

childArt



LEARNING FROM DESIGN!

EDITOR'S CORNER

The primary purpose of the 2016 Fall Issue of ChildArt Magazine, "Learning From Design!" is to engage you and your teachers and parents in compelling topics about the discipline of design – along with inspiring you to become confident and creative problem-solvers, act as purposeful makers, take ownership of your learning, and make mindful choices.

For more than 20 years, the [International Child Art Foundation](#) (ICAF) has engaged hundreds of thousands of children from all over the world in the arts and creativity. The ICAF strives to enhance the academic performance of young global citizens by way of creativity, empathy, and 21st century leadership skills. The ICAF's goal is to empower each child's imagination to see the possibilities of productive change – to infuse their minds with the power of critical thinking with the intent to innovate better futures. This quarterly publication also serves as a resource for educators around the globe to assist with curriculum development for learners ages 10-14. With each edition, ChildArt aims to foster young people's capacities to grow their creative imaginations and global competencies.

We welcome your open minds to explore ways to engage the learning process using the transformative concepts set forth – to see through the eyes of budding young creative problem-solvers. Eight amazing designers responded to tough interview questions as visionaries, innovators, and creative problem-solvers. They shared personal stories about who has influenced them, their greatest accomplishments, significant challenges they have faced, and offered sage advice for young 21st century creative problem-solvers! We also heard from remarkable design educators along with ICAF's design competition updates.

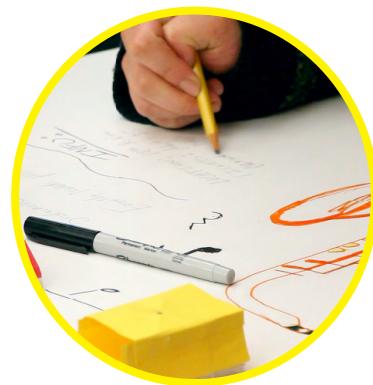
Here are some highlights of what you will find in this issue:

"After that, no project, no matter how big or difficult scared me. I learned I could do anything, as long as I did not know that I did not know how to do it."

–Arnold Wasserman, Principal at the Collective Invention.

"Young creative problem-solvers should not just use digital devices; rather learn by rolling up their sleeves and creating things with their own hands as well."

–Mauro Porcini, Chief Design Officer at PepsiCo.



"My mom was the art director for the Mr. Rogers' Neighborhood show; she created a safe place for us to invent at home; supplies were at the ready without any expectation on what we should make."

–Megan Neese, Senior Manager at the Future Lab, Renault-Nissan Alliance.

"Young creative problem-solvers can benefit from diving into opportunities to learn how to work alongside others."

–John Edson, President at LUNAR Design.

Our very best wishes to you all,

Doris Wells-Papanek, M.Ed
Design Learning Network, Director
Guest Editor

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Editor and Publisher
Ashfaq Ishaq, Ph.D.

Guest Editor
Doris Wells-Papanek, M.Ed.

Managing Editor
Linda Macri

Assistant Editor
John Koniszewski

Editorial Assistant
Maya Campbell

Graphic Designer
Aurora Colón

Graphics Assistant
Tracey Silcox

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DEAR YOUNG CREATIVE PROBLEM-SOLVERS,

As Guest Editor of the 2016 Fall Issue *ChildArt Magazine* – it is with great excitement that I invite you to join us in this opportunity to wonder, wish, and learn from some of the greatest designers and educators in the world! In these pages, you can learn how to become a creative problem solver. Use the contents of this magazine as your stepping-stone into never-ending insights that will help you navigate whatever comes your way. Learning how to think and act as a creative problem-solver can empower you, help you face any problem or situation while at school and beyond.

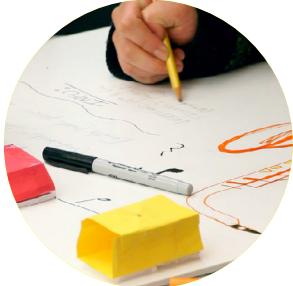
You will read stories about designing the future, the powerful influence of mentors, and the incredible benefits of being curious, resilient, and persistent. You will engage in the thrill of design-based learning challenges, ways to visualize, construct, and articulate what you see in your imagination, as well as explore passionate pathways to design the life you love. You will dive into learning as a way to empathize with the struggles of others as well as your own, redesign ways you learn at school, and embrace reading as a way to gain phenomenal courage.

Our goal is for you to learn how to become a courageous and creative problem-solver, to use your own hands to bring your ideas to life, to become passionate about what you learn, and, most of all, to make good choices!

With our very best wishes to you as you learn and grow,

Ms. Doris

doris@designlearning.us



WELCOME TO LEARNING FROM DESIGN!

by Doris Wells-Papanek

Welcome to Learning From Design! Throughout the making of this publication, I experienced the rare privilege of interviewing top designers from all over the world and interacting with some of the best design-based educators in the nation. As the Director of the Design Learning Network, I find myself continuously engaged in learning how to learn and forever curious about why things work they way they do. I heard similar ideas in my interviews with the other authors in this issue: they were curious and excited about understanding and making sense of our rapidly changing world.

The Design Learning Network is dedicated to collaborating with learning organizations all over the world. Our goal is to engage students like you; kids who are motivated to learn as creative problem-solvers. As a network of educators, learners, creatives, and decision-makers, we use the Design Learning Process to create experiences that we know will work

really well for students, teachers, and parents.

Diving Deep into Creative Problem-Solving

In 2008, a researcher named John Hattie, from the University of Melbourne in Australia, was trying to figure out the most effective ways to teach young people. He learned that, when kids engage in creative thinking, it is far more effective to ask kids to be problem solvers than just to give them creative activities to work on. He learned that this approach better prepares your mind to process and retain new information, especially when you engage in hands-on and minds-on activities. He also learned that these methods have positive effects in core subject areas such as math, science, and reading.

It will not surprise you that you are most likely to learn new things when you can connect what you are learning with content that matters to you. Likewise, you are more productive when, rather than telling you what to do, your teacher offers

guidance and then lets you work through a challenge. When you use creative thinking and problem-solving skills in strategic ways to gather information, define a problem to solve, build understandings, and show new understandings, you are taking responsibility for your learning. Also, it is super important to reflect and assess your own progress throughout the learning process as well as offer feedback to your teacher. Huge benefits arise from diving deep and being flexible – especially when collaborating with schoolmates.

Here are a few questions to help keep you on track when you are working to solve a problem:

How might you define the problem (or determine the cause)?

How will you identify, prioritize, and select alternatives for your solutions?

How might you take into account multiple perspectives, empathize to uncover unknown issues?

How might you use diagrams and sketches to represent your new understandings?



How might you make the most of collaborating with your peers?

How might you go about creating a plan of action to implement your solution?

If you are in a position to implement your ideas, what might that look like?

How will you know if your decisions are actually solving the problem?

Design Learning Strategies Empower Kids to Tackle Wicked Problems

Below is a bit of learning science behind something called visual-spatial reasoning, followed by a short story.

Did you know that three worlds of learning come together in your brain when mind's eye constructs new ideas, problem-solves, and then communicates with others?

The first world is physical, the stuff that you see around you; the second world goes deeper into your understandings of the physical stuff that you see; the third is a

combination of the first and second worlds, to create your own sense of reality. Being aware of your own world is the key to showing others what you know, how you think and feel. The technical name for this cognitive process is visual-spatial reasoning; it describes your ability to think, construct new ideas in your mind's eye, and then problem-solve before you share those ideas with others.

Imagine you are out riding your bike. You see two friends, a tree, and a dog: this is your physical world, the things you recognize on the surface. You know that one of your friends has been away for a while, but you are not sure why she looks sad, and you also notice that your other friend has a very serious look on his face: this is your world of deeper understanding. After a bit of thought, you decide you want to try to help your friends feel better, though you are not quite sure how to do that yet. This is your world of creating your own sense of reality.

To address the situation, you begin by visualizing in your mind various ways you could cheer them up. Finally, you come up with a plan! You quickly go back home, collect a few things like a yummy snack, a blanket, and a fun game you just learned with your dog. Whew, your friends are still on the block when you return! You greet them with a big smile and ask if they would like to hangout for a while. They see that you have brought along a few things, and become curious about

what you have in mind. You lay the blanket under a tree; then set out a big bag of popcorn and some grapes for everyone to share. Once you sense your friends are a bit more relaxed you bring out the game; you hope it will take everyone's mind into a different place. Success, your friend's dog is excited! What do you think is going to happen next in the story and why?

Now that you are somewhat familiar with how visual-spatial reasoning works, it is time to explore a few examples as if you were a creative problem-solver in action.

Think back to when you were 7 years old, learning how to make sense of time. How might you create a flipbook to illustrate how you could redesign "time" when it felt too slow or too fast to be just right?

Envision what life might be like in the year 2050. Given shifts in technology, what kind of jobs might be available then compared to now?

Visualize redesigning one of the characters in a book you are reading in your language arts class. What if you became that person, what would you do differently?

These types of creative challenges can indeed play an important role in your education, experiences that will stick with you for the rest of your life. To learn more about the Design Learning Network, please visit www.designlearning.us ■



As Director of the Design Learning Network, Doris Wells-Papanek, M.Ed. collaborates with educators, learners, creatives, and decision-makers to develop creative problem-solving design-based learning experiences. Doris holds a master's degree in

Curriculum and Instruction Design with a focus on Action Research from National Louis University and a bachelor's in Product and Environmental Design from the Kansas City Art Institute and School of Design.



Arnold Wasserman is Principal of Collective Invention and San Francisco Chairman of The Idea Factory in Singapore. Arnold is an innovation and strategy consultant; named a “Master of Design” by Fast Company magazine.

ARNOLD WASSERMAN & PETER SCUPELLI



Peter Scupelli is Assistant Professor, Chair of the Environments Track, and Director of the Learning Environments Lab in the School of Design at Carnegie Mellon University. Peter holds a Ph.D. in Human Computer Interaction, Masters of Design in Interaction Design, and an Architecture degree.

My name is Arnold Wasserman, and I am an industrial designer.

From my earliest years, I drew and painted. My first masterpiece was a spinach puree mural on the wall next to my high chair. I read a lot and learned to draw by copying comic books – my ambition was to be a comic book artist. Art was a required subject at the schools in my small Pennsylvania Dutch farm town. I got a full tuition scholarship to Carnegie Mellon University (CMU) to study painting, then switched majors and graduated from CMU with a bachelor's degree in Industrial Design in 1956. After service in the U.S. Army and working in the design field, I went to the University of Chicago and graduated in 1966 with a Master's degree in History & Theory of Design.

My name is Peter Scupelli, and I am an assistant design professor at Carnegie Melon University.

My father was a civil engineer who built hydroelectric dams around the world. I had lived in the US, Italy, Brazil, Paraguay, and Thailand before I graduated from high school. I studied architecture at the University of Genoa in Italy. With classmates, we founded an architecture collective called Gruppo A12. We explored the boundaries between architecture and art through collaborations with new media artists. I became interested in how spatial environments and information environments come together to support human experience. Next, I studied Interaction Design at Carnegie Mellon University in 2002 then went on to do my doctoral studies in Human-Computer Interaction. I now teach in the School of Design at Carnegie Mellon University. I love teaching design and doing research.

Peter: My mom is the one who had the greatest impact on me. My brothers and I did art projects with her every day at home. On weekends, she would take us to see art museums. She wanted us to experience incredible things. She encouraged us to participate in art contests. At one point, we were living in Paraguay, and it was such a small school that she volunteered to become the art teacher. I loved Leonardo Da Vinci; she took me to see his drawings in museums. As a kid, I wanted to become an inventor. My dad is an engineer; my mom was an anthropologist, but she loved to paint. Between the two of them, they got me started going down the design path. They were not worried about where it might lead; they wanted me just to pursue my interests and reach my full potential.

