Don Norman

State of Design: How Design Education Must Change

Published on March 25, 2014

This post is part of a series in which LinkedIn Influencers analyze the state and future of their industry. Read all the posts here.

By Don Norman and Scott Klemmer

Design is the practice of intentional creation to enhance the world. It is a field of doing and making, creating great products and services that fit human needs, that delight and inform. Design is exciting because it calls upon the arts and humanities, the social, physical, and biological sciences, engineering and business.

Design thinking comprises strategies for finding and solving problems by bringing an understanding of people and society to technology design, focusing upon finding the correct problem before rushing to a solution. We believe that design thinking skills will be a key success factor for a new generation of creative leaders in technology, business, and education.

> If design is to live up to its promise it must create new, enduring curricula for design education that merge science and

But design faces an uncertain future. The traditional design fields create artifacts. But new societal challenges, cultural values, and technological opportunities require new skills. Design today is more human-centered and more social, more rooted in

Don Norman 438 98 15

Although design can sometimes bring creative insight to new problems, this ability is more of an art than a science, limited to a few especially talented individuals and design firms. In order to expand beyond chance successes, design needs better tools and methods, more theory, more analytical techniques, and more understanding of how art and science, technology and people, theory and practice can commingle effectively and productively.

Design has the capability to lead because it cuts across all disciplines. Design is transformative because of four major characteristics:

- Design Thinking: ensuring that the correct problem is being solved.
- Systems Thinking: cutting across and encompassing all disciplines.
- Integrative: blending of practice and theory.
- Human-centered: assuring that people and technology work harmoniously as collaborative players.

The Uncertain Path

Design is still mainly taught as a craft. There are remarkably few fundamental principles, almost no science. If design is to live up to its promise it must create new, enduring curricula for design education that merge science and technology, art and business, and indeed, all the knowledge of the university. Design is an all-encompassing field that integrates together business and engineering, the social sciences and the arts. We see a tremendous opportunity for students that learn design in this integrated way.

A number of schools have developed integrated programs, combining design programs with engineering or business. Many more schools have developed individual courses where students from mixed disciplines do projects. These courses and programs are all wonderfully exciting, often producing useful, practical results (sometimes leading directly to commercialization). At first glance these look excellent: just what we wanted. But these efforts, though commendable, are disconnected, individual courses within a few scattered programs. Most are aimed at the practice, not the theory. Designs are intended to be used by people, yet the social and behavioral sciences play almost no role in design curricula.

Today, the glue connecting disciplines in design courses and programs is almost entirely practitioner wisdom. While many universities are newly keen on design, the opportunity for real and durable innovation is limited unless we can create a practical theory of design. To some reading this, it may seem obvious. We agree. And yet such work remains rare.

How Design Education Must Change

Interestingly enough, most theory in design today comes from other disciplines. Principles of product design come from Mechanical Engineering. The theoretical foundations for what is today called Interaction Design, User Experience, and Human-Computer Interaction come

Don Norman 438 98 15

primary outlet for this work is an annual conference sponsored by the ACM, the society for Computer Science. These fields provide solid, useful theories and principles, but with little understanding of the aesthetics and traditions that characterize great design. They are mostly analytic principles whereas design is a synthetic field, a field of construction of building and doing. We need theories and approaches that combine the analytic with the synthetic, the knowledge of science and engineering with the practice of design. Alas, traditionally trained designers play a surprisingly small role in creating, challenging, and advancing practical theory.

aesthetics. Today, culture and emotion are central, plus knowledge of societal issues, techniques for subtle persuasion, and the intricacies of complex, interdependent systems.

There is now great need to add more emphasis on the findings from the social sciences and engineering into the theory and practice of design. Design's purview has widened from its historical focus on artifacts to its new, expanded role in developing services and experiences, and improving sustainability, health, and education. In earlier years, designers were trained in form, function, materials, and aesthetics. Today, culture and emotion are central, plus knowledge of societal issues, techniques for subtle persuasion, and the intricacies of complex, interdependent systems. Design education must change.

