saw myself doing with the success I'd achieved in the marketplace was buying myself the space to be able to do what I wanted to do later.... to push the boundaries as far as I think I really want to go. My lifestyle is not extravagant. I don't need a lot of luxuries because I'm conserving the resources I have to buy time to be able to imagine things that I think are way beyond where I have been able to get to right now.

*Untitled (Painter)*, 2009, by Kerry James Marshall from the collection of the Museum of Contemporary Arts in Chicago.

**GRYNSZTEJN:** Cheryl, what about for you? Your situation is very similar. You've reached a professional standing and a stable reputation. How do you still push through, and is that professional stability and reputation a burden or a boundary, or not?

**BRUCE:** Our disciplines in some ways are so different. I'm a performer, I'm a director, and I write. In my trade, the particularities come to bear in an important way. I have a race. I have a sex. I have an age. I have time that I'm dealing with. In a way, Kerry doesn't have that. I mean, Picasso, Matisse, painters, sculptors, they can work until they can't work. Chuck Close is in a wheel-



Cheryl Lynn Bruce (left) with Wandachristine in the Writers' Theatre production of John Henry Redwood's *The Old Settler* in Chicago, Illinois.

chair—he's still working. But there are not that many actresses in wheelchairs that get work, or actors. So those kinds of things are real issues and sometimes "risk" is less an issue than "opportunity."

But what Kerry talks about—being in a position to buy time and space—is such a luxury, but it's so important because things can happen without thought. I don't think good things happen without thought and that's what that time and space buys. It doesn't mean everything you think is going to be great, but it means you can think.

**MARSHALL:** Still, it's more than just the time to be able to think. The space is actually the space to do and to do again and to do again and again and again. Because that's where the work of creativity really takes place; it's like when you do it again, when you do it different because you saw something the first time that you wanted to amplify or something that you wanted to modify or diminish in one way or another. That's where creativity is. It's in the doing and doing again. And that's why I say it's an act of will. Having the space to do and do again is as valuable as space to just simply think about.

**BRUCE:** Yes, but here's the difference in our trades. The classic arts can be a solitary pursuit. In performance, most performers don't feel they're doing much with-

out an audience and that audience is the important ingredient.... Performance needs collaborators and the classic arts don't necessarily have to have that.

**MARSHALL:** If we stay close to the idea of creativity, the two of us are describing the two different modes of creative activity we're engaged in. And I think it's important to recognize something that Bruce Mau said when I had a conversation with him one evening.... The difference between what he did as a designer and what I did as a visual artist [is] that he was in a pull economy and I'm in a push economy, in the sense that he doesn't do anything unless somebody gives him a project to do. I work all the time whether people ask me to do anything or not. So I'm driven to keep producing and exploring and investigating, and I'm always seeking as opposed to responding to the needs and interests and direction of other people. So between Cheryl and I, that's that same kind of an economy I think operates between the way an actor performs and operates in the theater and I do in my studio. She has to be cast in a play to set her processes in motion on that thing.

**BRUCE:** Which is why I try and find directing jobs or write because I'm at a point in my career where people cast me or make offers. But I find that I'm not as intrigued by projects as I want to be, and the kind of projects I'm hungry for, I realized from being with Kerry, are projects that I'll have to make because no one can see like I see. 🐦



Scientist and “artscience”  
proponent Dr. David Edwards.