Arnold: The key person in my life was Professor Robert Lepper, head of the industrial design department at CMU. From Lepper, I learned not just technical skills but habits of mind that shaped the rest of my life – specifically a mode of self-reflection he called "heuristic" thinking (investigative). He cared less whether your solution was original, beautiful, or technically clever – he wanted to know whether you understood the process you followed to get there. The design problems he gave were very open and general, and there was no right answer to the question: "what does he want?" At class critiques, you would put up your work and then he would lead you to examine the assumptions, explorations, and choices that led you to your solution. This approach to teaching drove some of his students a bit nutty. Artists and designers tend to care more about the result than



They were not worried about where it might lead, they wanted me just to pursue my interests and reach my full potential.

about deeply analyzing the creative process itself. Lepper's heuristic thinking informed everything that I have done since.

Peter: My heroes were people like Leonardo da Vinci and Michelangelo because to them art, architecture, design, science, engineering, poetry, sculpture, and music were all connected. My greatest accomplishment has been, in this very specialized world of deep expertise, to integrate design





Dexign The Future

Human Centered Design for Exponential Times

across specialized disciplines. Such projects are very collaborative in nature. As to collaboration, I think all this work is "anthological" design (collection of works); it depends on lots of precursors, mentors, teachers, advisors, and partners collaborating all the time. It is a mix of relevant knowledge for the problem at hand.

Arnold: Peter makes a crucial point for both students and educators. In creative pursuits like art and design, there persists this romanticist fantasy of the solitary creator. However, creative work, in reality, is deeply collaborative. Educators need to construct their curricula, pedagogy, and assessment to give students early experience with collaborative creativity.

My greatest accomplishment was working on redesigning the city-state of Singapore, helping them shift their economy from an export and execution economy to a creation, innovation, and entrepreneurship economy. We started by redesigning their education system to shift from analytical problem solving to creative exploration, innovation and entrepreneurship and to build the resilience of Singapore's youth to navigate change. We taught

everybody from the top down – the Ministry of Education, school principals, teachers, administrators, and students – how to think about learning the way designers think about design projects. We embedded design-based learning and design thinking in the new DNA of Singapore education, creating a gene pool of entrepreneurs and innovators.

Arnold: At age 23, my first big project out of school was to design the U.S. national pavilion and 32 exhibits for the Izmir, Turkey trade fair of 1957 - then go for three and a half months to Izmir to supervise construction. In Izmir, everything went wrong. Ten percent of the construction materials were stolen between the ports of New York and Izmir. The building site, shown as flat in the plans I had worked from, was actually hilly, with a big electrical distribution box right where the pavilion was supposed to go. I had to find survey instruments and learn how to use them to resurvey the site.

I had to redraw all the plans, working under a tent, sweat pouring onto my drawings in 102-degree heat. I had to find straight trees, get the trees cut down to replace the big

structural beams that were stolen – and then find a steam-driven sawmill to cut the trees to size. I had to go to the bazaar to find approximations of lost bolts, brackets, and paint. The rest I had to improvise. The pavilion opened on schedule and was a big success. After that, no project, no matter how big or difficult scared me. I learned I could do anything, as long as I did not know that I did not know how to do it.

Peter: The biggest challenge that I have faced so far is this work that I have been doing with Arnold - figuring out how to teach students a new kind of design we call Futures Dexign, which integrates Future Thinking with Design Thinking. We taught the first [Dexign the Future](#) course together in 2013. Based on what worked and did not work in that course I designed two courses. First, [Introduction to Dexign the Future](#) that focused more on methods, and second, a new course called Dexign Futures that is required of all undergraduate design students in their third year.



Arnold: The Design Futures course Peter describes is very much a "Practice Research" project. The course requires students discover a principle or process by constructing something calculated to explore or test it in practice in the real world. I call it "building the airplane while you are flying."

Peter: To learn how to learn in the 21st century, I teach my students three techniques:

1. Many design students believe that they are going first to think of the perfect idea, and then execute it. To break this habit, the first thing that I try to teach students is:

- Get your thoughts out of your head so you can see it and share it
- Get it on a wall, or on paper, make a drawing, use post-its
- Sketch it out on a whiteboard, get it out so you can recognize patterns
- See how things connect – understand what it is that you are trying to think

2. The second technique is trying to explain your idea through prototypes:
- Share your prototype with a friend or someone else
 - Listen very carefully to the questions they ask
 - Where are they confused? Which things were not clear?
 - Write down the questions they asked
 - Make sure you understand what they are saying – ask clarifying questions
 - Do not try to answer their questions
 - Try to take a deep understanding of what are they asking, why are they asking it

3. Then the last technique is to revise your ideas to address all of the questions, confusions, or concerns that came up – so you can start reiterating (repeating the process) on the next version.

Arnold: What Peter describes here is what my mentor Robert Lepper would call the heuristics of his pedagogy. We were teaching those same heuristics in Singapore. In our exponential digital age, life depends not only on critical thinking and problem solving but also on adaptive creativity innovation, communication, collaboration and mental resilience. The best way to develop these capacities is through experiential design-based learning.

Subject matter knowledge and technical expertise may get you your first job. Exceeding your limitations and resilience will get you a career. Self-reflection will get you a life. ■



MAURO PORCINI

Mauro Porcini, as PepsiCo's first ever Chief Design Officer, is responsible for leading innovation by design across the company's food and beverage portfolio, extending from physical to virtual expressions of the brands, including product, packaging, events, retail activation, architecture, and digital media.



Being a good and knowledgeable person with culture has always been my dream.

My name is Mauro Porcini, and I am the Chief Design Officer at PepsiCo. My team is responsible for the design of our products around the world – including graphic design, industrial design, digital media design, and architecture; we also drive innovation and strategy.

We use design tools and mindsets to think in creative ways and to inform the globe of our brand and products using interactive social media channels. We also create innovative ways to imagine PepsiCo's future offerings by imagining the future of the world, the future of our society, and the role of our company in that future.

I have a Master's Degree from Polytechnic University of Milan's School of Design, where I learned about design strategy, which at that time was a new and unique role for design. It was a big university with tons of people, so you had to share facilities and tools with many people; it was not easy to learn there.

As part of an exchange program, I studied for one year at the National College of Art and Design of Dublin. The school was behind Milan regarding design education; however, it was an amazing experience because it brought me back to an authentic approach to understanding the world. With a class size of 15, we had access to the laboratory where we made mockups using traditional tools without computers. Even today in our digital world, it is so very important to be able to sketch and create mockups. Young creative problem-solvers should not just use digital devices; rather learn by rolling up their sleeves and creating things with their own hands as well.

My father is an architect and a painter, as was my grandfather. My father gave me this passion, this love, for everything art. My mother worked in finance with a passion for philosophy – still today, she writes poems. My mother gave me this passion for everything philosophy and literature and a love of writing

and reading – how to apply theoretical thinking. My love for design, to be creative, to transform things with strategy, reflect and understand rational connections – all came from my mother. My parents were humble, simple people with good values driven by knowledge and culture. Being a good and knowledgeable person with culture has always been my dream. I learned that it was not about making money or social connections; that was not their way of thinking. I know if I do my best possible work, I will succeed.

At the age of 18, I met Stefano Marzano when he was the Chief Design Officer of Philips. His work created a new approach to design that changed the way the corporation made use of design. Stefano was the person who convinced me to go to Dublin; he was my mentor even though he did not realize it at the time. This is an important lesson that I often share with young people: find someone who will inspire you and then try to connect with them. When I accepted my first corporate job at 3M, my dream was to do exactly what Stephano did at Philips. At the end of the day in my own way, I succeeded – this is now what I am doing at PepsiCo.

Claudio Cecchetto is from the music world and a big star in Italy – he

was the creator of the multicultural radio and attracted many talented musicians. We shared a company for three years, everything he touched turned into gold; he was a real innovator. I was a super excited kid. I remember Claudio telling me, listen, we need to do this because it is getting us money to support the company, but what we also need to do this because no one has ever done this before. I was 24 when he gave me that message, and I will live by it for the rest of my life.

In 2012, I was ready for a new challenge – that is when I accepted the job at PepsiCo. I am fortunate to have had multiple options back then. I decided to join a company similar to 3M, a large American business with like-minded structure and property. On the other hand, it was also different from 3M where I touched everything from aerospace

to cleaning tools. It was fascinating to enter a new world of food and beverage, take on a huge challenge of managing brands that are a key part of pop culture in the U.S. and on a global scale – including my country, Italy.

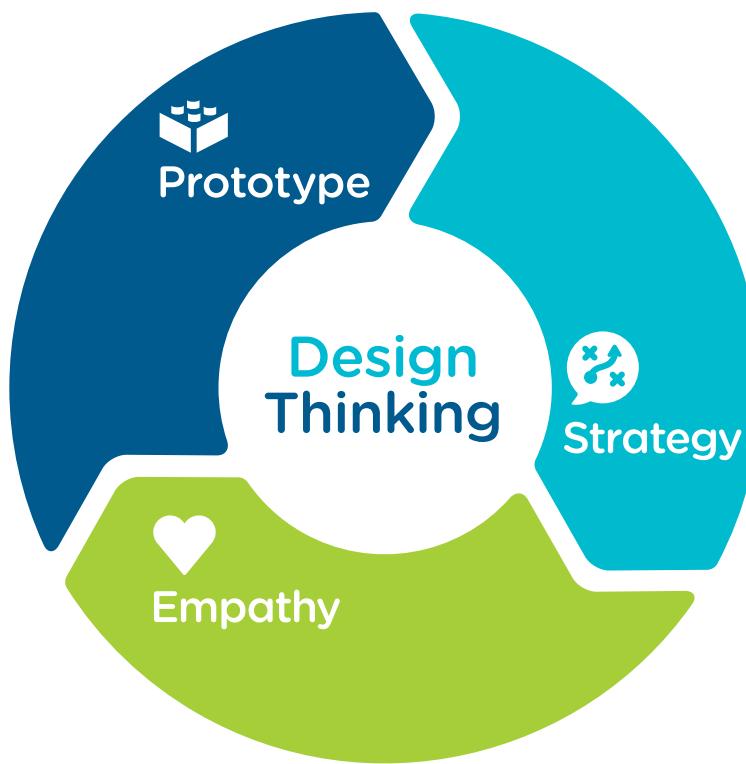
When I joined PepsiCo, my main challenge was to understand what it meant to manage a brand at a global level. Pepsi was successfully growing across the world with different identities, personalities, and emotional connections – all of which was fine for many years when the world was mostly fragmented.

In the 21st century, we are dealing with a global world that is a hyper-connected by way of social media. Our brand is onstage 24/7 without a specific geographical location. The [Pepsi brand](#) was already successful in the world. However, we needed to

improve the brand to make it more global for today and even more so for tomorrow.

Albeit difficult, many things had to change to solve this significant challenge.

1. We needed to understand what people want from different regions of the world, what they love, and what they would be comfortable with from an identity standpoint. To accomplish this, we used our creative imagination to revamp Pepsi and gain deeper understandings of our global consumers.
2. Next, we needed to understand the business and its relationship to our consumers' preferences, needs, wants, and desires. We needed to figure out what level impact this shift would have on our business. We needed to know if this was the right time – or would it be better to wait? There are tons of business-related variables to consider, all of which are extremely important.
3. Finally, we needed the ability to understand our stakeholders, the business leaders from different regions of the world. We needed to understand how to bond with them, partner with them, and handle the situation with ease. Whenever a business goes through a big change, creates innovation, or does something new, there are risks involved. Innovating and taking risks are a major part of my job at PepsiCo. Business leaders who take risks also need to understand one another and collaborate to



drive change. It is important to approach the problem with a creative spirit, flexible imagination, and a deep sense of empathy. After tremendous effort, we now have a successful global brand and worldwide identity.

