SCHOOLS OF CREATIVITY AND INNOVATION: DRAWING TABLE OUT, STORYTELLING IN

Jose Rivera-Chang, California State University Long Beach, USA

Abstract

How do you teach innovation? How do you teach creativity? How do you teach a student to design a product for the future when that future has not arrived yet? This is one of the challenges that faculty face when it comes to promoting design innovation in the classroom.

A truly innovative idea cannot be explained neither understood using current paradigms or concepts. Paradigms are temporary and circumstantial; on the other hand, the way people communicate and understand is temporary and circumstantial too. One way of teaching innovation in design schools is to focus student projects on people and not the paradigms. This focus on people allows students to create stories. Storytelling is a powerful design research tool that has been employed by top players in the industry for the past 15 years but very little in design schools.

This paper will discuss how Storytelling could become a powerful research tool that promotes innovation in the classroom. It helps students to organize their information in a manner that is easy to understand, not only for themselves, but for a variety of audience.

The First Project, The First Disappointment

The first project is to design the next "Big Idea" in wireless communication. Some students come with interesting ideas for a cell phone incorporating multiple functions. These small devices have everything: speakers, microphones, small color LCD screens, small flexible keyboards, tiny cameras. No one can deny the amount of creative work generated in the classroom and how excited the students are. But this is just the beginning of a much longer exercise of creativity, they don't know but they are actually getting ready for their first "innovative project."

After finishing the small design project the instructor praised them for the quality of their drawings, their work, their interesting ideas, and the aesthetics behind each design. But at the end he said that he couldn't really find any idea that was truly outstanding or creative enough to call it: the next "Big Idea." He explained that most of the ideas were no more than mere reinterpretation of current solutions. There was a lack of vision, no anticipation about how people might communicate electronically in the future.

The students were confused, disappointed: What went wrong? Aren't we creative enough? Were the instructor's expectations too high?

Looking for Creativity

Creative work is exactly what is expected from every design school in the country. When the creative work has a successful commercial application then we call it innovation. Innovation is precisely what design-driven companies are looking for.

The big question is how do you teach innovation? How do you teach creativity? How do you teach a student to design a product for the future, when that future has not arrived yet? What kind of technology do we need in the future?

Typically, design students have gone to their drawing tables and sketched their ideas on paper in a multiple-step process called "ideation". The process is simple, the sketches or drawings are the pictorial representation of a basic idea that gets refined over the time allowing the designer to add more ideas until he eventually has enough clarity for himself and his audience.

The Future Computer: Pencil and Paper?

For years, designers, engineers and inventors in general have used the drawing table and pencils as their primary tools for their visualization of ideas. These traditional tools are increasingly being replaced because of rapid advances in technology. Computers, electronic tablets and rapid prototyping machines are slowly moving in, while drawing tables and pencils –the way we know them today- are moving out.

Are there no pencils in the future? Is the classroom of the future full of Tablet PCs? The answer is: Who knows.

Something we know is that human interfaces, the ability to draw, the ability to write, the ability to use our hands, our eyes, our voice, will never change. After all, our body is the medium we use to communicate with the outside world.

The computer of the future will probably come in the most unexpected package: that could be as a "smart" pencil or as a "smart" paper, but the future generations of designers may call them pencil and paper, just the same. This future pencil is not your typical wooden pencil that you use today; neither the more advanced plastic mechanical version designed 40 years ago. This "smart pencil" will incorporate all the power that personal computers have today and more. In the same sense, the "smart paper" will be the stage, the window, the canvas for our ideas. The difference is that this "smart paper" will be more powerful and lighter than today's LCD screens. It will be less expensive and will electronically store all of our drawings, ideas and hand writing instantly.

Science fiction? Not really. 40 years ago nobody could have envisioned the creation of the Internet, personal computers and cell phones. There was apparently no need for such innovations even though the ability to communicate electronically was there; the technology was there –in an early stage of course-. But technology per se is not really what creates innovative ideas. What technology does is empower designers to create a vision of the future. An innovative idea pushes the creation of new technology. In that sense, innovation and technology are completely interdependent.