# Fertile Ground

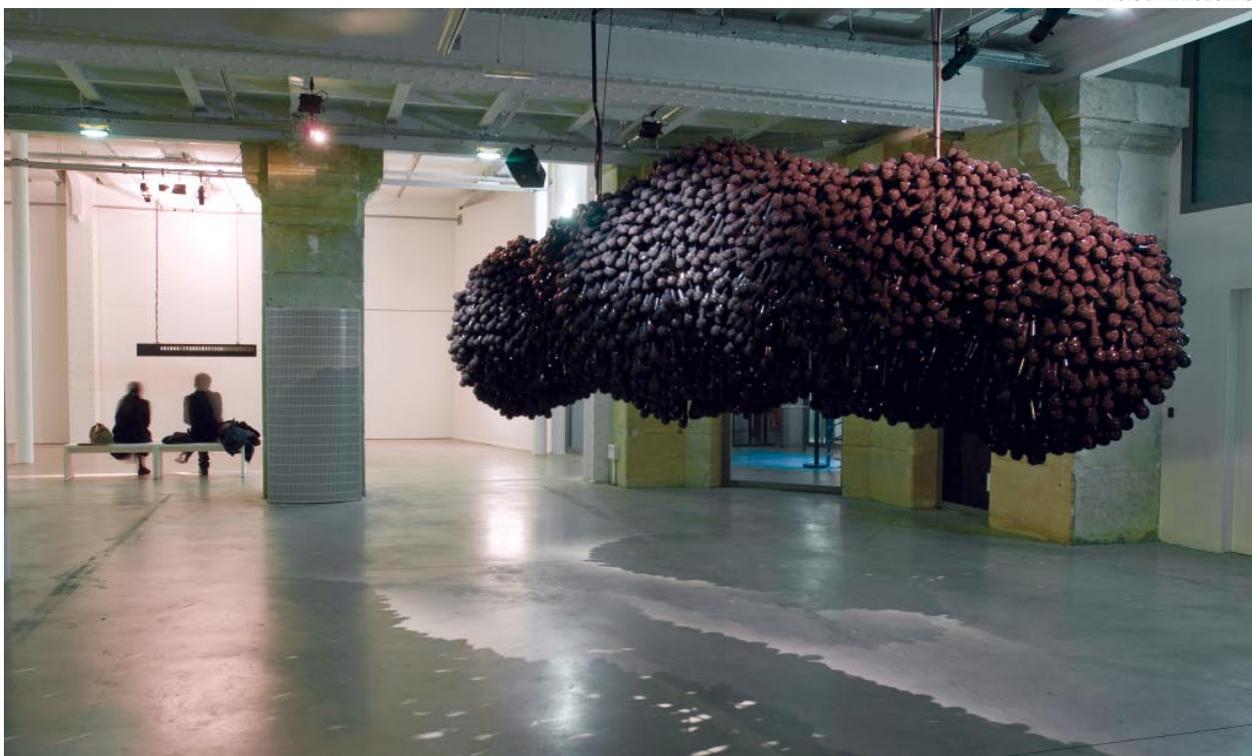
DAVID EDWARDS  
AND THE INTERSECTION  
BETWEEN ART AND SCIENCE

BY PAULETTE BEETE

**IT'S COMMONLY ACCEPTED THAT** artists and scientists inhabit vastly different worlds: artists are concerned with aesthetics while scientists are concerned with analysis. But Harvard University professor Dr. David Edwards posits that scientists and artists are more alike than different. What do they have in common? Creativity.

According to Edwards, creativity is a mash-up of aesthetic and analytic thinking, what he calls “artscience.” “In my parlance, creativity is a tendency to develop value experimentally... When we’re experimenting, there’s this sort of head rush moment, which is a framing of the experiment and begins with the statement of some hypothesis.... All the things that you associate with aesthetic thinking are embedded in the hypothesis process. The next phase is a test of hypothesis where we’re suddenly putting ourselves in a world of constraints. Artists and most creatives love constraints partly because they help make their dreams real. Suddenly there’s a problem to solve; constraints help creators and artists to focus, to simplify a complex world to a resolvable problem. It’s like the writer who is moving from the blank page to the finished manuscript that is perfectly edited.”

The creator moves back and forth between the aesthetic and analytic modes—dreaming and testing—until a decision is made that either the sculpture or the cellular model, for example, works (or is viable enough to warrant further testing and developing), or the project doesn’t work and an entirely new hypothesis must be formed. The process is the same whether the creator is identified as an artist or scientist.



Shilpa Gupta's *Singing Cloud*—the result of her collaboration with Harvard psychologist and neuroscientist Mahzarin Banaji—was exhibited at Le Laboratoire in winter 2009.

While the creative process is at the heart of Edwards' work, he seems to be most interested in what happens when people from diverse disciplines—a painter, a neuroscientist, a composer, a mathematician—are brought together into this cycle of experimentation and refinement. To this end Edwards has founded two artsience labs to foster this type of interdisciplinary conversation—Le Laboratoire in Paris and the Idea Translation Lab at Harvard. (There are also a number of similar labs in the U.S. and around the world, including ones in Dublin, Ireland; Pretoria, South Africa; and Oklahoma City.)