Creative thinkers must come to understand three important things: empathy, strategy, and prototyping.

1. Empathy is about understanding people's needs, wants, desires, and dreams by way of observation and other means.
2. Strategy is about taking the insights learned from observations of people and their reality, and then translating those insights into a strategy that makes sense for business, the equity of the company's brand, customers, and the entire business model.
3. Prototyping is the ability to visualize insights and strategies right away by getting one's hands dirty, creating a quick mockup, or simple sketch. These skills help to align an organization around a key idea and empower various parts of the organization to contribute and co-create to bring the idea to reality.

For creative thinkers to become good innovators, they must first understand people – to do so they need to have an open mind, remain curious, and keep reading, observing, and traveling.

Today's world is constantly changing; society is moving so fast that consumer preferences are changing day-by-day, not year-by-



year, or even month-by-month. To be on top of this, we must get out there and observe what is going on in the world. We must nurture our sense of curiosity from the very beginning; good innovators and creative thinkers must learn how to strategize with others and understand the business world.

No matter what we do, at the end of the day, we all want to make a living. If the goal is to change the world and create a better place for society, business can play an important role to distribute and give access to amazing ideas.

Prototyping is the key. For example, marketing utilizes empathy and strategies as well. However, it is critical for designers to be involved, to mock up the idea to empower all within a common vision. Empathy is also the key. We must learn how to empathize with anyone around us,

not just with consumers. Creative thinkers and good innovators use a pragmatic yet emotion-based approach to bring worthwhile ideas to life with every meeting, connection, and collaborative effort.

To learn more about Mauro Porcini's thoughtful approach to becoming a creative thinker and good innovator, please Google "A Love Letter by Mauro Porcini"; to learn even more visit: design.pepsico.com ■



LOOK AROUND YOU. DESIGN IS EVERYWHERE!

by Kathy Bonte



Look around you. Everything you see, from the shiny toy on the store shelf to the colorful pillowcase on your bed or the very shirt on your back has been "designed" by someone. From a lively placemat pattern to the placement of a purse zipper – every detail is there for a reason. A professional designer carefully considers each of these decisions.

How does this creative process come to life? How does a toy designer, interior designer, textile designer or fashion designer come up with the designs that make it into our stores, our homes, and our lives? How can we, as aspiring designers, learn how to apply similar principles that professionals use to come up with our own creative and unique items to use, wear, and play?

Let us begin with the design of toys and playthings. In the [DezignKidz Summer Program](#), in Silicon Valley, California, "wanna-be" designers in the Toy Dezign class often face a creative challenge. We first begin with a sketch; young designers come up with an idea and then

build a toy that is both sturdy and playful. They clearly define the problem set by deciding on who their audience or their customer will be. Are we designing for a chubby toddler whose fine motor skills are still developing? He/she will need a safe toy with no sharp edges or small pieces that could come loose. Now consider designing a toy for a ten-year-old – this may be more of a challenge.

Think about what the toy will do or what will the 10-year-old do with it? Is it a fury soft toy for cuddling at night or a vehicle with wheels that can move and transport small objects across the room? Can it change its shape or turn into a variety of things – like a set of blocks? How might the toy bend, fold, open, close, or take positions in different ways? Does it make a sound? What colors will you use? Most kids are attracted to bright colors. However, if the toy is a small-scale replica of a real life item (for example, a police car) – realistic colors may be better choices than bright neon shades.

After young designers generate many ideas and sketches, they select a final design. The next challenge is to build a model of the design without the assistance of a team of carpenters, metal smiths and model makers. Creative use of materials that are available and the clever repurposing (re-using stuff that you find) of found objects now comes into play. A slice of a Styrofoam pool noodle around a wooden spool becomes a car tire. A sliver of brightly colored duct tape becomes a racing stripe, and a painted wooden clothespin becomes a driver.

A similar creative process happens in the Interior Dezign summer program. Budding interior designers start with a mood board – a collection of images, paint chips, and swatches that help them solidify their vision for their room. For example, do they want to create an environment that is peaceful, with soft neutrals and cool colors, or stimulating to the senses, with bold patterns and contrasting hues? Perhaps they are trying to conjure up the feeling of the ocean or they

are inspired by the delicious colors of a candy store. Based on their initial vision, students then design a collection of appealing objects for their space that also serves important purposes as determined by them (based on what they know about the person who will be part of the user experience). A pillow may have a secret pocket for a hiding a book or diary or a hanging organizer may have just the right-sized compartments for a favorite collection.

Although we avoid teaching DIY (Do It Yourself) electrical wiring, students also explore the fundamental principles of lighting. Using a simple battery-powered LED as a base, students can create a decorative lighting element for their rooms. By changing the material that covers the bare bulb, students learn through doing to create different moods and effects. Cutouts in the material create interesting shadows on walls and ceilings, and the choice of color can create an eerie effect or a flattering glow.

The students in our Fashion Dezign program have perhaps the most personal connection to their finished projects, as they are creating something that they intend to wear. The design framework is that it must look good, flatter their individual body type AND reflect their personal style. Naturally, it must also fit properly, be comfortable to wear and not fall apart at an inopportune time. To achieve this, the aspiring designer must first look inward. If they are sporty and casual, a dress covered

in frills and lace may make them feel awkward. If they are quiet and low-key, a bright red jumpsuit may draw more attention than their comfort zone can handle.

Young designers are encouraged to look outward for inspiration – by flipping through magazines, studying the work of famous designers or just walking outside to take inspiration from nature. Once their initial vision becomes clear, a senior teacher and the counselors help them define the steps to turn it from a sketch to finished garment. Sometimes there are detours on the road from the sketch to the final project. One middle school boy designed an ambitious pair of pants with 22 different pockets, each one dedicated to a specific item he liked to carry with him. After two failed attempts at making his first cargo pocket, he eventually got the hang of it but soon decided that two large pockets were more than enough! Lesson learned: while it is important to see your vision through, sometimes you need to make adjustments.

The fledgling fashion designers at DezignKidz not only have themselves as clients; sometimes they get to design for a celebrity or a character in a favorite book or film. DK Challenges are a unique and beloved part of the program in which the students work in teams to design a “look” for a specific person or event. Perhaps they will design a touring outfit for Taylor Swift, a wardrobe for a tropical vacation, or, in the case of a recent challenge, a costume for a character in The



Hunger Games. For the Hunger Games Challenge, students first had to decide on a specific character and consider both the personality of the character as well as the mood and the setting in which the outfit would be worn. The groups worked together to brainstorm, sketch, and come up with a final design which they then created in miniature scale using scraps of fabric and other materials on hand.

Chances are only a handful of the students who come through our program will become professional fashion designers, toy designers or interior designers. While they learn many useful practical skills – how to sew a straight seam, how to hammer a nail, how to make a floor plan – the real lesson they take with them is how to take their ideas from concept to completion. It is a lesson they can apply wherever their futures takes them – whether they are building a skyscraper, a new iPhone app, or a lesson plan to inspire future generations of innovators. ■



Kathy Bonte is a designer and educator with over 30 years design experience across a variety of media—from print, web and film to more recent forays into fashion accessories and home decor. In 2009, with her partner Durga Kalavagunta, she co-founded DezignKidz, a Silicon Valley organization dedicated to providing creative enrichment programs to elementary and middle school-aged children.



JOHN EDSON

John is a 25-year design industry veteran and leader of LUNAR, a global product and experience design consultancy firm working at the intersection of consumer insights, industrial design, engineering, and manufacturing for a wide range of client companies in a variety of industries.



My name is John Edson, and I am the President of [LUNAR](#), a product design and development firm founded in Silicon Valley in 1984 – the year that Apple made the first Macintosh computer. LUNAR has been my home since 1993 when I joined after graduating from Stanford University with a master's degree from what was then called the Joint Program in Design. I also studied mechanical engineering at The University of Texas. In addition to my day job, I have been teaching at Stanford in the undergraduate product design program for the last two decades.

In May 2015 – in a move that surprised the design world – LUNAR joined forces with McKinsey & Company, a 90-year-old global management-consulting firm. When McKinsey first contacted me, we

had just begun discussions about how we might turn LUNAR into a partnership structure so that leaders could become owners and owners could rotate in and out over time. Founded in 1984, we were eager to create something lasting for LUNAR, a legacy of the founders that was sustainable and would take our values and practice forward.

Over most of its history, McKinsey has focused on helping clients with their business strategies and organizational models – in short, helping them figure out what to do and how to structure themselves for greater success. Over the past decade or two, McKinsey has grown well beyond these staples into areas that are operational, including marketing, IT and so on, with considerable interest in product development. However, there was no

in-house ability to help clients create new-to-the-world products and services, and that led to teaming up with LUNAR.

For almost a quarter-century, Jeff Smith, one of LUNAR's founders, has been my unintentional mentor. By unintentional, I mean he is not the guy to reflect on an interaction and purposely draw out teachings. He leads and coaches by example, an approach that is gentle, empathetic, and open to all possibilities.

Despite the fact I have always favored creative problem solving and been a designer at heart, my early career was more strongly associated with markers of a fixed mindset. I was idealistic and maybe a bit smug. I suppose that is not uncommon for most of us. It just took me longer than I would have



- + Visually distinctive
- + Messages ergonomics
- + Is ergonomic
- Challenging intersection between handle and scoop
- Lacking visual balance (a bit awkward)

preferred to grow out of that. Jeff's creative leadership eventually cut through my inflexible, deterministic approach.

In particular, Jeff's ability to tackle tough challenges with artful and novel thinking has often come as a welcome surprise. I cannot count the number of times someone in a meeting has said: "we have to do this or else." In response, Jeff often says something like: "Well, maybe – why don't we try two ways and see which one we like better." One of his formative books is Jim Collins' Built to Last. In the 1990s, Jeff often referred to Collins' concepts of "the tyranny of the or" and "the genius of and" – the idea that the best answer might include seemingly ideas that at first seem mutually exclusive. Practicing Jeff's growth mindset approach has transformed me into a more resilient thinker, designer, and problem solver.

Becoming part of the McKinsey team makes me pinch myself for personal reasons too, and I think there is a lesson in here for all of us. In 1989, I interviewed at Andersen Consulting, another respected

business-consulting firm. I did not get a call back after my first interview, so a good friend (who had accepted a job) interceded on my behalf. As a result, I got a second interview; however, I was passed over once again. They really were not interested in me!

It is rather satisfying to me that now I've ended up where I am because I've spent the last 25 years doing what I love, and here I am at the center of things in the present context – being sought after by the big daddy of business consulting. It is so simple and so powerful to find the thing you're good at, that you love because it will lead to the greatest success. For me, the best is yet to come!

I like to think about challenges as opportunities. It can be trite, but for me, I believe that the language we use can be a big influencer of our mindsets. Things happen. We find our way through to something new; that is a big part of my role. To use that wording, the opportunities I face on a daily basis are a mixed bag: creating programs for clients that will deliver impact, making

interesting things happen on a budget, and coaching our team from their own challenges into new opportunities, the type of stuff that happens every day.

Perhaps the biggest single hard thing that I did was take up the

Professional work takes place most often in teams, so learning to move back and forth between these two modes, while also finding an environment that respects both, is especially helpful to the creative individual.

invitation to write a book about lessons learned from Apple's use of design and the link to their incredible success. Steve Jobs had died, and Wiley figured it would be a good time to publish such a book, [Design Like Apple](#). I figured I could write it. We were on a timeline because the

longer we waited, the less relevant it would be.