Classroom Challenge: Focus on People not Products

Going back to the initial student project: in order to spark creativity and innovation in the classroom, the professor offers students a new challenge. Curiously, the challenge will be the same one again: to design the next "Big Idea" in wireless communication. But this time there is a twist: the new designs cannot incorporate cameras, displays, speakers, earphones, microphones, not even keyboards!

After some initial awkwardness, the professor then explains that instead of focusing on the product this time they should focus on the situation, on the user experience only. This will force students to think out of the box.

The real challenge for students was not how to design a cell phone that doesn't have speakers or microphones. After all, for this cell phone, talking was absolutely useless. What about video cameras? Or LCD displays and keyboards? Still, all of them are absolutely useless. So, what kind of cell phone is this? The answer is nobody knows yet. For sure it can't be called "cell phone". And that is the way to start the new idea.

This is one of the challenges when it comes to design innovation. A truly innovative idea can't be explained using the old paradigms. While concepts like TV, VCR, cell phone, laptop, PDA are today's paradigms, in the future, these paradigms will seem quaint.

Paradigms are temporary and circumstantial; the way people communicate is temporary and circumstantial, too.

To understand the focus on people, the professor asks students to bring storyboards to the classroom instead of traditional idea-sketches. Storytelling is the basic tool to communicate ideas. Storytelling focuses on people not products.

It takes many hours of discussion with the professor and additional individual work before the students feel comfortable using the storyboard technique. Curiously they were still sketching, but they were no longer sketching products, they were actually sketching people.

Students focus their stories on simple situations. For example, communication between co-workers in different offices, or communication between members of a family in different cities, etc. They all use some sort of electronic communication device: cell phones, computers, video, etc. Still, the biggest challenge ahead: how would this people communicate without voice, text or images? What kind of wireless device would they use?

Exploring New Scenarios: "The Expectant Parents"

One student was exploring the following scenario: An expectant mother sharing her pregnancy experience with her husband who is temporarily out of town.

Because pregnancy is such a unique experience for the mother, communicating her thoughts and feelings to a husband out of town should be a no brainier: she could grab the phone and call him, or maybe, send a letter with pictures of the latest ultrasound, or much faster, an email with a picture attachment.

All of the above mentioned options are considered completely ordinary. There is nothing innovative about them. Here is when the professor's challenge comes to play: How could the expectant mother communicate with her husband without voice, text or images? The answer is: touch.

After several discussions in class the student finally creates a story that is absolutely innovative: "Wireless devices specifically designed for expectant parents."

3

These devices would be worn on the abdomen areas; the sensors embedded in the mother's device would transmit some of the baby's pulses wirelessly to the father. The father, in return, would rub his device to let her know he received the warm pulse. What a simple idea.

Of course, such a simple device could never transmit to the father all the complex sensations that the mother is experiencing inside her body. But the simple idea of communicating wirelessly and sharing without using voice, images or text is absolutely new and interesting. It could be priceless in some specific situations, for instance, being in bed and thinking silently about the loved one that is far away. Using such a device to touch each other in the distance, without saying a word, could be a powerful experience. This could be a new option, a new kind of intimacy for couples in the 21st century!
What should we call such an idea? We don't know yet. We are not using voice so we can't call it cell phone. We are not using text or images so we can't call it computer, or e-mail, or webcam or anything like that. In this case a new paradigm has been created.