"Le Laboratoire is an art and design space so we invite artists and designers to come experiment. We are only doing experiments at the frontiers of science, and one of the interesting things about frontiers of science is that everybody's kind of an artist. We don't know if our next experiment will be reproducible, and we're also redefining life at those frontiers increasingly." By "frontiers of science" Edwards means contemporary issues in the scientific community, such as the relationship between stem cells and neurons as it

applies to treating spinal cord injuries, an idea that became the topic of a work by visual artist Fabrice Hyber. As Edwards relates in his new book *The Lab: Creativity and Culture*, "Musing that if you could fall through an hourglass you might share some of the experience of cellular division, Hyber and the team at La Laboratoire made giant inflatable hourglasses [in addition to] more than 30 paintings and sculptures, including a neuronal axon-like form comprised of four thousand pieces of strawberry-flavored bubble gum heated up and stretched down to the cement floor from an iron beam on the ceiling."

Hyber's artwork points to another distinction of the artsience lab. While finished projects may have various applications—cultural, scientific, and humanitarian—they are all introduced via public exhibition rather than in the pages of peer-reviewed journals, as is usual in the scientific community. This model invites the public to engage more fully with the project—visitors could leap into Hyer's oversized hourglass—and extends the conversation each project is meant to provoke. Le Laboratoire projects have been exhibited in spaces as diverse as art museums and the Gates Grand Challenge Meeting, an international conference sponsored by the Bill and Melinda Gates Foundation.

This public display highlights Edwards' philosophy that every creative process requires collaboration at

some point—whether that’s with a fellow artist or the audience. “You have this kind of myth of the lone creator, and it’s true that that lone creator is spending a lot of his or her time with his or her own self. However, as a writer, for example, seeking that initial feedback from a mate, an agent, an editor, critics and so forth, it’s a kind of cascade of interactions.... It’s becoming increasingly obvious that you can’t really create much of anything that has a very significant impact on your own. Having people around you who are working with you and collaborating with you is a wonderful thing.”

Every experiment—whether that experiment is a new painting or a new way of delivering reliable light sources to sub-Saharan Africa—requires some risk, and, according to Edwards, collaboration makes that risk possible. “You all agree that this hypothesis is inherently worth the risk that it may not be realized and/or appreciated. Nobody is saying, ‘I don’t think it’s going to work’ or ‘I don’t think this is such a good idea.’ Everybody’s living the dream together, and there’s this real camaraderie because nobody else understands and nobody else believes.... Civilization at its core is this outcome of shared risk-taking and the value of it. I mean we value civilization in many ways because we value sharing the risk.”

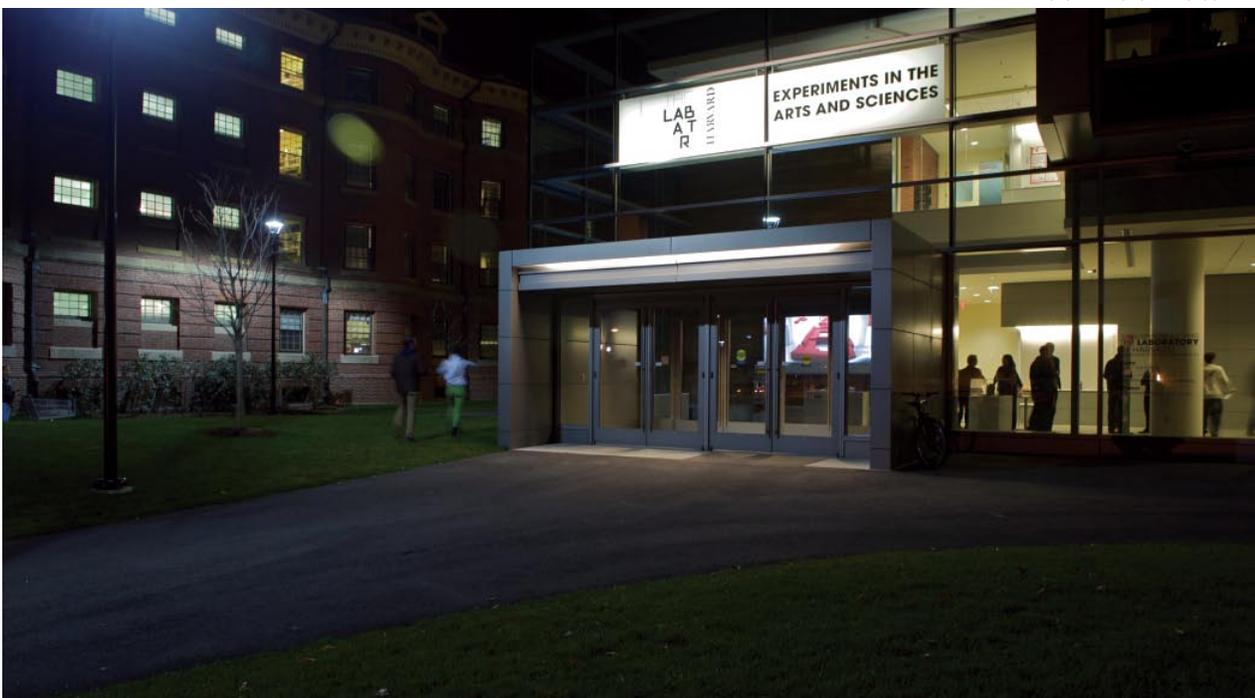
It’s important to note that in the Edwards version there are no strict requirements regarding the parameters of the collaborations that take place in the art-science labs. As Edwards explained, “It’s a fascinating