To be totally honest, it was the hardest creative act that I have ever undertaken. It taxed my ability to bring a continual renewal to the project, to tell good stories, to find original thoughts. One Saturday night at 2 a.m. while I was in my home office pounding away on my laptop, I thought to myself, "get a life, John!" I did, but not until we hit send on the final manuscript, secured all the copyright permissions and selected the color for the end papers. Now I have a book, and I'm thinking about what the next one will be.

Looking back on the experience, I think the challenge was two-fold. First, a book is a ton of work. Bringing the required creativity is tough. Second, I worked with a professional writer; however, as the author of the book – this experience can draw out the perfectionist in even the most prolific creative. In the end, I am proud of the product, even though I can find myriad imperfections. The experience has opened so many doors for LUNAR; and for me as well.

I share three insights with young creative problem-solvers:

1. Young creative problem-solvers can benefit from diving into opportunities to be hands-on. Much of the lives of adults and especially the lives of young people, are dominated by digital experiences. Mobile, social media, entertainment, gaming, and immediate access to information is shaping our creativity, and in fact, our entire way of thinking. However, we would be missing out if we lose our connection with

the physical world, and wonderful and insightful things happen when our hands work with physical materials to make things.

Case in point: one of my favorite designers is a graphic designer named Becky Brown. I got to work alongside her at LUNAR for some number of years. While everything that Becky produces ends up in some Adobe product on the computer, when developing her ideas, the computer does not bind her. She is a prolific collector of beautiful and inspiring objects, and she will often work with pen and paper and copy machine and scissors when developing a concept. It is a joy to watch, and it fuels her amazing creativity.

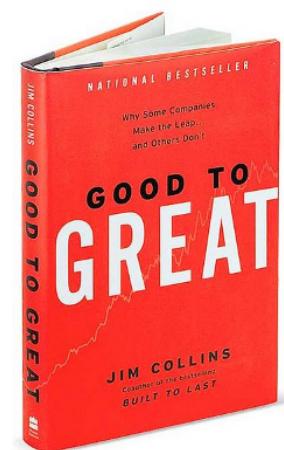
2. Young people need to learn how to work alongside others. My children have engaged in project-based learning at school. It took me until I was a senior in college to figure out the power of working with other students while figuring out problem sets. This approach is especially powerful with students who are teaching others as well as learning. Nevertheless, it is also not the only thing. At most places in industry, there is a big emphasis on working together and collaborating.

That said, it is best not just to work well with others, but also learn how to work effectively on your own. About half of us are introverts, and if we are shoving everyone into these group settings to learn and work, we miss out on a big source of creative capacity. In my experience, more than half of self-identified creatives are introverts, so this effect is even more pronounced for us. Professional work takes

place most often in teams, so learning to move back and forth between these two modes, while also finding an environment that respects both, is especially helpful to the creative individual.

3. I was not an athletic kid. I did some individual sports like bike riding and swimming, but not competitively and I was not dedicated. I married into an athletic family – my father-in-law was the Stanford Women's Tennis coach for over two decades, and his father coached Billy Jean King. I have worked alongside athletes and had many student athletes in my classes. I have become more active as an adult.

Reflecting on these experiences, I am convinced that being involved in an active, competitive situation contributes a lot to a person's confidence and persistence, two foundational characteristics of the best creatives. It is not an exclusive thing; it does not mean if you are not active that you are not creative, but organized competitive situations build habits and muscles that can transfer into creative ability – specifically, they teach us not be satisfied with the first answer but to push through to something original. ■





DEBBIE MILLMAN

Debbie Millman is one of the most influential designers working today, author of six books, host of the podcast Design Matters, creative and editorial director of Print magazine, and co-founder of the world's first graduate program in branding at the School of Visual Arts in New York City.

Design Matters

I suddenly felt encouraged to think; I felt encouraged to voice my opinion, and I felt encouraged to have a point of view.



with
**Debbie
Millman**

My name is Debbie Millman, and I am a native New Yorker, and have lived in all the boroughs except the Bronx. I was born in Brooklyn; then my family moved to Howard Beach, Queens until I was in 3rd grade, then to Staten Island when I was about to go into the 6th grade. When my parents divorced, my mother moved my brother and me to Long Island where I graduated from high school before attending the State University of New York (SUNY) at Albany. I have lived in Manhattan for the past 33 years and am a total public (and state) school student.

My teachers had far greater influence on me than my parents did. In essence, my teachers

changed my life. I grew up in a turbulent family situation; my parents divorced when I was eight-years-old, then my mother was married to a criminal for four years. I did not see my father during that time; he was also someone who was emotionally intense. My teachers at school gave me a feeling of stability that I needed.

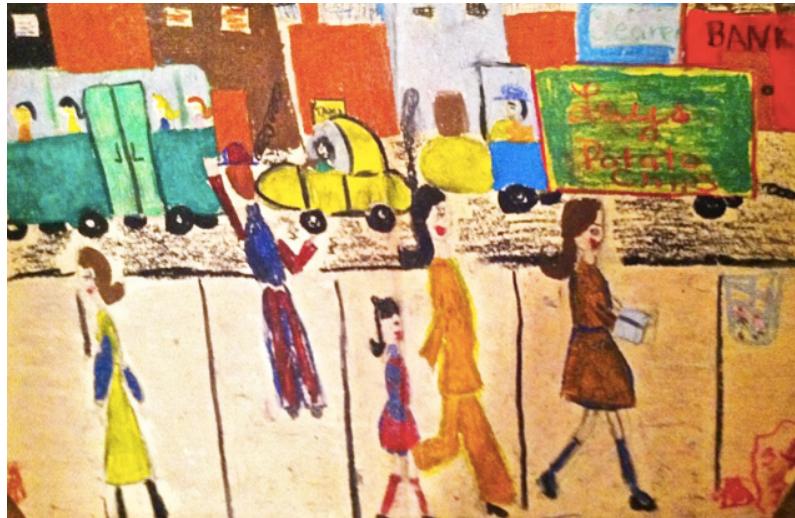
I received a tremendous amount of kindness from my teachers. Every day my mother would give me a nickel to buy milk for lunch at school. One day I lost the nickel while walking through the hall of the school. I was desperate to find it and became terrified of being punished for losing it. My teacher Mrs. Vanoff saw me crying, and she gave me

another nickel so that I would not have to lie to my parents. I am grateful to have had teachers who encouraged me to develop my ability to write; they truly believed in me.

The same thing happened during my first year in college. I went from a high school of 400 students to a college of 20,000 – I felt miserable, really small and lonely, and out of my league. All of that changed when I took a class with Professor Helen Regueiro Elam. Professor Elam helped me realize that I am intellectually gifted. She took what I said seriously, she asked questions, and I responded – then she replied with “what an interesting idea” or “what a great thought.”

I think that reading is
the key to the universe.
Curiosity is the birthplace
of imagination.





I suddenly felt encouraged to think; I felt encouraged to voice my opinion, and I felt encouraged to have a point of view. I credit her with giving me a sense of my own capability and intelligence – she has had a profound influence on how I teach my own students. Now I try to do the same thing for the students in my program and classes.

I started my career as a designer with the only marketable skill that I had. When I was at SUNY, I wrote for the student newspaper, and I became the Arts and Feature editor in my senior year. As editor of the paper, I was also responsible for the layout and design. I found the experience to be something remarkable, like magic. I loved doing it as much if not more than the editing, writing, and assigning stories. I learned there was not much I could do with an English degree; I did not want to be an advertising account executive in an agency. I developed an old school skill of layout drafting, so my first paying jobs were working as a freelance designer paste-up artist.

About eight or ten years after graduating from college, I still had no clue what I was going to do with the rest of my life. By accident, I found a job as a sales person in a consulting firm that designed brands for companies. That is when I finally realized that I had an instinctive understanding of brands. My father was a pharmacist, and I spent a lot of time in his store and grew up around brands. I also worked as a cashier in his store and had a firsthand understanding of consumer experiences. I met the founder of [Sterling Brands](#), Simon Williams, in 1995 – I started working at Sterling then and have been there ever since. My role at the company has expanded over time; in turn, it created the foundation of my career today.

Now I am much more interested in working on brands that have the capacity to influence the world in a positive way. I want to make the world a better place through creating compelling visual communications of the company's message.

One of the common denominators in my life is getting a tremendous amount of joy out of making things – whether it is a podcast, a lesson plan, or a business proposal. I feel happy creating something that was not there before.

Two years ago, I interviewed [Dani Shapiro](#), the writer. One of Dani's key beliefs has stayed with me ever since: she believes that confidence is highly overrated and it is more important to have courage. To have the courage to stick with something long enough to have repeated success – the courage to take that first step, especially when you have no foundation of success to fall back on, that is what I learned from Dani.

I think that reading is the key to the universe. Curiosity is the birthplace of imagination. I loved reading so much when I was a kid. It was my solace along with my teachers. As an adult, I recreated and re-read nearly all of the books in my childhood library, the books that had the greatest influence on me as the person who I have become today. ■



MEGAN NEESE

Megan Neese is a senior manager of Future Lab at Renault-Nissan Alliance, a global cross-functional team tasked with identifying new business opportunities. Neese holds a bachelor's degree in industrial design and master's degree in product development from Carnegie Mellon University.

My name is Megan Neese, and I a senior manager at Nissan. I am a designer by training and an advanced planner and future strategist by trade. I grew up in Pittsburgh, Pennsylvania in a very creative household. Our house was full of crafts where we could make whatever we wanted at any time, a true source of inspiration. I went to Carnegie Mellon University where I earned my Bachelor's degree in Industrial Design and a Master's in Product Development. The graduate program was all about collaboration, filled with a mix of designers, engineers, and business students; we all studied one another's area of learning as cross-functional teams. We explored innovations and product strategies, which is literally what I do now in my career.

Grounded in design strategy and organizational design, I work with a cross-functional team in a group called [Future Lab](#) at the Nissan-Renault Alliance. Future Lab studies how we get around and how we might live in the future. We begin by looking at society – how we live today and how we might live in the future. We study how people commute from one part of the city to another, where they go to get coffee, etc. We use this information to envision products and services for the future. Our cross-functional team brings diverse perspectives such as urban planning, sociology, and business to dream up new ideas and concepts.

We often immerse ourselves into a different context by asking, "What is happening in Singapore right now?" We build "Living Labs" of little, real-world experiments where we try out futures. We combine hardware, software, services, and systems

with ten to twenty people in a specific neighborhood. For example, we collaborate with [Scoot Networks in San Francisco](#) to study, prototype and test out a new mobility concept. We are looking into how people feel and experience; we talk with the people to gather their feedback and input on how they are using the scooters, is it changing their life compared to what we anticipated.

Without a doubt, my mother had the greatest influence on my creative self. My mom was the art director for the Mr. Rogers' Neighborhood show; she created a safe place for us to invent at home; supplies were at the ready without any expectation on what we should make.

She would bring home all these weird supplies from work; like fifty cardboard boxes to build things in a big space in our kitchen such as storefronts or own version of Super Mario World. We were constantly building whole worlds out of random pieces of inspiration; like huge rolls of 10' tall gold foil paper. We would wrap things up as treasures, make mazes, and then go on exhaustive hunts that could take weeks.

Had my mom not set the stage for our creative culture, not only would I be a different person – but so would all the kids in neighborhood. We were all best friends running through each other's backyards and playing. My mom would challenge us with things like the volcano experiment with baking soda and vinegar – for the next three weeks; our whole neighborhood was making them!

