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# INNOVATION

## Frontiers of Design

PAST INSPIRATIONS ■ FUTURE CONCEPTS





**By Doris Wells-Papanek, IDSA**

doris@designlearning.us, www.designlearning.us

Doris Wells-Papanek collaborates with educators, practitioners and learners to design and research learning experiences. She develops change strategies and conducts human-centered action research studies and has co-authored five books on student-centered learning. She holds a master's in education from National Louis University and a bachelor's in product and environmental design from the Kansas City Art Institute and School of Design.



Shoe designed by Natalie C. and Nicole B., 11th graders at Da Vinci Schools for the Vans Custom Culture contest.

# DESIGN IS TO DOING AS LEARNING IS TO THINKING

**T**he capacity to innovate is directly linked to a designer's ability to continuously "learn, think, do," a phrase coined by JohnPaul Kusz, FIDSA. These foundational elements are prerequisites to the design process and, most significantly, are inseparable. Learning prepares us to think (process, comprehend, visualize and articulate complex problem sets). Design readies us to do (take action based on what may appear to be incongruent choices interwoven into a strong desire to innovate). To innovate, designers must know how to problem solve in creative ways, use critical thinking skills to process multiple perspectives, adapt communication approaches to meet stakeholder needs and navigate dynamic levels of diversity to effectively collaborate. Thoughtful integration of the design process with the learning process creates a ground-breaking framework for design learning.

In the fall of 2010, IDSA launched into new territory with a dedicated Web page focused on design integration—“Teaching Design to K-12” ([www.idsa.org/teaching-design-k-12](http://www.idsa.org/teaching-design-k-12))—with the following mission: “As part of IDSA’s efforts to promote design to business, we set a long-term goal of ensuring that all students coming out of school at least know and understand what design is and what it can do.... Our goal right now is to create a community interested in integrating design into the K-12 system and to connect the various players in order to create collaboration.”

### **Design Learning Integration, Grades K-12**

Over the last several months, I have been collaborating with IDSA on four innovative design integration initiatives, two design integration high school curriculum models, a Design Learning Challenge for college design students and a forum to connect design practitioners with schools. In addition, Scott Stropkay has refreshed the IDSA page “What Is Industrial Design” with students and parents in mind.

Serving as primary research leading up to the IDSA initiatives, Walter Hargrove, IDSA and I collaborated on the Victor Papanek Going Forward© (VPGF) Action Research Pilot Study targeted at developing a DIY human-centered and student-directed learning pedagogy. We presented a progress report at the IDSA DIY Education Symposium in 2010 ([www.idsa.org/content/content1/victor-papanek-going-forward](http://www.idsa.org/content/content1/victor-papanek-going-forward)). The following problem statements and rationales arose as part of the study:

- Timely opportunities exist for our design community to comprehend, grapple with and contribute in meaningful ways to the fallout of existing educational practices. A 2009 Indiana State University study, “High School Survey of Student Engagement,” found that over 65 percent of our nation’s high school students today are bored in class every day.
- There is a lack of creativity being integrated into American classrooms. Additional findings of the Indiana State study revealed that 82 percent of the students said they would welcome the opportunity to be more creative in school.
- The livelihood of our nation depends on students being prepared for future careers that are yet to be defined. A 2007 Editorial Projects in Education Research Center study indicated that students find diminishing value in graduating from high school. For every 10 high school students, 3.1 will drop out without a diploma. Additionally, approximately five out of 10 students of color will not graduate.

## Balancing the Capacity to Learn, Think, Do



Courtesy of the Kansas City Art Institute

As a member of Victor Papanek’s master class at the Kansas City Art Institute and School of Design in 1979–1981, I had the great fortune to learn directly from his insightful vision, which in turn has profoundly influenced my career as a designer. In the fall of 1988, Papanek published a seminal article in the Autumn 1988 issue of *Design Issues*, “The Future Isn’t What It Used To Be.” Papanek encouraged designers to proactively balance their capacity to learn, think and do with a deep understanding of the human condition. He was concerned that “many designers are trying to make the design process more systematic, scientific, and predictable ... developing rules, taxonomies, and classifications, and procedural design systems. Their approach stands for reason, logic and intellect, but such a method leads to reductionism and frequently results in sterility and the sort of high-tech functionalism that disregards human psychic needs at the expense of clarity. ... enormous amounts of data [is] available about how people relate to their environment esthetically and psycho-physiologically. ... Much of these data are still unknown to designers.”