New technology has empowered designers to create new ideas that are not necessarily based on the old ones, that is why we can't describe them using the old paradigms. In this case, there is nothing new about couples communicating through touch but doing so electronically could be a seed for a series of innovative products. Five years ago there was apparently no need for such innovation but now we have the technology that can make this innovation a reality. Once people adopt this new technology, the technology itself will be pushed again creating more innovative ideas. Innovation and technology will feed one another again.
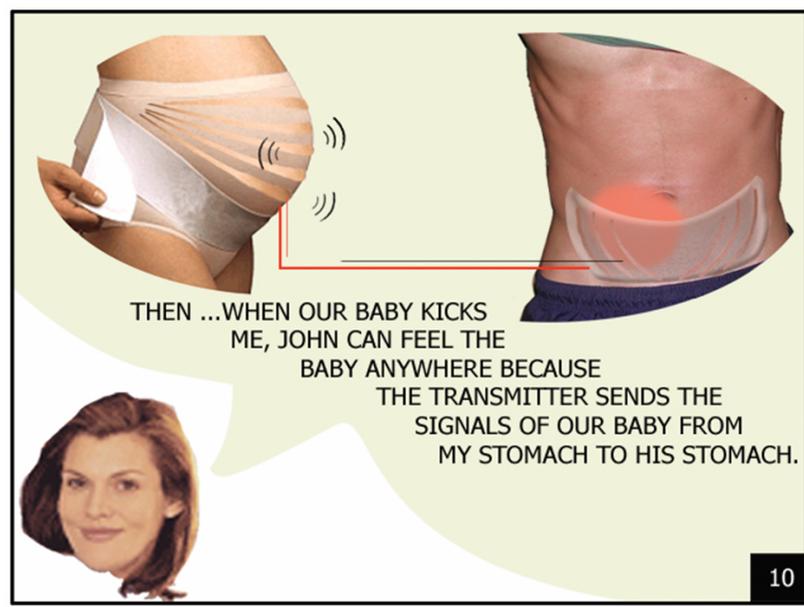
Sample of student work: Storyboard Frame #10 "The Kangoo Pouch" by Elaine Hill. Awarded at SADI (Samsung Art and Design Institute) Contest 2001, Korea.

New Paradigms Inspire More Ideas

Another similar student idea: A wireless device to share intimacy electronically for couples living in different cities who can only meet very few times a year. Again, a controversial but effective

use of technology. Each lover would wear a specially designed garment. Each person would touch himself in order to touch the other one!

The student projects were finally reaching the stated goals. The focus on user experience and storytelling allowed students to think out of the box. New concepts were created.

Of course, some student projects are more of a creativity exercise rather than a product ready to hit the market. This is part of a more comprehensive design curriculum where the focus is on visionary thinking rather than styling.

The fast evolution of technology allows designers to design virtually any concept in any shape. Designers don't work around the engineer's box –also called styling- anymore. Now, engineers work inside the designer's box.

Sample of student work: Storyboard Frame #21 "Touche" by Jami Akiyama.

Visionary Thinking

Innovation-oriented companies are always working on their visions of the future; they spend enormous budgets developing products and concepts ahead of time inside their laboratories. This is a difficult task since nobody can really predict the future.

The first company to hit the market with an innovative product or service will have an advantage over the competition -not to mention better profit margins and bigger market share- provided the company has the right business strategy.

Design-driven companies build their future in part by visionary thinking: so should Industrial Design schools. Creating innovative ideas through storytelling is one viable option for design schools to build their own visions emphasizing and understanding the user experience.

Acknowledgment

References:

1. Kunkel P. Digital Dreams: The Work of the Sony Design Center, Universe Publishing, New York, 1999.
2. Myerson J. IDEO Masters of Innovation. Teneues Publishing, New York, 2001.
3. Royal Philips Electronics Design Website. Portfolio. Research Projects. http://www.design.philips.com/about/design/section-12826/index.html
4. LG Electronics Design Competition Book. LGE, Seoul, 1999, 2001
Rivera-Chang J. Case Study: Mobile HIV/AIDS Unit for Africa. Use of Scenarios as a Collaboration Tool between Industrial Design and Engineering Students. Book of Proceedings. ICSID Conference, Hannover. 2003.