My greatest accomplishment was with the Advanced Planning Team for the Nissan Rouge, which is now a current product. Advanced planning works on future products

five to seven years' before they are ready to sell. Our job is to wonder about the main concept of the car, who we are designing for, and why it needs to exist. We also come up with two catchy word phrases that will make it come to life. Our team included many disciplines including engineering, product planning, marketing teams, and anthropology; we were all excited to take part in early focus groups, concept making, and workshops.

Just as with rough and digital prototyping, digital sketching has its place. Choosing which form to use and why is important – especially during early thinking and collaborations.





One of our biggest challenges was collaborating within a giant global corporation; team members were from all around the world – China, Europe, and Brazil. We had to explore the basic needs of our users from many markets, like what the dimensions of the car needed to be based on how wide the roads are or how big the families are.

We conducted ethnography studies to learn more about functional aspects of a car – like the need to be flexible with the configuration of the trunk space and the size of the backseat. To tackle these design problems, we found creative ways to hold three-day immersion workshops. Thirty people from

around the world met to dive into day-in-the-life walkthroughs focused on the imagined future owner of the Rouge, a mother of small children. We brought in strollers, diaper bags, and experienced what our future mom would. Where would she shop? What kind of things would she carry with her in the car? How would she open the trunk, get everything in, get everything out, all while caring for screaming children?

At the time, I did not have kids – nor did some of my teammates. We all learned a great deal, what it was like to live the life of a mother; fully understand her needs. Our workshops made the future real, far more real than reading a report. These insights led to innovative product design solutions with clear expectations of what it is like to manage daily activities within limited windows of time based on a child's needs. It was a great accomplishment because that car is doing very well in the market and is a tribute to some of our early work. Our research was the bay leaf in the soup so to speak; we added a sense of flavor that otherwise would not have been there.

We face a continuous challenge of working across countries, cultures, time zones, experiences, and disciplines with every product we design. This challenge is good in that what we are designing is great stuff; however, it is difficult to prepare for sometimes. In design school, we learned to think like a designer in individual or small groups; then in graduate school, we were more interdisciplinary but always in a small group of 5-7 and independent from the other teams.

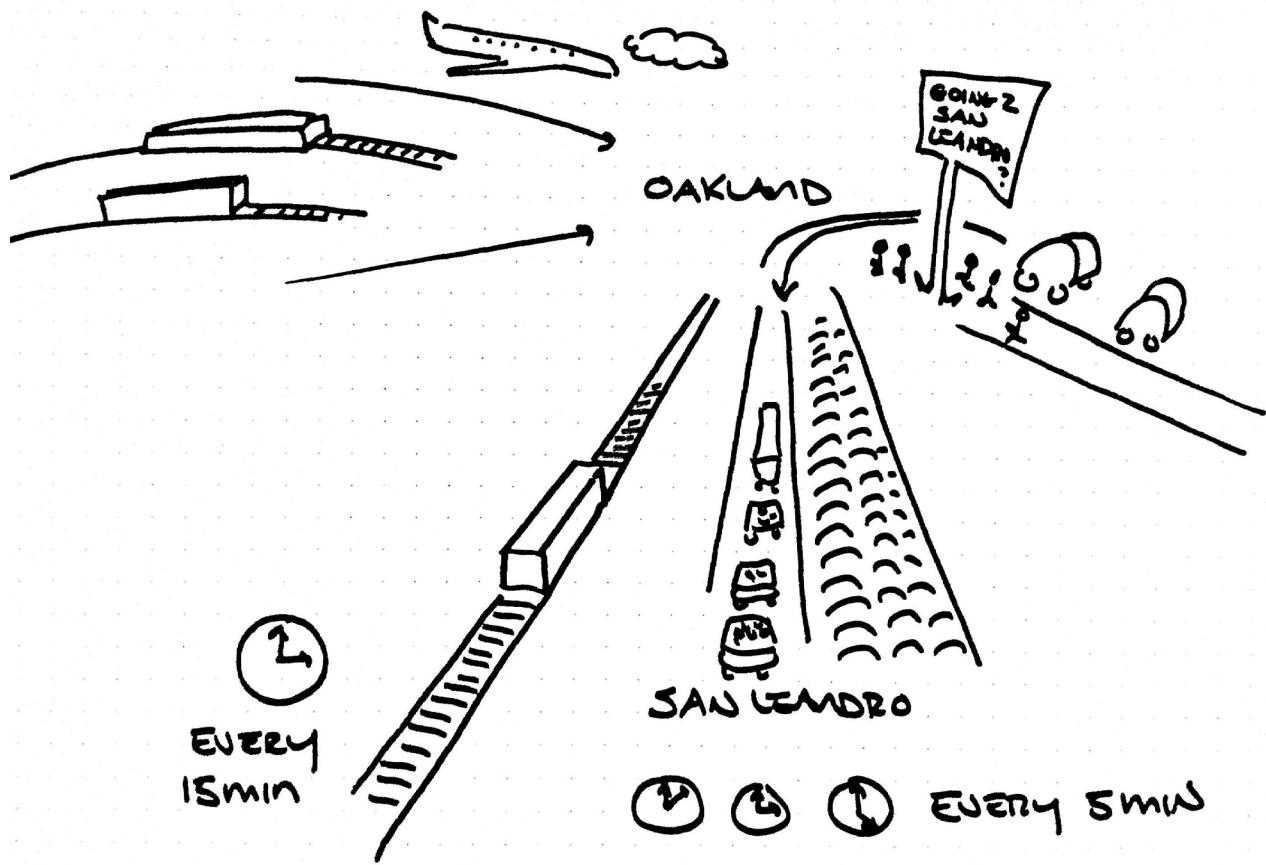
Once I became a designer, I experienced what it was like to

create huge trucks. The people I worked with had different types of responsibilities such as the sound and tone a door makes when it closes or how our products appear in brochures. It was a huge challenge to collaborate on such diversified large-scale projects, difficult to maintain excitement and alignment with what we were building and why. It was an overwhelming responsibility, yet we were able to find inspiration in great ideas and poetic concepts that everyone could become excited about, could immediately visualize and bring it life. We provoked thinking through a great concept, or idea, and just letting go as it sailed through the organization over time. To communicate like this in a succinct and global way was a constant challenge.

We have learned that, to be successful at these collaborative efforts, writing a report is not a viable option. However, producing a two-minute video to distil the content into three key themes is. I have faced this same dilemma for ten years, each time I feel like I should be better only to reconfirm that these are truly difficult challenges and hard to solve creative problems. I call this is the ice cream headache, something I experience when there are so many aspects to consider, opinions, and versions of a solution. When this happens, we give some time, let the process naturally evolve, and then come back to it.

Three bits of advice come to mind to share with young learners in the 21st century:

1. In our digital world, there is often pressure to form quick new concepts, build them, and



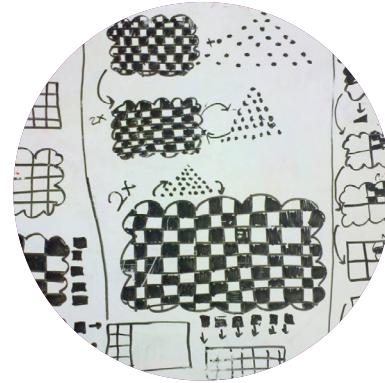
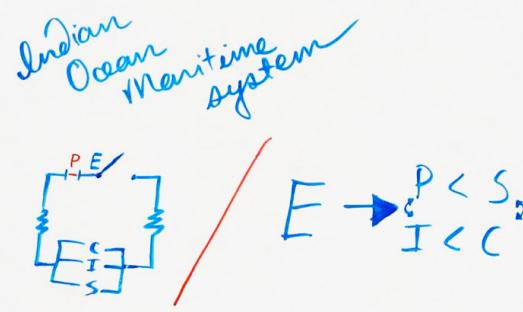
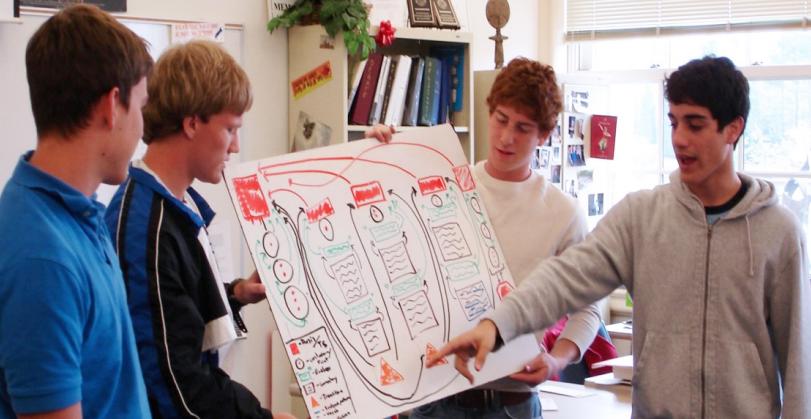
release them using a variety of approaches. Sometimes our team addresses challenges quickly; sometimes we step back and ask big questions. We ask, what is the purpose of the concept? What role is the concept fulfilling? In what way is the concept helping the situation? These responses help to clarify many aspects of our design process without spending a bunch of time making things just because we can do it quickly. Otherwise, it compromises the art of designing the concept; a one-day brainstorming session is not enough time to conduct research and develop valuable ideas.

- Having experienced a tactile design education, making things with my hands in the

shop helped me develop ideas. Throughout my childhood, I experienced tangible connections with simple materials like cardboard or paper to create rough prototypes; skills that we frequently use in our Living Labs at Nissan to bring something from the future to life. Once you start experiencing, feeling, and touching an idea, it becomes closer to reality. Sometimes digital prototyping can replace this physical approach; however, it is important to be thoughtful about which to use and why.

- Just as designers know how to sketch cars, a coffee maker, or a train, non-designers can use their playful imagination to sketch and communicate their

ideas. In one of our projects, we sketched how people moved around the San Francisco Bay Area on the transit system to visually capture our learning process through physical sketches. I encourage young creative problem-solvers not to be afraid to sketch on paper in real time before they formalize their ideas and concepts with a digital tool; visible ideas developed over time. Showing your thinking process allows everyone in the room to see and react to your concepts. Just as with rough and digital prototyping, digital sketching has its place. Choosing which form to use and why is important – especially during early thinking and collaborations. ■



SEEING BY DOING

by Robert Coven

What would it be like to re-design your learning experiences at school, so all that you do becomes interesting and meaningful to you? To tackle this challenge, all you need is likely already inside of you – a sense of curiosity, willingness to use your imagination, and the motivation to ask good questions. By practicing critical thinking skills, you can create your own way to see the world around you while gaining new insights, diving deep into new information, exploring tons of ideas, sorting through problems, and making good choices... all of which will be with you forever to use at any time!

To this end, my high school history students engage in a powerful approach called [Conceptual Modeling](#) to come up with new ideas, interpret meaning, and share what they have come to believe about the world. As they communicate their ideas, sometimes my students misunderstand parts of the concepts. Often they figure out how to undo these misconceptions on

their own by describing their findings to their peers (rather than relying on me). Conceptual Modeling provides my students with opportunities to think in unique and thoughtful ways. Through the construction of visual representations, my learners create meaning, develop their own theories, and form new understandings. The Conceptual Modeling process challenges how I teach as well. I must be prepared to support my students as they develop new interests and dig deeper into the content.