In June 1992 while working at Apple Computer, I invited Papanek to share his research on human-centered design. His talk, “Microbes in the Tower,” began by describing the structure of his talk: “[I will] hand you sort of a series of jigsaw puzzle pieces, turn the whole thing into a do-it-yourself kit for you, which you can stick together a number of ways, and decide what I talked about.” Papanek consciously chose not to offer a scripted lecture. He wanted the audience to make sense of what he was saying given their own interests, learning needs and context. Papanek stressed the importance of designers taking responsibility to ensure that people and their needs have a voice in the development of technology and the decision-making process. He said, “Design, architecture, and technology must directly relate to people and people’s needs. The biggest challenge for designers, architects, and engineers these days is to develop a language, a method of actually letting people participate in the design and architectural and technological processes. We have failed in that. This is not the fault of the people we are working for or with, but this is our fault and we have to think about that.”

For further information, please visit the Victor Papanek research page on the Human-Centered Action Research project website (<https://sites.google.com/site/humancenteredactionresearch/>).

Subsequent to the VPGF Pilot Study, active dialogue has taken place with two unique high schools regarding design integration curriculum models.

Students enrolled in the Da Vinci Design School are preparing for college and 21st-century careers, such as architecture, digital media, industrial design and user experience design. Da Vinci engages students in a rigorous and relevant college preparatory curriculum that uses hands-on project-based learning to give lessons real-world context and meaning. Student progress is assessed through traditional tests and quizzes, public presentations of learning, exhibitions and digital portfolios. Students learn not only academic content but also vital 21st-century skills—including design thinking, creativity, innovation, collaboration, service and problem-solving. Students work in teams to create a final product that demonstrates mastery of content standards and a demonstration of key skills. The school's community partners play a vital role by helping to align its projects to industry expertise and standards with many local design leaders that offer job shadowing opportunities, internships, mentoring and project support.

The Charter High School for Architecture and Design (CHAD) was launched in 1999 in collaboration with local educators as part of the American Institute of Architects (AIA) Philadelphia's Legacy 2000 Project. The school's mission is to use design instruction to educate the urban poor (half its students are on welfare and 90 percent qualify for free or reduced-price lunches). CHAD introduces students to the design process across the school's curriculum, exposing them to the building industry and urban planning issues and calling attention to a set of professions they might not otherwise consider. The priority may be less on becoming an architect or designer than on graduating from college, a task that can seem daunting when 90 percent of entering ninth graders read, write and quantify at a fifth- or sixth-grade level. The majority of students do attend colleges that focus on architecture, design or the arts, with 60 percent of CHAD graduates over the past five years entering the design field. The ACE (architecture, construction, engineering) mentorship program offers CHAD students the opportunity to become involved with the annual Spooktacular in which young local architects and CHAD students pair up to design environments at the Children's Hospital of Philadelphia for patients who can't leave the hospital on Halloween to trick-or-treat.

### **Student-Directed Learning**

A first-of-its kind Design Learning Challenge was announced on April 1 at the IDSA St. Louis Midwest Conference with final submissions due on Sept. 1, 2011. The purpose of the industry-sponsored Design Learning Challenge is to gain insight into the hearts and minds of college design students today. The overarching study question is, If you could reconstruct your high school learning experiences to be design-centered, what would that look like? The goal is to gather feedback and input on recent learning experiences to serve as fodder for the two design high schools I have been collaborating with as they refine their curriculum models. Approximately 15 current (or recent) college design students will develop and submit a design learning integration plan via an action research process with the continuum of learn, think and do in mind. Each design learning integration plan submitted will be showcased on the initiative's website ([www.designlearning.us](http://www.designlearning.us)) and at IDSA's 2011 International Conference in New Orleans.

The New Orleans Center for Creative Arts (NOCCA) has provided professional arts training to high school students since 1973. Beginning in the fall of 2011, NOCCA will offer a full-day option for students, one that includes not only training in the arts, but also study in academic subjects. The purpose of the Learn, Think and Do event ([www.learn-thinkdo.us](http://www.learn-thinkdo.us)) is to invite IDSA conference participants to assist NOCCA educators in a problem-solving exercise with 60 high school freshman. This experience will kick-off a series of phased projects in which students will take an active role in the design of their teaching and learning spaces over the course of the next few years. Prior to our interactions, students will have been exposed to such concepts as creative thinking, critical thinking and problem-based learning. Over time, learners will build the capacity to provide effective input and real-time feedback throughout the design and planning of NOCCA's new teaching and learning spaces.

### **Exciting and Challenging Times Lie Ahead**

Being so intimately involved in teaching and learning at this time in our history is an amazing opportunity—humbling, as well. I am very much looking forward to the outcomes of the Design Learning Challenge; the NOCCA Learn, Think, Do Experience and the potential next steps with the design integration curriculum models, which are awaiting funding decisions.

Given the state of our educational system, introducing design into grades K-12 must be approached in a scalable manner. Integration can mean something as simple as a one-time 30-minute presentation to a group of interested students, mentoring a student on a design-related service-learning project or independent study, or as a guest lecturer for a unit of study within a consumer education class. Perhaps you are fortunate enough to live near a design high school! ■