model where you’re not really asking artists and scientists to dream together, but instead you’re looking for an artist to carry a dream to this frontier of science, and the scientist comes in to help navigate that space.” Some teams, after an initial conversation, may develop ideas independently while trading ideas back and forth via e-mail, which is how composer Ryoji Ikeda and number theorist Benedict Gross worked. Surprisingly their collaboration resulted in a photography exhibit in which Ikeda demonstrated what he called the “beautiful and sublime” qualities of a particular math equation. Visual artist Shilpa Gupta, who was interested in exploring ideas of fear and terror, preferred to have consulting conversations with appropriate scientists as she developed her project. One of the resulting artworks, *Singing Cloud*—subsequently exhibited at the Louvre and Denmark’s Louisiana Museum of Modern Art—consisted of a suspended, cloud-shaped bank of 4,000 microphones, some with speakers inside that broadcast sounds as diverse as the artist singing, a running stream, and the stamping of an immigration seal.

In the best collaborations, the distinction between “art” and “science” disappears, and the creator is free to develop an idea without having to label it one way or the other. As Edwards noted, “Ultimately, you’re exposing that really rich intellectual space between the arts and the sciences.... One of the things that we’ve seen—we’ve done about ten experiments now—is that in the heart of the process of these experiments, it’s hard to know who is the artist and who is the scientist. It’s a mutually creative and analytical and aesthetic process.” 🐦

**The Idea Translation Lab at Harvard University, founded by Dr. David Edwards to foster interdisciplinary conversation.**

PHOTO BY PHASE ONE PHOTOGRAPHY





1100 Pennsylvania Avenue, NW  
Washington, DC 20506  
[www.arts.gov](http://www.arts.gov)

We had so much to say on creativity that we couldn't fit it all in this issue! Visit [arts.gov](http://arts.gov) to **READ** an interview with environmental artist Lorna Jordan about how she blends environmental issues into her art; **SEE** visual artist Mike Weber demonstrate the rigorous process of creating his art; **HEAR** NEA National Heritage Fellow Chuck Brown talk about how he became a musician; and much more.

The Grotto section of Lorna Jordan's *Waterworks Gardens* in Renton, Washington, an environmental artwork located on the northern border of a water reclamation plant.

PHOTO BY DAVID MCDONALD

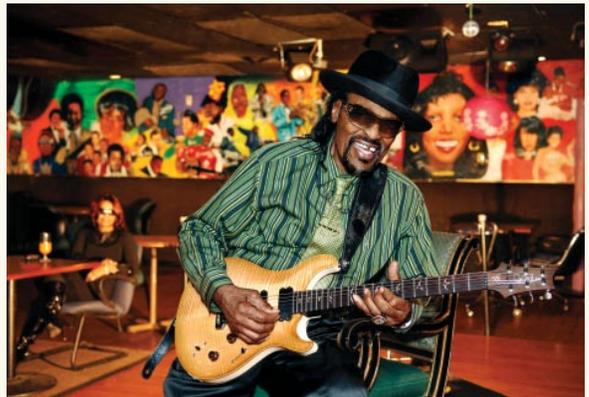


IMAGE COURTESY OF THE ARTIST



*In a Broken Dream*, 2010, by Mike Weber.

PHOTO BY TOM PICH



NEA National Heritage Fellow Chuck Brown.