In small groups, my students develop a greater sense of independence with their learning; they do not expect me to provide all the “right” questions or answers. Students demonstrate what they know about the real world by asking questions, knowing in advance that there are not pre-defined answers; this uncertainty is an important part of the learning process. Head’s up: please do not become concerned if, during the first time you go through the modeling process, you feel confused, possibly a bit

uncomfortable. In fact, it is to be expected. As you experience this way of learning, you will become more adept and confident. Your classmates and your teacher will ask many questions about your ideas and elements of your model design. Your teacher will also guide you as you dive more deeply into the investigation (without telling you what to do).

The Conceptual Modeling Process has four phases; each essential to learning by way of inquiry:

1. Preparation Phase

Your teacher will introduce a general topic to learn about; then you will develop questions to investigate a problem set or challenge. When ready, you will gather information, make sense of initial insights, and sift, sort, and identify the most important content. The goal is to select the best topics that directly support the main idea.

2. Development Phase

In small collaborative groups of three, you will construct diagrams (these are the "models") that will serve as visual representations of your new ideas and understandings, big ideas, and supporting details using large personal-size whiteboards (2'x3'). As your group develops a visual model, all are encouraged to discuss and explain rationales behind ideas and arguments, and, of course, to listen. These models present your thesis and arguments and act as evidence of your learning process as you draw and explain the reasoning behind your work. At this point in the learning process, inconsistencies are often identified which may require revisions to the diagram and initial ideas.

Your ideas will begin to take shape as you gather materials from your teacher's information along with your own research. The best models are simple, clear visual metaphors or diagrams representing perceived influential entities, relationships, and patterns. The models are simplified abstract representations that portray different situations. The goal is not to create a work of art or representational cartoon, but rather a visual tool for discussion.

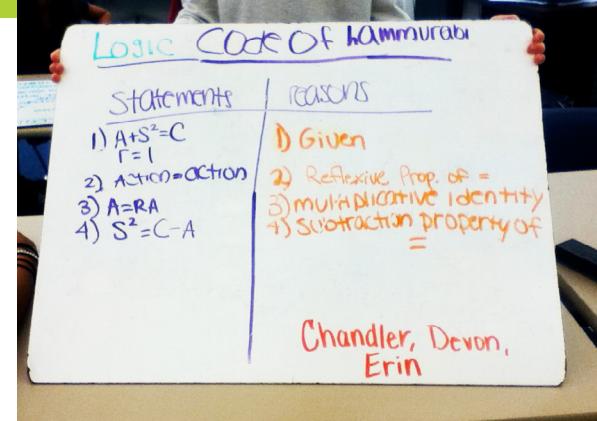
For example, my history students often use their visual models to describe new understandings about the past. In the process, they develop a metaphor to depict the patterns they have recognized while studying historical data such as economic cycles. The metaphors and patterns help them make sense of the past

and present as well as provide guidance for the future. Students come to understand that history is an integrated and interconnected system, influenced by common forces, not a set of random events. All of this becomes part of a student's transformed worldview.

3. Presentation Phase

Now is the time for your group to present findings to your peers and explain how your design represents your theory. Sometimes theories and diagrams are well developed and sometimes they are less comprehensive. It all depends on where you are in the learning process regarding misconceptions, investigations, and conclusions. The purpose of group discussions is to reveal any inconsistencies rather than finding fault, more to identify differences and missing or unrelated elements.

After the presentation, your group can revise your model as you continue to develop your ideas and raise new questions as you see fit. As you gain confidence, you learn to separate yourself from your work, which will allow for greater insights. In modeling, there is no single correct answer, nor one way to arrive at a solution. After the group presentations, the class will meet in a seminar and look for threads that might unite the group models into a broader explanation of historical events. The models and the discussions



that follow aim to motivate you to seek insight from within and from your peers.

4. Reflection Phase

While in revision mode, you will have the opportunity to test your theories and interpretations to investigate whether your outcomes line up with what you originally thought. When ready, your teacher will ask you to generate a brief one-to-two-page analytical essay. Because this assignment takes place after the presentation phase, it allows you time to reflect on your work and learn from your peers.

Modeling instruction holds tremendous promise for all your classes. It offers your teachers an effective method to engage you as you retain and understand the new concepts – to become adept and confident in applying understandings to new scenarios. By constructing your own theory and arguments, you will have a deep and permanent understanding of history and be able to transfer the skills and concepts you have learned to other fields of study. ■



Robert Coven is an award-winning high school history teacher dedicated to helping students become full participants in their education. Coven uses conceptual modeling to provide students the means to break through conceptual barriers and come to understand threshold concepts.



AYSE BIRSEL

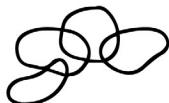
Ayse Birsel has been designing award-winning products for over twenty years. She is the co-founder of Birsel + Seck, an innovative New York design studio that creates partnerships with leading brands and Fortune 500 companies. She teaches at the School of Visual Arts and has taught at the Pratt Institute.

MY PROCESS

In this book I will share how to apply my design process, Deconstruction:Reconstruction, to your life in four simple steps.

01. DECONSTRUCTION

Taking the whole apart.



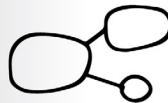
02. POINT OF VIEW

Seeing it differently.



03. RECONSTRUCTION

Putting it back together.



04. EXPRESSION

Giving it form.

= *unique*

Deconstructing and breaking current reality is necessary to enable us to shift our perspective—to see the same things differently—in order to reconstruct a new reality that is more than the sum of its parts.

24

25

My name is Ayse Birsel, and I grew up in Turkey in Izmir; I earned my bachelor's degree in industrial design (ID) at Middle East Technical University. After graduation, I attended Pratt Institute in New York City (NYC) to earn my master's in ID as a Fulbright Scholar. I have lived in NYC for almost 30 years where I co-founded [Birsel + Seck](#) with my husband Bibi Seck, an innovative design firm. We work with large Fortune 500 companies like General Electric, Toyota, Herman Miller, Tiffany, and Target. Our design services deliver award-winning results; we combine our thinking with our clients' expertise. I also teach a Studio Intensive at the School of Visual Arts.

I recently published a book, [*Design the Life you Love*](#), which is about applying my design process, Deconstruction and Reconstruction™ (De: Re), a thoughtful and intuitive

systems approach to designing products, to my life.

Design the Life You Love evolved over time as I figured out how to apply my design process to my biggest project, "The Design of My Life." The journey began as an experiment. Then I began to collaborate with a friend of mine, Shirley Moulton, at the newly formed ACADEMi of Life, a place to learn the lessons that we do not learn at school. Shirley was quite interested in "The Design of My Life" and asked me to conduct a workshop at the ACADEMi.

The workshop grew through word of mouth, and that caused me to realize many people were interested in becoming the designers of their own life. After people continually requested, I spent the next three years writing the book. I would love for young people who are interested

in creative problem solving to take an active role in designing their own lives, creatively, just like a project.

Three people have had a tremendous influence on my love for design thinking and design; without them, I would not be who I am today.

1. My father is a lawyer and a renaissance man who is interested in art, music, and history. While living in Izmir, my parents would often take us to Ephesus, an ancient Roman City that is very close to my hometown, on family outings. There we would walk around and visit the ruins from the Roman Empire. I remember being six-years-old, super bored because I did not understand what we were doing there.

One day my dad realized that I was not interested, he said, "Look

at the marble lined streets – do you see the grooves interwoven into the road? During Ancient Roman times, horse-drawn chariots used to go up and down these streets.” Suddenly, I could see it in my mind; I could imagine life back then. I became so curious and engaged that I finally felt connected to a moment in history. That was the beginning of my imagination when I learned to put myself in different places and time to visualize what was going on. The power of my imagination began with the Roman chariots.

2. Rowena Reed-Kostellow, one of my teachers from Pratt, had developed her own process for teaching three-dimensional (3-D) design to students. She taught us how to design in 3-D by way of rules and exercises – similar to teaching music students how to excel by developing their inner ear and sense of rhythm. In our case, we developed a keen sense of sight, proportion, and movement in space.

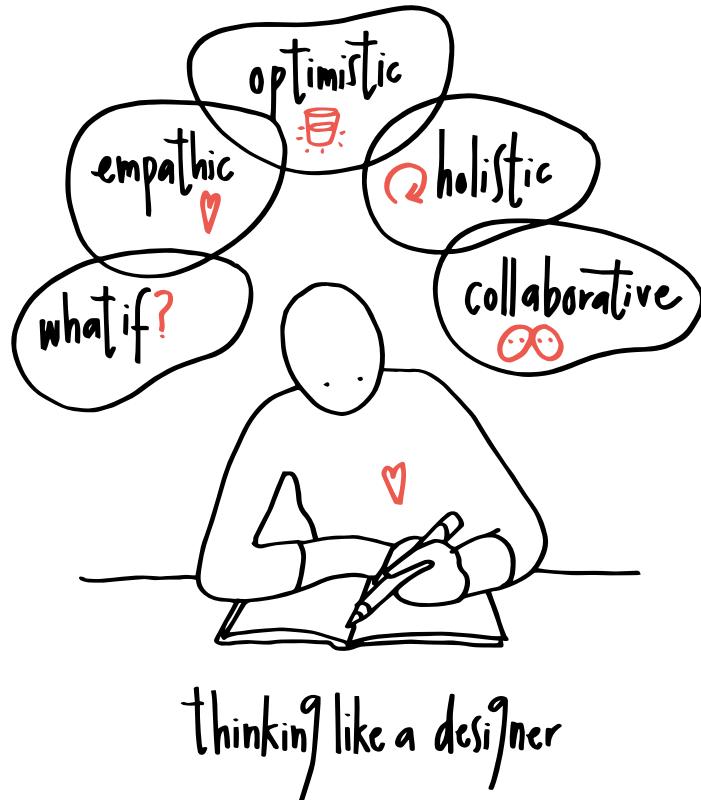
I owe Rowena a great deal, not only for what she taught us about design but specifically the ability to develop structures and frameworks around abstract concepts and three-dimensional design. Much of my inspiration around design and developing my design process is due to Rowena’s example, to take complex ideas and create processes so many people can understand, learn, and excel. She was also my friend, in fact, my first friend in New York. I was twenty; Rowena was 80-something; I remember her very fondly.

3. Bruce Hannah was our chairperson at Pratt; he gave me my first job after graduating. Bruce taught me how to be a designer with a sense of the profession, how to solve problems in creative ways, how to be user-centered, and how to develop designs as if they are gifts to other people, whether your client or the end user. Bruce taught me what it means to be a human-centered designer.

My biggest accomplishment has been developing my own design process. The foundation of all my favorite projects, all the great collaborations with wonderful people, is my process. Developing my process was like a journey into my head and heart to figure out how I think creatively. We all have a process that we intuitively use when we do things. Each of us has our own personal approach, an internal

process. Yet we rarely elaborate on our own process, nor do we write about it, try to put it on paper. I am glad that I was able to do that, to take a journey inside of me to understand the source of my ideas and the transformation that happens when one starts thinking about something differently.

Herein lays the connection between my work in product design, design strategy, and Design the Life you Love. My work allows me to teach how I think to other people; I really enjoy that because it makes me feel connected to people and gives me a sense of purpose. Designers have a different way of thinking: optimistic, holistic, collaborative, empathic, and asking ‘what if’ questions, that can inspire people of all ages, designers, and non-designers alike.



The economic downturn of 2008 was a difficult challenge; it changed the landscape for us overnight. I had already founded my partnership with Bibi, Birsel + Seck; we were doing very well working with long-term clients, doing what we love. However, the shift in the economy caused most of our clients to bring design in-house – a logical step given new budget constraints, the need to save money. Because we were an external studio, we were one of the first to go. It made sense. However I felt blindsided; we went from a successful, active, creative studio to being quiet. This experience was a major intellectual and emotional shift; it shook our sense of place in the world.