But where will the relevant theory come from? The design profession has relied upon others to provide a scientific backbone to the discipline. Craft skills and carefully honed intuition may have sufficed in the past, when designers primarily contributed form to industrial products, but it no longer suffices with today's complex systems of people, machines, and services. A more systematic approach is required. If designers do not provide the appropriate theory, others will do it for them, and it is not apt to be to their liking.

Design is a field of doers and makers. In the practical world, successful products and services require generalists who can cut horizontally across many of the deep, vertical

specialties. Generalists cannot succeed without close collaboration with specialists, while the knowledge of a specialty is too limited to create an effective service or product for people without the aid of design generalists.

In the university, specialists rule. As a result designers are misfits: generalists in a world of specialists. Many of the best design faculty do not fit comfortably into existing traditional departments. Specialists thrive in universities: generalists wither and die, for the promotion policies rely heavily on reviews from world authorities, which invariably means specialists. But it would not be difficult for universities to change their evaluation process to to encourage both specialists and generalists, in part by valuing broad synthesis, integration, and real-world impact when appropriate. This shift can enable world-class programs that celebrate both craft and theory, and trains students to augment depth with breadth to tackle the multifarious challenges we

beautiful, pleasurable well-crafted design with substantive courses in the social and biological sciences, in technology, mathematics and statistics, and in the understanding of experimental methods and rigorous reasoning. Programming and mechatronics are essential skills in today's product world. Not only will this training make for better practitioners, but it will also equip future generations of designers to be better at developing the hard, rigorous theory design requires.

Design is an exciting powerful field, filled with promise. To meet the challenges of the 21st century, design and design education must change. So too must universities.

==========

Don Norman wears many hats, including cofounder of the Nielsen Norman group , professor (Harvard, UC, San Diego, Northwestern, KAIST, Tongji), business exec (former VP at Apple, executive at HP, and now co-founder of a startup), on company boards and company advisor, and author of best-selling books on design: *Emotional Design, Living with Complexity,* and *Design of Everyday Things.* Learn more at jnd.org.

Scott Klemmer is an Associate Professor of Cognitive Science and Computer Science & Engineering at UC San Diego, and a Visiting Associate Professor of Computer Science at Stanford University. Before joining UCSD, he was an Associate Professor of Computer Science at Stanford University, where he co-directed the Human-Computer Interaction Group and held the Bredt Faculty Scholar development chair. He has a dual BA in Art-Semiotics and Computer Science from Brown University, Graphic Design work at RISD, and an MS and PhD in Computer Science from UC Berkeley. Learn more at d.ucsd.edu/srk/

Photo: Students at work in the Ford Design Center at Northwestern University. Courtesy of Don Norman.

Want more insight about this industry? Follow our Design channel.

Enjoyed this post? Read what other Influencers had to say:

- Ilya Pozin on the State of Web Design: The Agency Model Is Dead
- Scott Belsky on the State Of The Creative Industry: Its Democratization Benefits Us All
- Rachel Zoe on the State of Fashion: The Democratization of Style

Search

Reactivate Premium

Don Norman 438 98 15

Kate Bradley
Headteacher at La Côte International School

JB Savage, what do you think?

Like Reply

Add a comment...

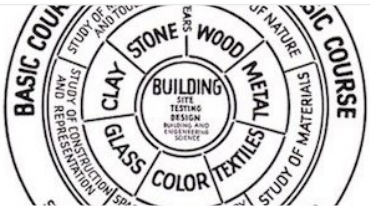
Following

Write an

Don Norman
Director, The University of California, Design Lab

Following

More from Don Norman See all 17 articles



The Hawaii False Alert was due to bad design
Don Norman on LinkedIn

Is Bauhaus Relevant to 21st Century Design?
Don Norman on LinkedIn

You can't predict the future by inventing it
Don Norman on LinkedIn

Predictir autonom
Don Norm

ked in

t
nunity Guidelines
cy & Terms
feedback

dIn Corporation © 2018

Questions?
Visit our Help Center.

Manage your account and privacy.
Go to your Settings.

Select Language
English (English)