As a result, I had a lot of time on my hands, and did not quite know what to do with myself. One of my longest collaborators, Leah Caplan, suggested I use this time to think about how I think because, she said, "You think differently." This way of thinking became my lifeline, and the beginning of my process, Deconstruction: Reconstruction. In a way, the challenge became an opportunity: to change my life and to formalize my process, which, once in place, transformed our business. Now we teach our clients how to deconstruct and reconstruct, which in turn develops deeper collaborations with design managers, value-driven design projects, and company culture. An incredibly difficult experience, albeit a blessing.

Empathy, collaboration, and creativity are essential to you as a 21st Century Learner:

Suddenly, I could see it in my mind; I could imagine life back then. I became so curious and engaged that I finally felt connected to a moment in history.



1. Empathy is an essential skill for young creative problem-solvers to learn, to be able to place yourself in another person's shoes, to come to understand what it is like to feel and think like them. Designers practice empathy each time they solve a problem for other people; however, everyone can learn to develop the skill. We all have the capacity to develop our ability to empathize with others, to become a more creative, peaceful, and connected global culture.

2. Collaboration is the other skill for the 21st Century. Kids learn how to collaborate, a great ability. The act of individualistic thinking was of high value when I was growing up and then, initially, as a designer. Today the converse is true. The world benefits most from collaborative thinking; together we are stronger with a balance of diverse and complementary thinking – we can pull each other up. Individual

creativity, vision, and pioneering are still of great value; the process becomes enhanced, richer when a network of people with different expertise collaborate.

3. I conclude my talks about Design the Life you Love by saying, "today there are no road maps, create your own road map to create an original life." The world is changing so fast; traditional road maps of how to create a good life do not work anymore, which is an incredible challenge and a wonderful opportunity at the same time. We can thoughtfully design our own maps, create our own pathways, rules, rituals, and habits. The key is to embrace creativity, use an optimistic approach with empathy for others and ourselves, to collaborate with people in our lives, our family, friends and people we work with, to design and live original lives. An original life, is not that the definition of a life well lived? ■



PAUL HATCH

Paul Hatch is CEO of the Chicago branch of industrial design firm TEAMS Design, which he opened in 1998. TEAMS Design now has five branches with a total of over 1,000 design awards. In 2014, Paul founded Design House, a non-profit with a mission to help revitalize local manufacturing. He is also co-author of two books about the impact of Design and Technology on business.

My name is Paul Hatch, and I am the CEO of [TEAMS Design](#). I studied industrial design in the United Kingdom at a four-year art college. After graduating, I worked as an industrial designer for five years at TEAMS Design in Germany and then in 1998 moved to Chicago to open their U.S. branch.

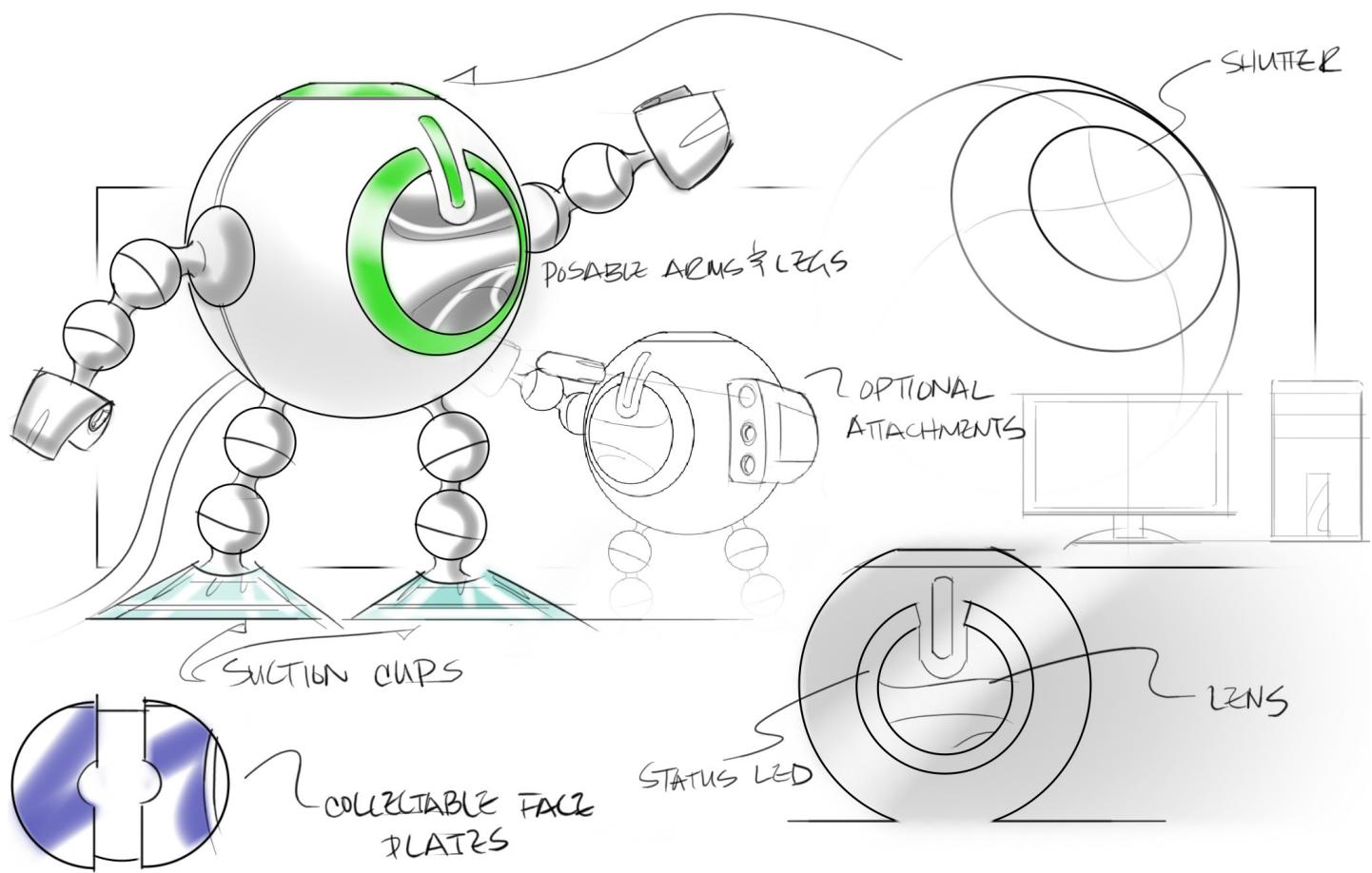
My official title is Chief Executive Officer, which means I manage the work that comes in, collaborate with our in-house designers, talk with clients, and offer ideas. Industrial designers often develop innovative ideas that have never existed before and improve things that already exist. Based on ideas, we draw and create things on paper and make small-scale physical models. Our job is to assist companies as they bring to consumers new

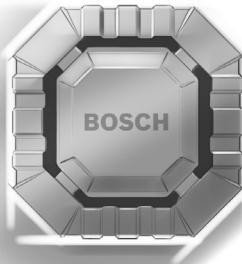
or improved products like power tools, appliances, mobile phones, or footwear.

In addition to my work at TEAMS, I also manage a project on the side called [DesignHouse](#). DesignHouse is a non-profit organization focused on helping to revitalize local manufacturers within the United States. For the most part, industrial designers create mass-produced things made in factories in countries such as China. The purpose of DesignHouse is to find ways to bring some of that manufacturing back to the U.S. We help local manufacturers understand how design can help them make something better, more cost-efficient, or less expensive so that they can compete with overseas manufacturers. Everyone has their little passion

projects on the side, so my day job is quite different – it's all design and manufacturing, just in different places and different ways.

There are several people who have influenced me, the most important being the late Bill Moggridge. Bill was the co-founder of IDEO, a well-known company in our industry. In 1989 while studying industrial design at college, Moggridge was a guest lecturer and shared his philosophy on design. I was already heading in the direction of industrial design, but what he showed us opened my eyes to what user-centered design can truly be. User-centered design begins with those who use and buy the product. The goal is to improve the impact the product has on the user's habits when they use the product and





thus improve someone's life. As designers, we have a responsibility to make things more profitable for a company as well as better for the user.

Bill Moggridge had a substantial impact on me then and now at TEAMS and DesignHouse. I am thankful for mentors and beacons like Bill Moggridge, who choose to reach out to young people as they learn about design and life. It is important to understand other people's perspectives, how they see life.

There are three special accomplishments I would like to share with you:

1. My first achievement took place during an internship when I designed a cheese knife. I worked hard to get the details right – it had a nice ergonomic curvature that worked well in the hand. Coated with Teflon, the thin shape of the blade glides through the cheese, unlike most knives that stick. The inspiration came from the frustration of slicing cheese and the messy process of scraping it off. The nonstick cheese knife cut as if it were slicing an apple. The blade itself was black except the blade edge,

which was silver so users could see it. The handle was a radical white to create a feeling of reverse coloration as well as a "swingful" look. I am proud that this design made it to market. With great effort, designers can make truly innovative ideas happen. One must apply passion, make sense of complex information, and stand up for their ideas. Design work is a challenge – without it, there is no sense of achievement.

2. Fight Club was a pivotal idea that came to life as a result of a book club when we invited designers to meet up and discuss various books. We realized we lacked a sense of passion – that is when we came up with Flight Club. Based on an illegal fistfight movie, our version took on similar passion, environment, and atmosphere. We channeled our interactions via productive verbal discourse rather than destructive physical contact. We designed the experience to be intense, rough and ready, and full of passion. Similar to the movie, we held the "fights" in a darkened warehouse, used a single source of light, and chalked a circle for two people to engage in a verbal debate on a chosen subject matter. Each stated his or her argument and

the audience stood around the circle and jeered or joined as they chose.

We tested the experience that first night with twenty people; we had no idea what to expect. The audience was invigorated and excited, and wanted to repeat the experience. We then offered regular meetups with an ever-increasing number of participants. A local television station took interest and filmed one of our "fights," which turned into a TV show pilot proposal. While the show did not move forward, it was interesting to see how a little creative idea can grow into such a compelling experience. When we see the chance to create and try out something new and worthwhile, sometimes it works and sometimes not. We can all make a difference – take a few risks, apply good ideas, and aim to change people's lives for the better.

3. Designing the Bosch Power Box Jobsite Radio was another endeavor I'm very proud. Used in the construction industry, the Bosch Power Box Jobsite Radio had to be rough and ready. During our research, we studied electricians and carpenters; they

I am thankful for mentors and beacons like Bill Moggridge, who choose to reach out to young people as they learn about design and life.

were constantly sawing, drilling, and cutting with many types of power tools. Numerous cords tangled everywhere because they had multiple extensions connected. We learned that job sites had small, beaten-up, cheap radios, often placed in a corner next to the power supply. We found radios splashed with concrete and dents.

These insights led us to the concept of creating a power extension unit that was also a radio. Additional ideas bubbled up such as the need for a large box to charge batteries, mobile phones, or other items. We wanted to ensure the success of the design, so we articulated our vision, made sure to include other people on the project, and communicated our plan to Bosch so all could see the benefits of the design. Big breakthrough ideas take a lot of work and energy – it was critical to invite the right people to share in the passion. The result was beneficial because we faced the challenge while reaching for success.

When I was 16 years old, I truly enjoyed math, science, and rational thinking. Also, I was an artist at school and loved drawing comics at home on the weekends. Growing



up in the U.K., I faced a crossroad dilemma when deciding which direction to go after high school. I choose art college, and I am amazed that my parents supported me. I do not regret choosing a creative path, going to art college, knowing that it meant specialized curriculum without a focus on math and science. I wanted to do something that I enjoyed and was passionate about, something that is personal to me and therefore I can do well. Initially, I thought I would do graphic design, but discovered I wanted a field that would challenge me to get better and better for a lifetime. Initially, I explored sculpture in 3-dimensional form, which transformed into functional sculpture, solving problems, and inventions – product design. I finally found a discipline that balanced my creative and rational learning needs. I went with my gut as well as my head to make that decision, and I am very thankful that my parents supported me in that decision at such an early age.

Everyone is a designer; we all are creative problem-solvers. We naturally look at things with judgment and are skeptical of certain things. We are annoyed if something does not work the way that we want it to, and we think about how it could work better. Each one of us can learn to influence the world around us, understand nature, and nurture positive change. Begin by noticing things around you. How do you feel about them, how do other people feel about them? When you use something, does it feel like it is making your life easier in some small way? How could it be more enjoyable or function better?

Record these memories; over time, you will have reference points to help solve problems later. On a daily basis, become more aware of your surroundings—the things around you, the environment around you—and constantly think about how the world could be a better place. We all want to fit in to the future, even if that future is filled with the unknown. ■



A DESIGN-BASED GAME CHALLENGE

by Courtney Bryant

It is 8:30 a.m. on the first day of school. You approach your first class as a new fourth grader. You see many new faces. Your hands are sweaty, your mouth is dry, and you do not know why you are in the Engineering Design class. What is Engineering Design you ask?

Fortunately, you do not have to wonder for very long. Your teacher has a plan!

I imagine most students like feel this as they enter the [Design Lab at Drew Charter School](#) for the first time. The learning space can seem a bit intimidating for a newbie. Tools look scary, and large tables obviously encourage group interaction – not your normal looking classroom environment. No surprise, a different way of teaching needs to take place so students can become comfortable with using new tools and interacting with their classmates all while practicing the Design Process.

Enter the Nerf Passer Challenge. A friend of mine worked at Nerf several years ago in their product

design group. We discussed new products they were developing for teenage boys. I asked him if they had any plans to shift their design ideas to include teenage girls. A second or two passed and he said, "Well, not exactly, but that's a thought."

Later, I started thinking about that conversation while I was redesigning a challenge I had tackled during a college design class. I re-imagined the challenge to become a wearable Nerf game piece to pass a small ball around from one person to another. Considering both girls and boys, I wondered about how to encourage social and physical interaction through the piece that they design. I wanted to incorporate at least two different simple machines (like a wheel, pulley, screw, etc.) that used gravity and were made of durable materials. When my students engaged in the challenge, they quickly realized this was an individual project, but that they needed to communicate with each other to achieve group success. Dropping the ball is an epic fail that everyone wants to avoid.

Returning to that worrisome first day of class, my fourth graders received their first Brief, all while I wore a ridiculous contraption on my head. When I demonstrated how it worked, they learned it was a Nerf Passer. Wide-eyed and quizzical looks followed my every move as I modeled creative confidence – I can wear something silly and will do so willingly if it helps me communicate my fabulous idea. My students will remember this as a proud moment just as they will remember the end of the unit.

Next, we began the "Need to Know" phase; we call it Research in our class. Students decided what they knew already and what they needed to know to be successful. Then they went on a hunt for answers. Students observed real objects like hats and masks. They measured head sizes. Students studied simple machines, and we experimented with real simple machines in our TinkerYard at school. Students wrapped up their research by making notes about what they found.

After conducting research, students began sketching ideas with pencil and paper: Idea Development. Students sketched from multiple viewpoints: front, side, top, bottom, rear, etc. Then they received feedback – all centered around ball safety, aesthetics (how it looks), end user appeal (how well it works while being used), and use of simple machines. Students often changed their sketches after receiving feedback from their classmates and teacher.

Once they were happy with their sketches, students moved on to the next phase. First, students generated a quick copy-paper, small-scale Prototype. The small 3-D model allowed others to examine the benefits of the design before attachment takes place. Several copy-paper models were necessary for some students before they felt ready to advance to the durable materials prototype. I invited students to bring in "found" materials. To level the playing field and encourage design that is good for the environment, I discourage students from buying supplies for the project. Instead, they used recycled cardboard, chipboard, foam, and plastic containers to create their working prototype. Students used hot glue and duct tape to stick things together. Tools that had once seemed scary now became necessary to construct their idea. My students asked me to train them in the safe use of sanders, saws, and drills.

Throughout the Build process, students interacted and provided feedback as they tested their ideas. The whirlwind of ideas about how to transfer the ball continuously traveled from designer to designer

as each student dug deeper to confirm their hypothesis (plan of making something work). When their idea did not work as they had hoped, they asked others for help and used equipment (tools). Students who would have likely avoided one another other in the hallway ended up working together, united around a common goal. As we neared the due date, students repeatedly tested their products to ensure success. As they tried the ball in their device, they engaged in the Test phase. Once students identified problems, they moved into the next phase: Evaluation and Modification. Students corrected issues and continued to evaluate the performance of their passers. When satisfied, they stepped in to advise and help classmates. A can-do spirit permeated and – due in part to a group success mentality built on the fact that we would not have success unless every student played and could pass – every single student finished.

On Nerf Passing Day, every designer wore their device and walked to the flagpole. We received some weird looks and snickers from bystanders, but none of the designers seemed to notice or care. We circled up in front of the flag, and each designer stood up and explained how their device functioned. Designers were encouraged to listen to their peers so they could act as a support system or coach during the passing experience. The ball made it through the first four or five people and then fell. I told them they could try again – as many times as needed

so that we could achieve success. They believed me; the can-do spirit returned. Not on the next try or the try after that, but soon they did it. You would have thought we won the Super Bowl. The designers wore their Nerf crowns around school the rest of the day!

The Nerf Passer Challenge initiated a mindset (how you are thinking and feeling) shift: students began to think of themselves as designers. Most of my students will not become a professional designer, but the things that they learned will serve them well in any endeavor they undertake in the future. Students learned the design process, how to creatively solve problems, how to conduct research, how to collaborate, how to communicate, how to prototype or create a model of their thinking to test an idea. Additionally, students who participated in the project now feel as though they can tackle any task and they are frequently hungry for more. Moreover, after completing the Nerf Passer Challenge with their teammates, students learned to prepare for future projects because they learned to be supportive within a constructively critical classroom culture. These students now know that their teacher is not the only "smart" person in the room and that they all have the potential to offer a positive influence on their classmate's design. When students made that final pass of the ball on the last day of the unit, all culminated with satisfied grins – because they are now empowered to solve wicked problems. ■



Courtney Bryant has taught students in various settings in Cleveland, Charlotte, and Atlanta. Currently, she is the STEAM Project Manager and Engineering Design Teacher at Drew Charter School in Atlanta.

CERTIPORT AND THE ICAF



Certiport selected the ICAF as Charitable Partner for the 2016 Adobe Certified Associate Awards.

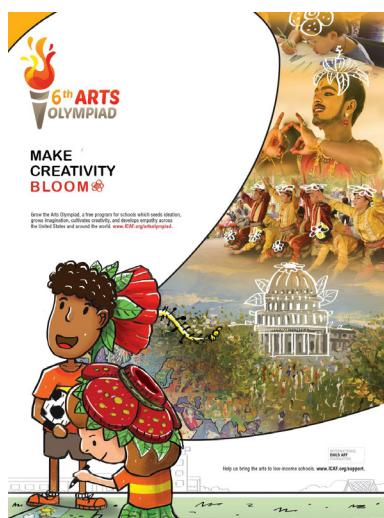
As an honored Charitable Partner, ICAF participated in the 2016 Adobe Certified Associate (ACA) World Championship presented by Certiport, Inc. in Orlando, Florida. This global competition received more than 230,000 entries worldwide from 67 countries who competed to demonstrate their mastery of Adobe products. Thirty student finalists participated in the final round of [competition and designed a digital marketing flyer](#) for ICAF's 6th Arts Olympiad using Adobe Photoshop CC, Adobe Illustrator CC, and Adobe InDesign CC.

Assessment of the student's design work included creative and technical skills, as well as each competitor's ability to implement the ICAF's vision and message. The competitors, who ranged from ages 13 to 22, had an impressive sense of mastery with Adobe products combined with incredible creative talent. The students were professional, inspiring, and exceeded our expectations.



1ST PLACE

Lourdes Gimena Anquiano Bermúdez
from Mexico



2ND PLACE

Ng Hwa Ee Nicholas from Malaysia



3RD PLACE

Cheung Kuok Pan from Macau

CANNES LIONS AND THE ICAF

Designers and advertising professionals from around the world convene annually at the Cannes Lions in the South of France. At this international festival of creativity in 2014, the organizers selected the ICAF as a "client" for the [Young Lions Competition](#).

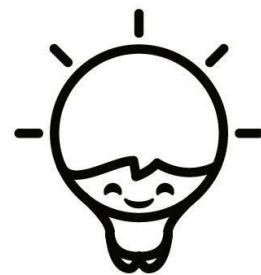
The ICAF asked the contestants to design a logo for its 5th World Children's Festival (WCF) scheduled to take place in Washington, D.C. in the summer of 2015. The contestants were comprised of teams of two young designers each from ad agencies in 19 countries: Belarus, Brazil, China, Colombia, Costa Rica, Denmark, Dominican Republic, Germany, Greece, Italy, Japan, Nigeria, Norway, Poland, Portugal, Romania, Russia, Sri Lanka, and Sweden. The process took one full day to design the WCF logos.

The winners were honored at an awards ceremony presided by the head of the jury, Mr. Ije Nwokorie, CEO of Wolff Olins in London, famous for designing the logo for the London 2012 Olympics.

The jury was comprised of some of the world's leading designers and advertising executives.

Now you can be the judge and tell us which of the three logo designs you like the most! Email us at childart@icaf.org or post your comments at Facebook.com/ICAF.org

To learn more about the World Children's Festival, visit www.WorldChildrensFestival.org where you will discover stories about WCF2015 – and please do join us at our next festival in June, 2019.



5TH WORLD CHILDREN'S FESTIVAL



WORLD CHILDREN'S FESTIVAL

GOLD

Designed by Stefanie Golla and Dominique Winkel of Kolle Rebbe in Germany.

SILVER

Designed by Tobias Eriksson and Li Jian of Essen International in Sweden.



BRONZE

Designed Eliu Bueno and Danilda Estevez of Lowe Worldwide in Dominican Republic.

LEARNING FROM DESIGN!



Arnold Wasserman
Collective Invention



Peter Scupelli
Carnegie Mellon University



Mauro Porcini
PepsiCo



John Edson
LUNAR



Debbie Millman
Design Matters



Megan Neese
Renault-Nissan Alliance



Ayse Birsel
Birsel + Seck



Paul Hatch
TEAMS Design



Doris Wells-Papanek
Design Learning Network



Kathy Bonte
DezignKidz



Robert Coven
Cary Academy



Courtney Bryant
Drew Charter School

ENGAGE

The ICAF invites your participation in the 6th Arts Olympiad, the world's largest art program for schoolchildren. Commencing in classrooms worldwide in 2017, the Arts Olympiad leads to community celebrations in 2018, followed by the 6th World Children's Festival in 2019, and culminates in 2020 with a traveling exhibition of the winning artworks. Please visit www.icaf.org/ ArtsOlympiad/ for more information.

CONTRIBUTE

Please adopt the ICAF as your charity of choice by making a tax-deductible donation today. You can support the ICAF when you purchase from Amazon or eBay, donate through JustGive.org or mail us a check at:

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Washington, DC 20037, USA

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ONLINE www.icaf.org

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